

## 1 Purpose

This document provides information on how to reduce noise, nuisance and disturbance to our surrounding communities. Nuisance and disturbance can be displayed in multiple forms such as lighting, air quality or any other activity that has a negative impact on those in close proximity. By taking neighbours into consideration, Network Rail will enhance stakeholder satisfaction, thereby improving public perception and company reputation. This guidance is to support the *Level 2 Contract Requirements Environment standard NR/L2/ENV/015* and focuses on minimising our negative impacts alongside the Social Performance '*Being a caring neighbour*' *Guidance Note NR/GN/ESD13*.

If you are new to this topic, please read the through { HYPERLINK "<https://safety.networkrail.co.uk/home-2/environment-and-sustainable-development/environment/nuisance-disturbance/>" } on Safety Central to

### 1.1 Supporting documents

For further guidance on respecting local communities and lineside neighbours, please refer to the Social Performance *Being a caring neighbour Guidance Note NR/GN/ESD12*.

### 1.2 Best Practicable Means (BPM)

When considering noise abatement, Best Practicable Means should be applied. Best Practicable Means (BPM) is defined in Section 72 of the Control of Pollution Act as: "Practicable" i.e. reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications. The "means" to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and acoustic structures.

BPM involves making a cost-benefit assessment that compares the cost of any steps taken to minimise noise or other forms of nuisance and disturbance with the benefits. For example, the costs of mitigation and reduction measures in balance with the needs of the project and the needs of the occupants of any nearby sensitive premises/ receptors.

An example of the application of BPM is the use of white noise reversing alarms, in which it is best practice to have all moving plant equipped with this technology. White noise reversing alarms help to reduce noise, nuisance and disturbance to our local communities in close proximity to project works. White noise reversing alarms are easy to implement with immediate effect on noise levels.

## 2 Noise and vibration

Proximity of works to local residents	<ul style="list-style-type: none"> <li>• The closer works occur to residents, the more mitigation is required (eg 50m as opposed to 500m away).</li> </ul>
Activity	<ul style="list-style-type: none"> <li>• For noisier or more vibration intensive works, considering extending the notification zone.</li> </ul>
Duration	<ul style="list-style-type: none"> <li>• If an activity is required to be undertaken for several weeks or more, it may require significantly more mitigation than if it was to be undertaken for a few days.</li> </ul>
Time of day	<ul style="list-style-type: none"> <li>• Works undertaken at night require more mitigation and justification than works during the day (8am to 6pm).</li> </ul>
Engineering practicability and safety	<ul style="list-style-type: none"> <li>• If there is no alternative but to undertake night time works, then this would constitute BPM, as long as justification was given and local residents were informed prior to works.</li> </ul>
Community norms	<ul style="list-style-type: none"> <li>• Tolerance levels will vary depending on what is 'normal' for a particular community. Neighbours may be more tolerant of noise in London than in a rural hamlet because they often have more exposure to noise pollution.</li> </ul>

Figure { SEQ Figure \\* ARABIC }. Considerations prior to and during works

Figure 1 shows aspects that should be taken into consideration prior to, and during lineside construction.

### 2.1 Noise Impact Assessment & Section 61 Consents

A noise and vibration impact assessment should be carried out to assess the level of noise and vibration generated and facilitate the identification of appropriate control measure. It will also be used to determine if a Section 61 Consent is required. Use Appendix A to inform this decision making process.

After review of the noise & vibration assessment by Network Rail, three possible scenarios will emerge:

- *Low likelihood of impact* – No further action required
- *Medium likelihood of impact* – Local Authority to be provided with details of the works including control measures
- *High likelihood of impact* – Section 61 Consent to be formally sought from the Local Authority

Section 61 Consents:

*The Contractor shall seek Local Authority consent under Section 61 of the Control of Pollution Act for work unless the Contractor can demonstrate, with agreement from the Employer's Representative, that construction noise risk can be managed otherwise. This decision shall be recorded. That Contractor shall provide copies of Section 61 consents to the Employer's Representative and local Community Representative within 7 days of receipt."*

If required, the contractor should apply for a Section 61 Consent after consultation with Network Rail and the Local Authority. It is not the Local Authority's role to instruct Network Rail Contractors to apply (or not apply) for Section 61 Consent.

