


A photograph of a woman and a young child sitting on a wooden dock by a pond. The woman is wearing a light-colored hoodie and is looking towards a duck standing on the dock. The child is wearing a hat and is also looking at the duck. In the background, there is a large brick building with many windows and some trees. The text "creating a sense of place: design guidelines" is overlaid on the image in a white, sans-serif font.

creating
a sense of place:
design guidelines



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Approaches to site layout and design

Taking account of the different characteristics of the essential elements of overhead lines, an approach to site layout and design has been developed based on two primary aims:

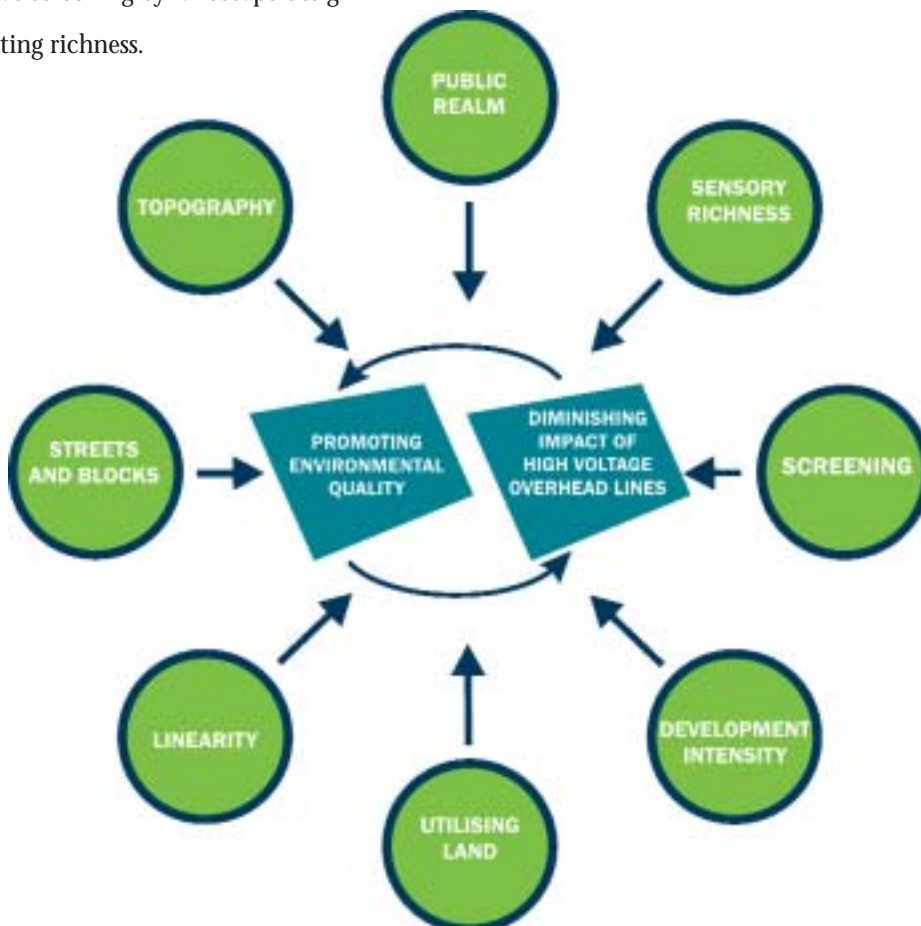
- Diminishing the impacts associated with high voltage overhead lines
- Promoting the environmental quality of an area.

Clearly, high voltage overhead lines are major pieces of infrastructure that have a visual impact upon their surroundings. Such equipment cannot be screened from all parts of a site; it is therefore necessary to establish where efforts to diminish impacts will be most effective.

While the need to promote environmental quality is a fundamental aim of all good design, it is of particular importance in areas close to high voltage overhead lines. Only by pursuing both of these aims can the full design potential of areas close to high voltage overhead lines be realised.

Eight generic design principles have been developed to create an understanding of how these primary aims can be addressed as part of the master planning process:

- Prioritising the public realm
- Encouraging development intensity and enclosure
- Orientation of streets and blocks
- Understanding the effects of topography
- Breaking down linearity
- Utilising land close to overhead power lines
- Effective screening by landscape design
- Promoting richness.



Prioritising the public realm

The first priority should be on promoting the environmental quality and diminishing the impact of pylons on the public realm.

Most people will experience a place from the public realm: that is streets, squares and parks. Local residents, workers and visitors all use the public realm in one way or another, and will all base their perceptions of the environmental quality of a place and notions of civic pride on its environmental qualities.

It therefore follows that where the overhead line impacts upon the public realm, the potential visual impact of that overhead line would be experienced by more people and would impact more severely on the perception of environmental quality than, for example, if the impact was solely on private areas.