A noise and vibration monitoring plan should be put in place by the Contractor in order to comply with Section 61 conditions and respond to complaints.

## Please note:

Previous consultation with Local Authorities along Routes and with Contractors has resulted in a suite of templates available on Safety Central:

- Noise Impact Assessment Form – to be completed when the details of the project are known and at least **3 months** in advance of the works;
- Local Authority Notification Form – to be completed at least **1 months** in advance of the works if required;
- Section 61 Consent Application Form – to be completed at least **2 months** in advance of the works if required;
- Noise Calculator - Planned projects have the ability to estimate the level of noise that will be produced using the Noise Calculator which is available on Safety Central.

*This section's content was provided by The Greater West Programme.*

## 2.2 Noise and vibration mitigation

Project Managers are responsible for identifying projects or sites where the work activities may give rise to noise or vibration impacts and complaints from lineside neighbours and communities.

Where such projects or sites are identified, Project Managers should ensure that the Contractor is complying with *NR/L2/ENV/015*. Here are some examples on how BPM can be achieved through construction activities:

- Avoid carrying out overnight construction works where possible. Where this is not feasible, notify neighbours living within 500m of the work using the notification leaflets. Please refer to Appendix B for the recommended letter notification process;

- Host public information events to inform residents in close proximity to works about developments in their local area. Please refer to Appendix B for the recommended community engagement process;
- Working hours are to be agreed on a site by site basis and included in the work package plans process/methods statements. Working hours should be discussed with the relevant local authority;
- Consider the topography (shape of the landscape), location, and surrounding vegetation of the site before undergoing construction works to make a judgement on what measures should be taken to reduce noise and vibration. This is because vegetation and hills between a project site and a residential area act as a sound/vibration buffer. For example, a residential area cut off by hills and forests will experience less disturbance from construction works than a flat landscape with no vegetation between a project site and residents even if both cases are each 200m apart;
- Take into consideration noise sensitive periods, such as school exams or church services;
- Wherever possible, opt for lower-noise equipment, for example, use a hydraulic block splitter rather than a cut-off saw to cut blocks;
- Use screens as a low cost and effective way to reduce noise levels. Possible options include using an oriented strand board (OSB) or plywood (12mm) and/or Plexiglas (7mm) hoardings. However, Network Rail favours repositionable systems as a way of reducing waste at the end of the project (such as straw bales);
- Turn off equipment and vehicles when not in use to reduce unnecessary noise to our local communities;
- If neighbours express concern over possible damage caused by vibration, keep them informed and consulted at all times. Alternatively, please refer to Appendix B for the recommended complaints notification and response process;
- Implement the use of hybrid generators while running on battery at night. Not only do these reduce noise and disturbance to residents, but also help to minimise energy consumption and cost savings;
- Installing a 200mx2m temporary noise barrier along a worksite for a single night shift is possible but not reasonable i.e. not BPM. However it becomes reasonable and BPM as the works duration and the impact increases (e.g. over a 6 weeks period);
- As stated in *BS 5228*, in the event of emergency or unforeseen circumstances that may cause a risk to safety, every effort should be made to ensure that the work is completed as quickly and quietly as possible and with the minimum disturbance to nearby residents. The local authority should be informed as soon as possible if it is found necessary to exceed permitted noise limit in this event. { HYPERLINK "<http://www.barbicanliving.co.uk/noise/bs-5228-the-british-standard-on-noise/>" } should be referred to for mandatory guidance on minimising noise and vibration from construction works.

## 2.3 Noise monitoring

Monitoring ambient noise levels prior to works can not only help achieve BPM, but results can also provide a baseline in case of noise complaints. It would be best practice to continue monitoring noise levels throughout the duration of the works; however this is a specialised technical discipline and should be carried out by trained staff or a specialist consultant.

### **Please note:**

Failure to understand noise monitoring conditions attached to a Section 61 consent can result in a breach of consent and action by the local authority.

If there is any doubt about the interpretation of a Section 61, the Network Rail Environment team, or the Local Authority Environmental Health Officer can provide support and guidance.