Therefore, in promoting a sense of place, the first priority should be on promoting the environmental quality and diminishing the impact of pylons on the public realm.



Our perception of environmental quality is greatly influenced by our experience of public places.

Development density

By giving careful consideration to the width of streets and the height of buildings, the visual impact of pylons on the public realm can be greatly diminished.

The current urban renaissance planning and design agenda promotes a compact urban form featuring a mix of uses and the efficient use of land through the use of higher density development.

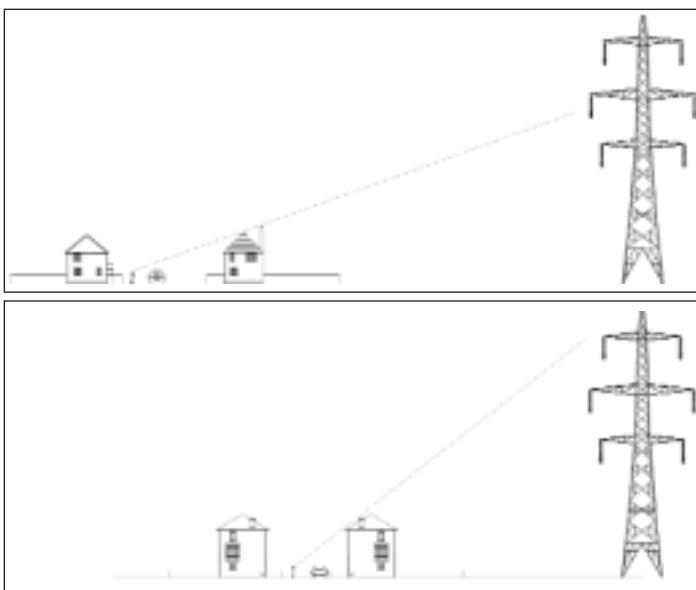
This leads to an intense built form with taller buildings, smaller gardens (front and back), and narrower streets employing more interlinked building forms than might have been considered in the recent past. This dense urban form provides good opportunities to screen views of pylons and diminish their visual impact.

By comparison much of Britain's twentieth century suburban development is characterised by relatively wide streets, and two storey detached and semi-detached development set in large plots. This form of development offers less opportunity to obscure views of pylons and to diminish their visual impact.



Then and now, the difference in development density.

A more enclosed and compact form may enable development to be sited closer to high voltage overhead lines without increasing the visual impact upon the public realm. By giving careful consideration to the width of streets and the height of buildings, the visual impact of pylons on the public realm can be greatly diminished.



Narrower streets with taller buildings enables development to be sited closer to pylons without increasing visual impact.

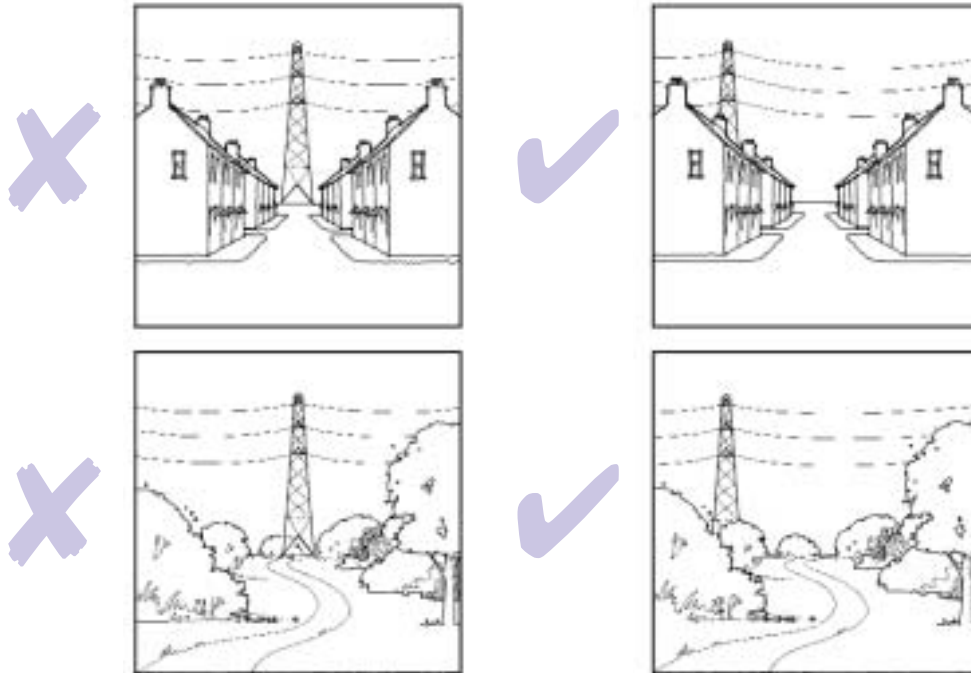
The large scale built form and infrastructure associated with industrial estates and business parks tends to diminish the visual impact of pylons. Nevertheless, even on these sorts of developments, careful attention must still be paid to promoting the environmental quality of the area and considering the wider visual impacts of transmission routes in order to achieve the desired design outcome.