## 3 Air quality

### 3.1 Combustion emissions

Network Rail Construction, Maintenance and Delivery vehicles are currently powered by red diesel, a fuel containing both NO<sub>x</sub> and SO<sub>x</sub>, which are high in particulate matter (PM). In order to reduce negative health impacts to nearby site residents:

- Never leave engines or equipment running unnecessarily – avoid idling;
- Consider fitting exhaust filtration systems to vehicles;
- Where possible, switch to near-zero sulphur fuels:
  - These allow for the use of NO<sub>x</sub> absorbers, increasing NO<sub>x</sub> control to over 90% in diesel vehicles;
  - Particulate filters achieve the maximum efficiency with near-zero sulphur fuels, achieving 100% control of PM.
- Where possible, use mains or battery powered equipment over diesel powered;
- Use modern plant generators, and service them regularly.

### 3.2 Dust

Dust is commonly responsible for causing eye-irritation in addition to exacerbating pre-existing respiratory diseases such as Chronic Obstructive Pulmonary Disease (COPD) and asthma. To prevent & mitigate dust emissions to air, refer to the Institute of Air Quality Management 'Guidance on the assessment of dust from demolition and construction' guide. Other mitigation measures include:

- Comply with site speed restrictions to reduce the risk of dust clouds;

- Wash or clean vehicles used on site effectively before leaving to reduce dust exposure to our local communities;
- Spray water during cutting of paving slabs or other similar materials to minimise dust;
- When using cutters and saws, use equipment and techniques such as dust extractors to minimise dust. Possible options could be to use a wet cutting saw, vacuum extraction or block splitters;
- Use water atomisers to reduce dust emissions;
- Use debris netting during demolition;
- Use a bowser to suppress dust with a fine spraying of water. However, ensure that the application does not create excessive mud or flow of dirty water that may run off and contaminate watercourses;
- Ensure dry materials are stored appropriately on site, in bays where possible, and managed to ensure stock levels are not excessive. Where materials are stored close to neighbours, ensure mechanisms are in place to prevent the escape of materials;
- Waste dusty materials are to be removed from site and disposed of as soon as possible;
- Review sources of dust regularly and adjust control measures;
- Where dust-generating activities cannot be avoided, use screens to act as windbreakers or dust screens. Planting new trees or shrubs can provide some screening as can the retention of existing vegetation.

### 3.2.1 Ballast Dust

The movement of ballast on and off site has the potential to cause a significant amount of dust that can have both an environmental and health impact. Therefore, adequate measures must be put in place to mitigate the dust emissions from ballast operations.

Prior to delivering ballast to site the following should be reviewed:

- Volume of ballast required and storage;
- Method of delivery and unloading (can the ballast be unloaded rather than dropped from height?);
- Time of year (during the summer ballast is likely to be dry creating an increased risk of dust) and weather conditions (e.g wind);
- Location of environmentally sensitive areas;
- Feasibility of using dust suppression systems (for example water bowsers and damping down whilst unloading the ballast);
- Potentials for dust screens to be used if practicable.

The processes to be used to minimise ballast dust should be briefed to all those involved in the works.

## 3.3 Odours

Unpleasant or distinctive odours can increase the risk of complaints from surrounding communities. To prevent these incidences from occurring:

- Position site toilets away from residential areas;
- Empty septic tanks regularly;
- Use covered containers for organic waste (e.g. food, weeds and other vegetation) and dispose of waste frequently;
- Use water-based or low volatile organic compound (VOC) paints;
- Take into account prevailing wind conditions during the arrangement of activities that are likely to emit aerosols, fumes, odours and smoke.

## 4 Lighting

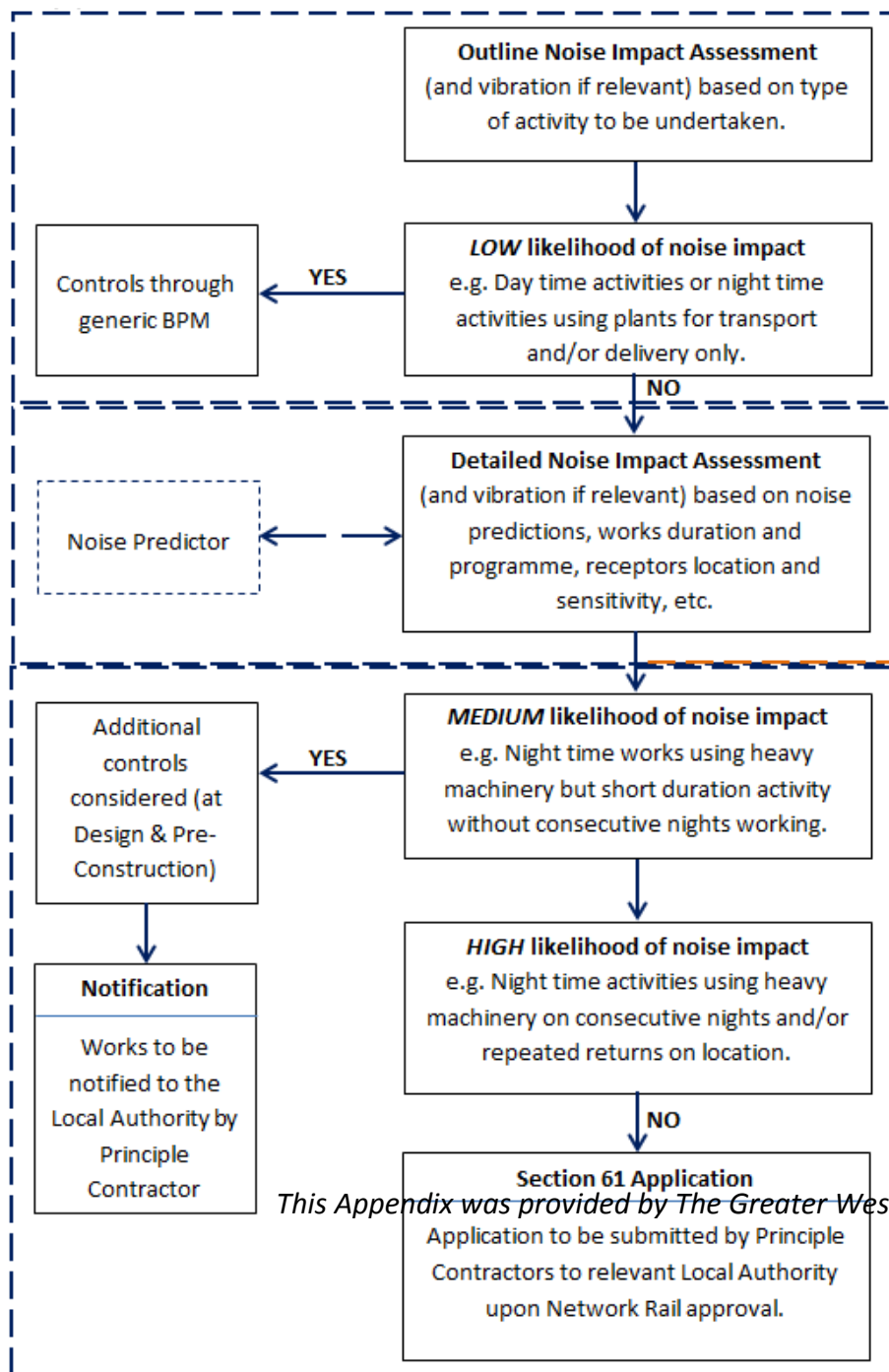
Bright outdoor lights can cause glare to nearby housing areas, disturbing those inside. During night works this can prevent lineside neighbours from sleeping, impacting their health and well-being.

- Ensure site staff are aware of sensitive receptors surrounding the site (such as hospitals);
- Consider the use of timers and/or passive infrared (PIR) sensors to manage lighting;
- Ensure lights face away from lineside neighbour's windows, particularly during night works;
- Use directional lighting;
- Only use the appropriate levels of illumination, without compromising health and safety (maximum for exterior lighting is 150w);
- Light areas only when and where required;
- Install shields, reflectors and baffles to mitigate or reduce light spillage;
- Implement a 'switch off' scheme for project workers to turn off lighting when a room or area is not in use to avoid unnecessary light pollution;
- Site lighting should avoid linear habitats such as hedgerows, tree lines and water courses;
- Tower lights to be checked by supervisor each night to ensure minimal light overspill.