Orientation of streets and blocks

Cranking the alignments of streets and paths or curving them even by relatively small degrees can help offset views of pylons and do much to reduce the perception of their visual impact.

The visibility of pylons and power lines from within a development is affected by the orientation of streets, and similarly by the orientation of public footpaths through public open space. Street scenes can be dominated by pylons where streets are aligned in such a way that they frame a view towards a pylon.



Offsetting the views of pylons will help to make them less prominent.

Careful consideration should therefore be given to the orientation of streets and the disposition of public open spaces so that they do not frame views towards pylons. Cranking the alignments of streets and paths or curving them even by relatively small degrees can help offset views of pylons and do much to reduce the perception of their visual impact.

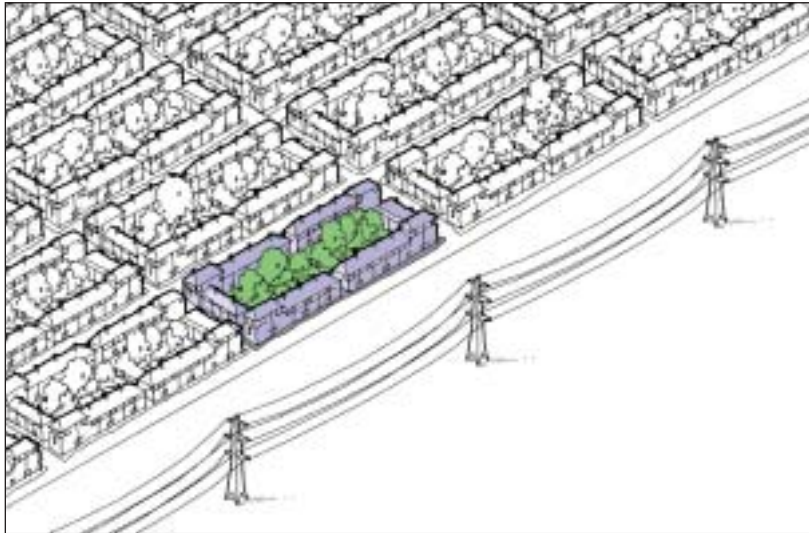
Views towards pylons may occur at some distance from the pylon, and can also be framed by new street scenes and public open spaces at some distance from the pylons, particularly where there may be changes in level across a site. It is therefore important to also consider the orientation of streets and paths further away from the transmission route. This would particularly apply to sites that are not crossed by an overhead line, but where an overhead line runs nearby or on the edge of the site.

The plan form and orientation of development blocks is fundamental to the number of properties that have direct views of pylons and overhead power lines.

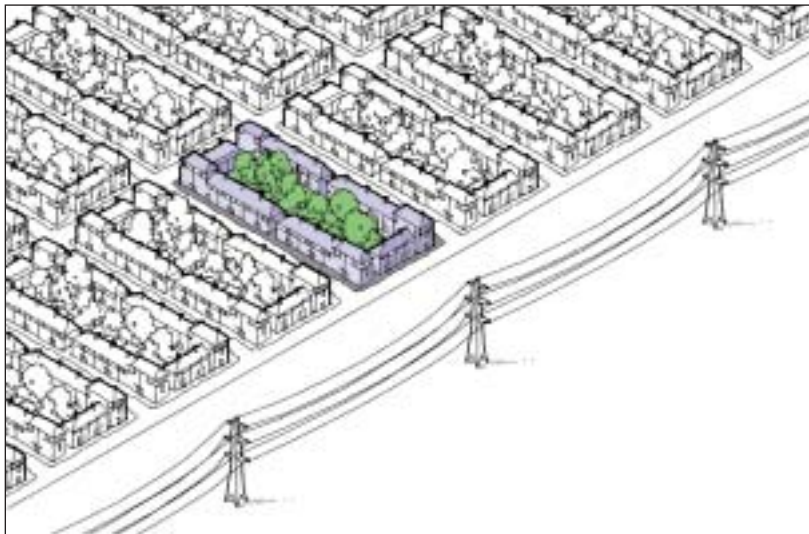
The use of a 'square' development block form will offer little flexibility in responding to pylons and overhead power lines and will necessitate development being placed parallel with the transmission route, regardless of the orientation of the block. This will tend to result in direct views towards the transmission route and increase the visual impact of pylons and overhead power lines from streets, buildings and gardens.



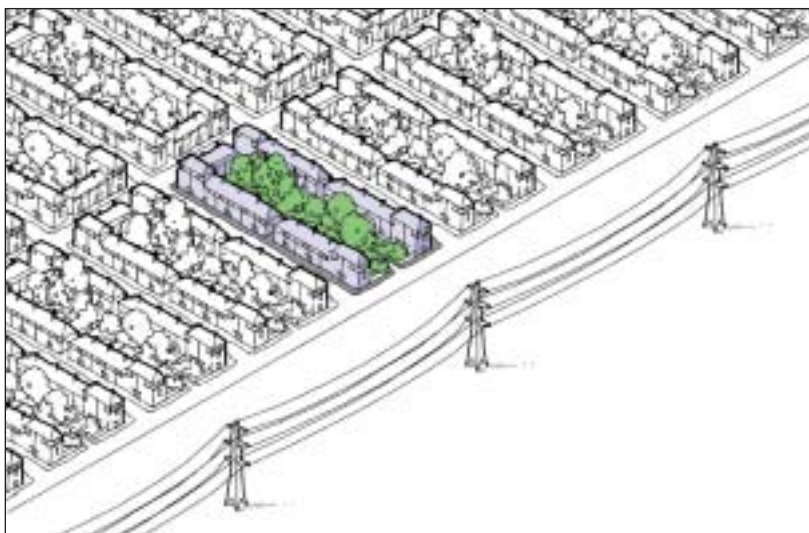
The use of a more 'rectangular' development block form offers the opportunity to orientate the development block such that the majority of development does not front the transmission route. This form of orientation minimises direct views towards the route and can significantly reduce the visual impact from streets, buildings and gardens.



Orientating development blocks parallel to the transmission route could increase the numbers of homes with views of the line.



Whereas orientating development blocks perpendicular to the route can reduce this problem - but might increase the potential impact on the public realm.

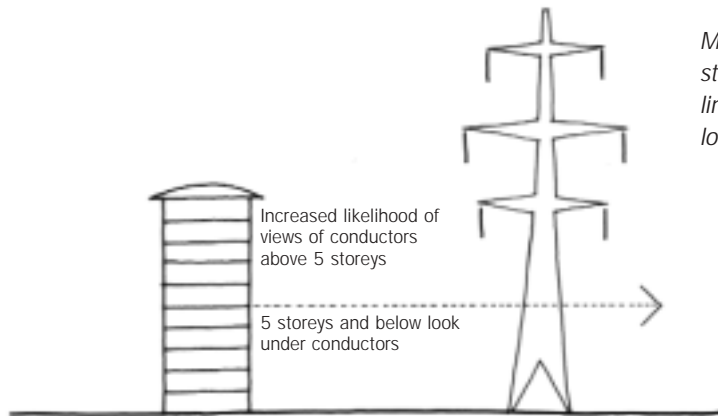


Removing homes from the ends of development blocks takes away almost all private views onto the route - and creates opportunities for structural screening and ancillary uses.



While direct views of transmission routes should be minimised, emphasis should be placed on orientating development blocks to reduce direct views of pylons as these are the most obtrusive element. Development can often successfully be orientated to front onto the overhead power lines between pylons without significant visual impact as part of a varied design response to the transmission route. This point is discussed further under 'Linearity'.

In terms of scale, most conventional development forms of up to four/five storeys will look out beneath the lowest conductors of a high voltage overhead line.



Most buildings of up to four/five storeys have views beneath the lines, whereas higher buildings will look out onto the lines.



Topography

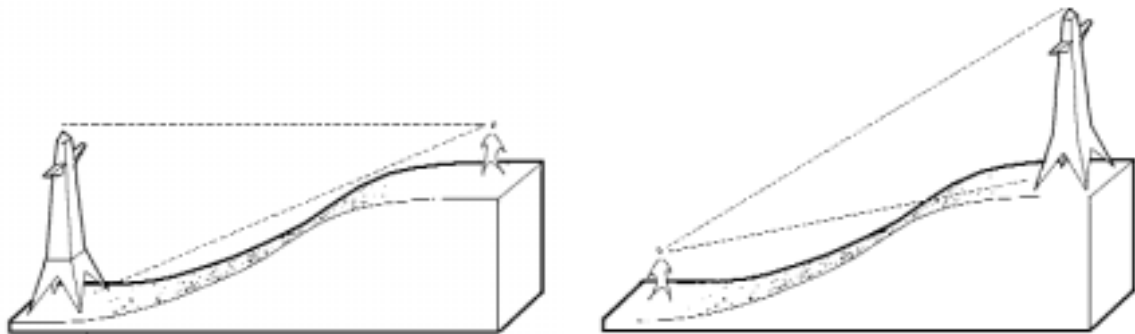
An understanding of the effect of topography will help to establish which pylons may be more prominent, and will help to inform site layout and design decisions to reduce visual impacts.