To view all environment and social KPIs, please refer to the *KPI Guidance Note NR/GN/ESD23*.

## Noise assessment and decision-making process





*To be developed by Principal Contractors as part of the Environment and Social Management Plan (ESMP) (Design and Physical Works)*

*To be developed by Principal Contractors*

**Principle Contractor & Network Rail to agree whether Section 61 would be required\***

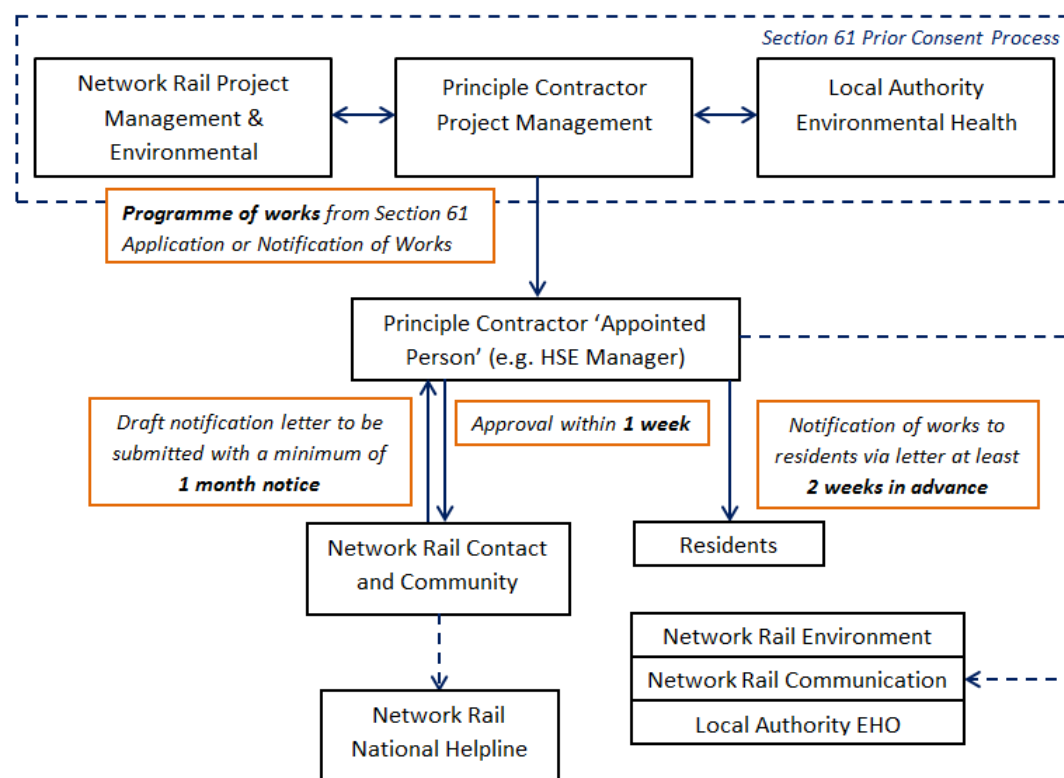
**Please note:** Local Authorities will be consulted as part of the process. However the final decision will be made by Network Rail (unless the Local Authority requests for a Section 61 Consent to be obtained).

*This Appendix was provided by The Greater West Programme*

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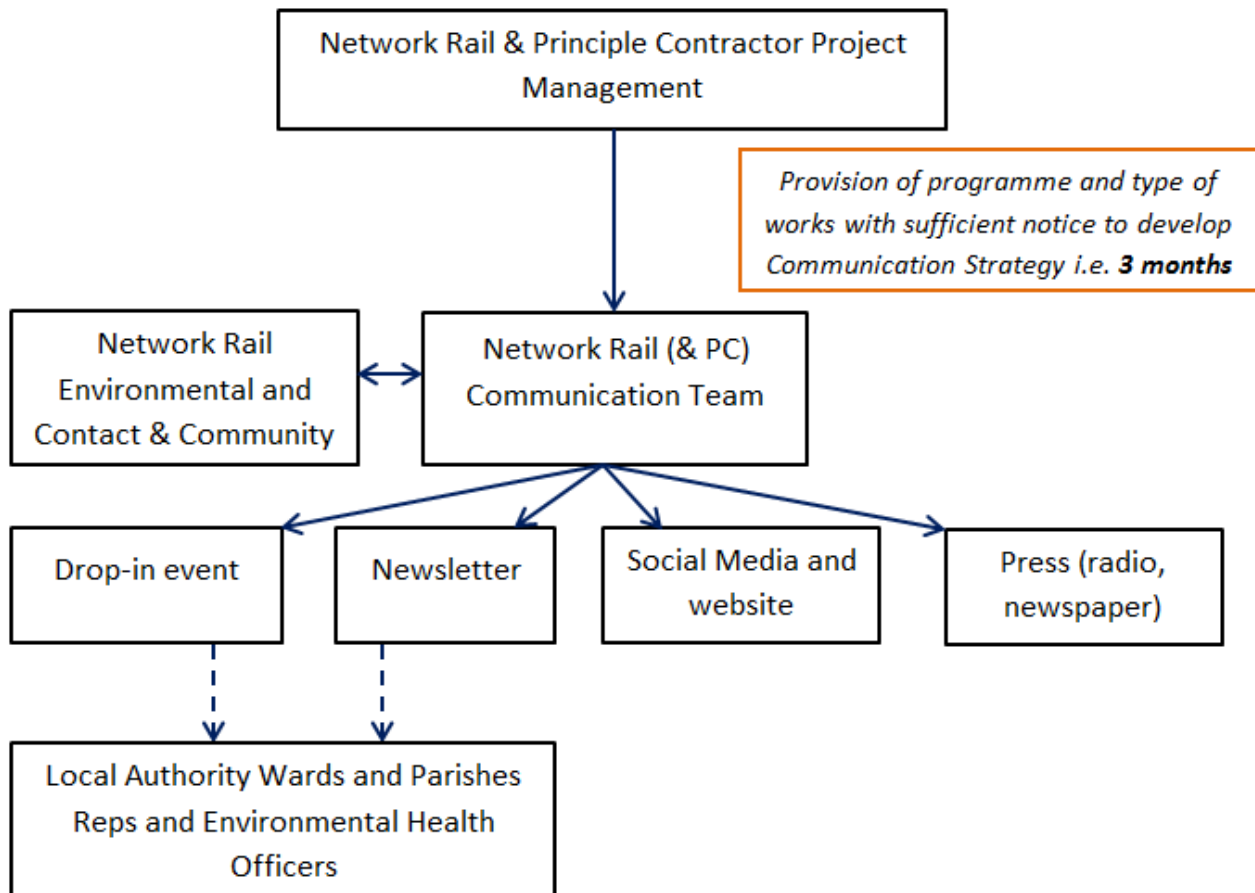
## ident notification and complaints management