The topography of a development site can affect the perception of pylons and high voltage overhead lines and is an important design consideration.

Where pylons are set in an elevated position and are viewed from lower ground, the scale and visual impact of the pylons is emphasised. Conversely, where pylons are viewed from an elevated position the visual impact is much reduced. This effect was recognised in the original planning of the National Grid system and a set of design parameters (the Holford Rules) were used to minimise the visual impact of new equipment within the landscape. These same Rules form the basis of the appraisal of options for the siting of new National Grid equipment.

As well as the position of the viewer, the perception of the visual impact of the pylons is also affected by their relationship relative to the viewer's horizon. Pylons set across the brow of a hill will be silhouetted against the sky and will appear more prominent than pylons set in a similarly elevated position but with rising land or built development behind them.

An understanding of the effect of topography will help to establish which pylons may be more prominent when viewed from a development site. Even subtle changes in level across a development site can be of great importance in this respect. While the visual impact of a prominent pylon is difficult to overcome, an understanding of its impact will allow design priorities within a scheme to be



Pylons are more prominent against the skyline.



Even subtle changes in topography can affect our perceptions of pylons.

Wherever it is proposed to alter the ground level in the vicinity of high voltage overhead lines, National Grid must be consulted to ensure that appropriate safety clearances are maintained at all times. Further information can be found on this at appendix 9.

Breaking down linearity

The design objective should be to break down the linearity of the transmission route into inter-related cells or places rather than treating the route as one continuous strip. This will enable a variety of design responses that will allow the transmission route to be experienced differently from various locations within the development, helping to diminish the prominence of the transmission route.

Transmission routes run in straight lines with cranks in direction at deviation pylons. The linear character of the transmission route can be either reinforced or counteracted by the character of development below and around the overhead power lines.

The arrangement of buildings, boundaries, fences, paths and planting in parallel with the transmission route over long distances will tend to highlight the presence of overhead power lines and the linear nature of the route and will make them more obtrusive. However, where one or more of these elements is varied and is not parallel, the linearity of the transmission route and its overall prominence can be diminished.

The design objective should therefore be to break down the linearity of the transmission route into inter-related cells or places rather than treating it as one continuous strip. This will enable a variety of design responses that will allow the transmission route to be experienced differently from various locations within the development and will help diminish the prominence of the transmission route.



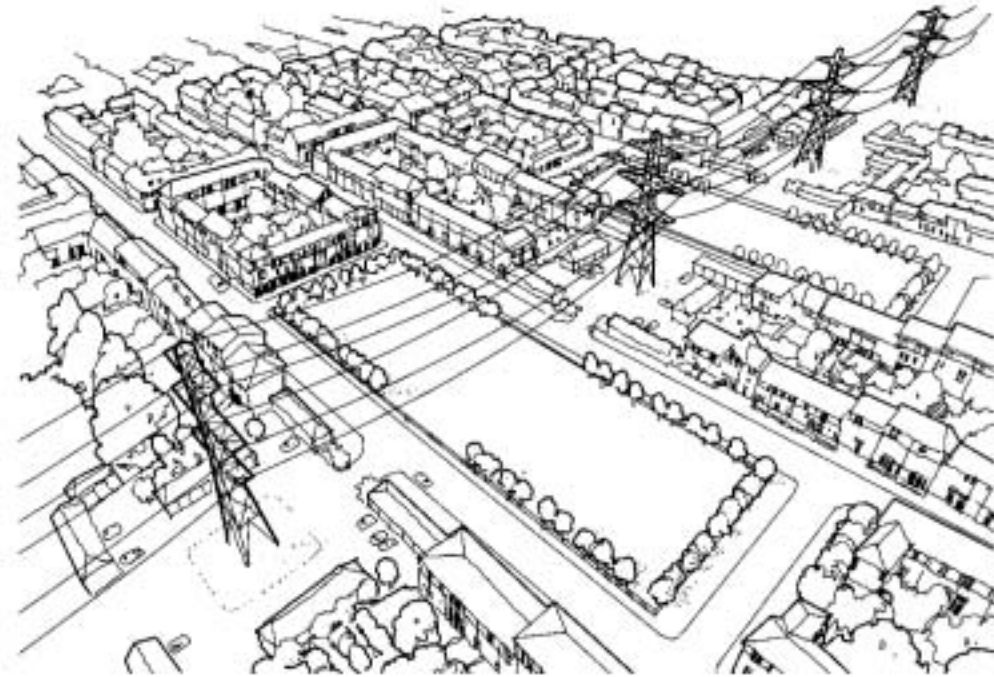
Warning - The arrangement of buildings boundaries, fences, paths and planting can reinforce the linear nature of a transmission route.