## Letter notification process:



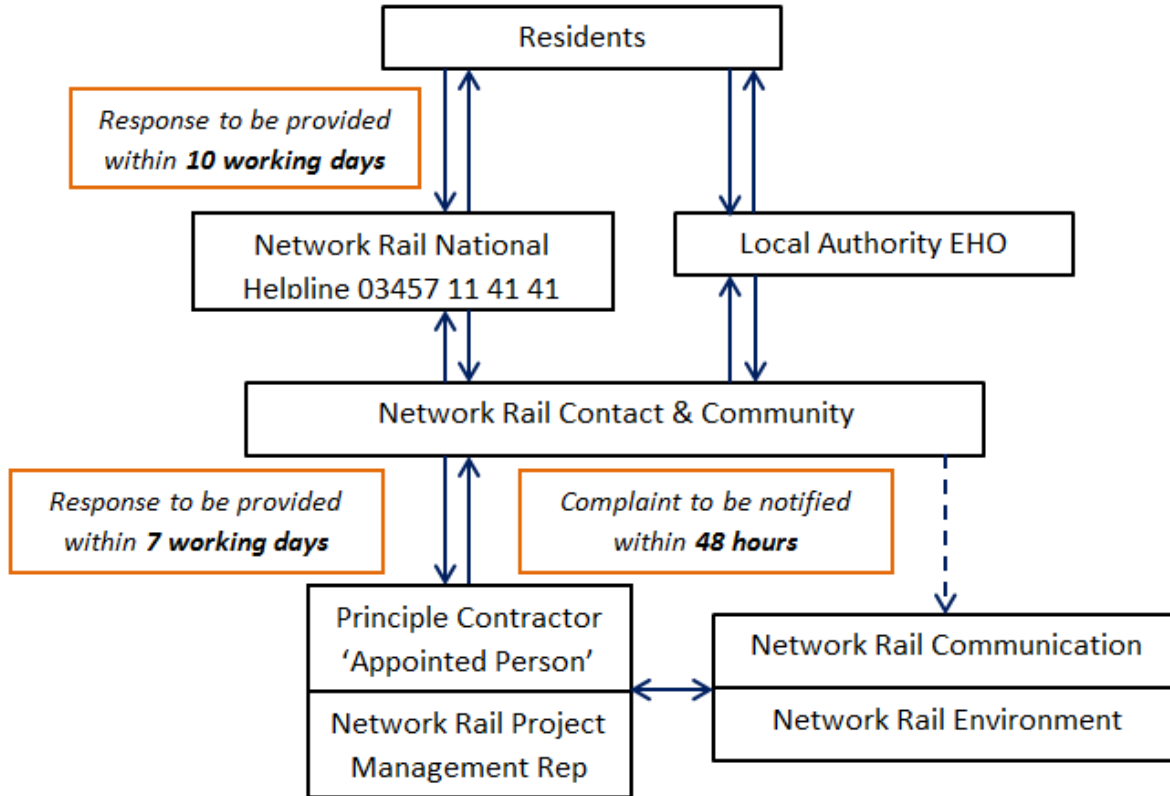
- Draft letters to be generated by the Contractor or Communications team (based on template provided by Network Rail), stating time and nature of works.
- Letters to be approved by Network Rail Contact & Community;
- Network Rail Contact & Community to forward a copy of the letter to the National Helpline;
- Address list (including any sensitive receptors identified by the Contractor) and delivery to be managed by the Contractor (using a standard 200m notification radius to be adapted based on a noise assessment) unless a dedicated resource is provided by Network Rail (by Contract);
- Delivery must be completed a minimum of two weeks before the works are due to take place;
- For works with potential to have an impact on large areas (i.e. OLE foundations) the letter will include a link to the Network Rail website where weekly updates will be published;
- Contractor to review notification/communication requirements if complaints are received from 'unchartered' addresses (i.e. new housings development) and/or from residents outside the initial notification area;
- Contractor to provide copy of the letter to Network Rail Contact & Community;
- Communication and Environmental confirming it has been sent to residents at least 2 weeks in advance of the works;
- Contractor to forward a copy of the letter to the relevant Local Authority Environmental Health Officer.

## Community engagement process:



- Communication Strategy developed on a case by case basis depending on nature of activity and sensitivity of local receptors i.e. impact-based approach;
- Nature of communication (e.g. drop in event, publication in local newspaper, etc.) depending on potential likely impact based on population density/sensitivity and period of working (e.g. Christmas);
- Extending the letter notification radius (as requested by the Local Authority in some cases) has a high impact on cost and alternative communication methods should be considered as an alternative e.g. radio, newspaper, website, twitter, newsletter;
- Social media and website should be regularly updated to provide updates of the works;
- Alternative accommodation or other compensation cannot be offered.

## Complaints notification and response process:



- Network Rail Contact & Community to notify Principal Contractor Appointed Person & Network Rail Project Management Representative of complaints related to their activities (copying Network Rail Communication & Network Rail Environment);
- If the source of complaint is unclear, Network Rail Contact & Community to request support from Network Rail Environment to identify source activity and contact details;
- Principal Contractor Appointed Person to provide timely response to Network Rail Contact & Community;
- Principal Contractor to notify Local Authority of complaints received (if required as a Section 61 Condition) ensuring no personal data is provided (i.e. names and full addresses).