This may be achieved through a number of measures including:

- Varying the distance of development from the overhead power lines
- Varying the orientation of development towards the overhead power lines
- Breaking the transmission route into cells using roads, bridges or other features
- Creating deliberate places within these cells with a variety of uses such as garden squares and parking courts
- Creating meandering paths and varied planting in open spaces beneath the overhead power lines
- Providing a mix of activities beneath and adjacent to overhead power lines as discussed further under 'Utilising land close to overhead power lines'.



The perception of the linearity of a transmission route also depends on whether the viewer is static or moving. A person travelling in a car will experience the transmission route very differently to a person standing or walking and the design response should aim to reflect this. For example, where a main road runs close to an overhead power line, the design objective should still be to break the transmission route into cells or places. However, the scale of these cells would be larger given the nature of movement. Similarly, varying the alignment of the road may alter the perception of linearity.



A mix of land uses and design responses helps to break down linearity.



Utilising land close to overhead power lines

Land beneath and adjacent to overhead power lines can be efficiently used in many practical and profitable ways that benefits development and helps break down linearity.

Land not given over to a useful purpose represents an unsustainable under-utilisation of a scant and valuable resource. It is therefore vital to consider ways of putting the land beneath and around overhead power lines to good use in ways which benefit a development. A variety of land uses, as well as promoting diversity and activity, can also contribute towards breaking down linearity.

To minimise disturbance and to facilitate easy maintenance, National Grid prefers that built development does not take place beneath lines. However, land beneath and adjacent to overhead power lines can be efficiently used in many other practical and profitable ways.

The table below gives examples of land use activities which may be appropriate beneath and adjacent to overhead power lines. Some of these land uses are complementary and can be accommodated as secondary uses, for example a sustainable urban drainage system might also form part of a public open space. It should be noted that these are general guidelines only and are subject to the safety clearances and maintenance access requirements set out in appendix 9.

As a matter of course it is recommended that National Grid is consulted on any site-specific proposal.

Potential land uses beneath power lines	
Land use	Comment
Public Open Space - passive	The quality of the public open space is key to ensuring its success as part of a design solution. Particular attention should be paid to creating visual interest on the ground, strategic planting and the orientation of paths in order to diminish the visual impact of the pylons. See appendix 3 for further details on planting near high voltage overhead lines. Wherever it is proposed to alter the ground level in the vicinity of high voltage overhead lines, National Grid must be consulted to ensure that appropriate safety clearances are maintained at all times (see appendix 9). Where the land may be used for recreational activities reference should be made to appendix 4.





Public Open Space
- active

Active recreational uses may take place close to overhead lines subject to the nature of the activity, the layout of pitches and the level of supervision. Where active recreational spaces are being considered, early liaison with National Grid is advised. National Grid will consider the issues raised by each individual case on its merits and where appropriate with the advice of the National Playing Fields Association.



Two particular activities that raise serious safety issues and that need to be strictly controlled are fishing and kite flying. The floodlighting of recreational pitches also raises safety problems where high voltage overhead lines are present, and needs to be borne in mind when considering the design of sports pitches and their maintenance. Where the land may be used for recreational activities reference should be made to appendix 4.

Allotments and
Community
Orchards

The use of land for allotments and community orchards is appropriate subject to maintaining safety clearances (see appendix 9). See appendix 3 for further details on planting near high voltage overhead lines.



Nature and
Conservation

The retention or creation of nature conservation areas may be particularly suitable where public access to the area is restricted or prevented. See appendix 3 for further details on planting near high voltage overhead lines.



Structural
Landscape

Structural landscaping can provide an impressive and valuable component of any master-planned scheme and diminish the visual impact of transmission routes. See appendix 3 for further details on planting near high voltage overhead lines. Wherever it is proposed to alter the ground level in the vicinity of high voltage overhead lines, National Grid must be consulted to ensure that appropriate safety clearances are maintained at all times (see appendix 9).



Parking

Parking ancillary to all types of land uses can be successfully accommodated beneath high voltage overhead lines. In residential developments garaging can also be accommodated close to the lines.



Non-Residential Storage Uses

Ancillary external storage uses such as a builders merchant, service yard or distribution centre can be successfully accommodated beneath high voltage overhead lines, subject to careful observance of safe working procedures and statutory safety clearances (see appendix 9).



Water Bodies, Drainage and Flood Attenuation

Often required as part of a master-planned development to ensure sustainable drainage patterns, water bodies can provide high levels of visual amenity and sensory richness. Wherever it is proposed to alter the ground level in the vicinity of high voltage overhead lines, National Grid must be consulted to ensure that appropriate safety clearances are maintained at all times (see appendix 9).



Movement - roads, cycleways, paths etc.

For recreation or function, roads, cycleways and paths can be successfully accommodated beneath high voltage overhead lines. Design efforts should seek to orientate alignments away from pylons, and to provide natural surveillance where possible from surrounding development. Wherever it is proposed to alter the ground level in the vicinity of high voltage overhead lines, National Grid must be consulted to ensure that appropriate safety clearances are maintained at all times (see appendix 9).

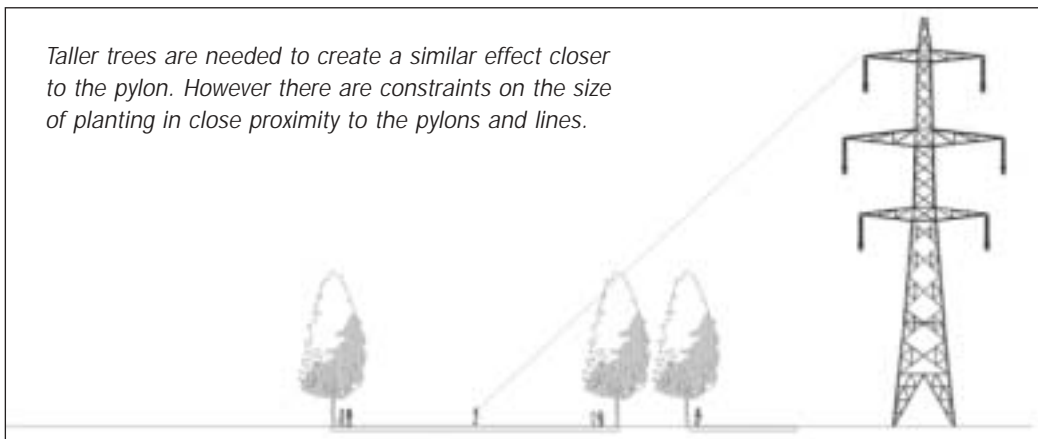
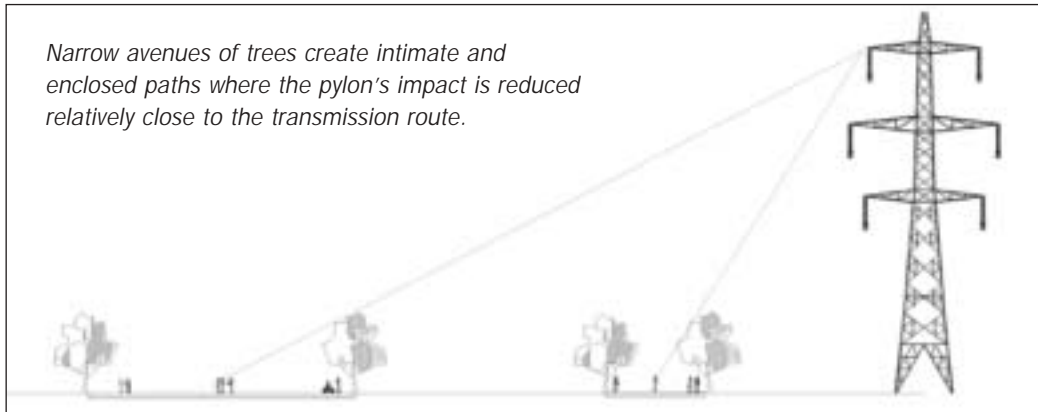




Screening by landscape design

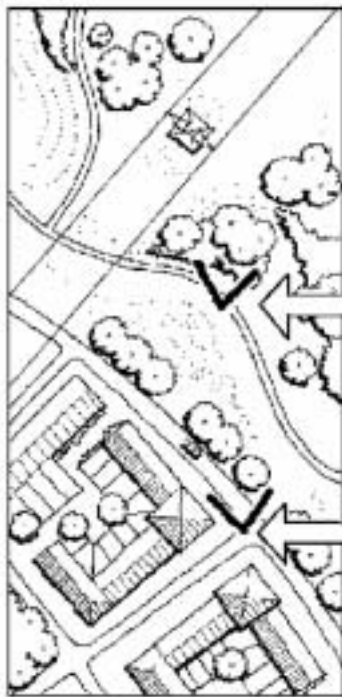
Layers of strategic screening can enhance the quality and intimacy of the immediate setting causing the perception that pylons have receded into the distance.

Planting is an essential component in environmental quality and will form a key element of any master-planned approach. Planting, along with development intensity, can play an effective role in screening views of pylons and overhead power lines. Such screening can partially or completely obscure views of pylons and overhead power lines from within developments, and can be highly effective at differing distances from pylons.

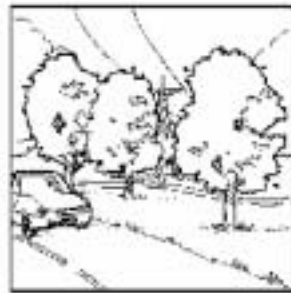


Screening can enhance the quality and intimacy of the immediate setting causing the perception that pylons have receded into the distance. The effectiveness of any screening depends on the distance of the viewer from the overhead power line and from the screening.

Layers of screening between the viewer and the overhead power line can create a series of silhouettes stretching into the distance, which create a depth in the field of vision so that pylons are perceived to be further away and less prominent. Consideration should therefore be given to the use of screening in layers with varying heights to match site circumstances.



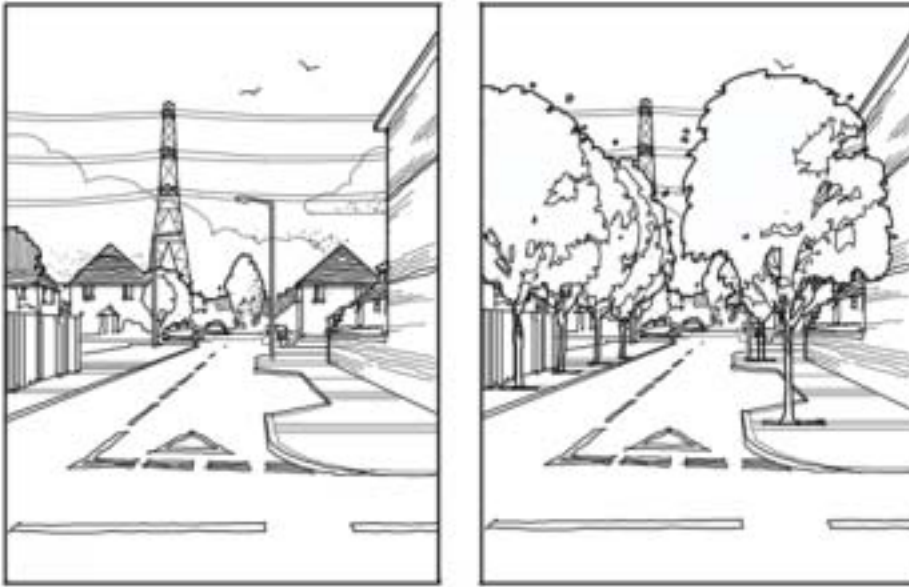
Planting at the base of pylons can reduce the impact at the pedestrian level.



Carefully placed groups of trees can reduce the impact from a distance.



Mature street trees can very effectively screen views towards pylons and enhance the environment. Where the branches of mature trees arch over the street, views of pylons can be obscured for much of the year. Such planting can also be employed within informal open spaces to effectively screen views towards pylons from footpaths and other routes.



Street planting can also be 'retro-fitted' to existing environments to soften the visual impact of pylons and overhead power lines.

In considering the strategic use of planting as a form of screening, careful attention must be paid to safety clearances. Planting may take place below overhead power lines subject to adequate maintenance access being provided. However, it is vital that appropriate species are selected for locations below and adjacent to the transmission route to ensure that safety clearances are maintained and that the species are not likely to grow to heights that would infringe the safety clearances. Appendix 3 provides further information on planting near high voltage overhead lines.

While planting is probably the most effective means of achieving screening, the potential from a change in landform, boundary treatments and built form should also be considered. A combination of each of these four elements is particularly effective in achieving the desired effect. Wherever it is proposed to alter the ground level in the vicinity of high voltage overhead lines, National Grid must be consulted to ensure that appropriate safety clearances are maintained at all times (see appendix 9).

Promoting richness

The detailed design of the public realm and built form will provide a further level of visual and tactile interest that can further enhance the character and quality of a place.

A key component in creating a high quality environment is the number of different visual and sensory experiences that are on offer. An environment which offers many interesting vistas and visual details, sounds, textures and even fragrances will help to diminish the impacts of the overhead power line and promote environmental quality.

Many of the design principles and techniques identified will promote richness on the ground that will detract from the presence of pylons. Promoting a variety of land uses along the transmission route and the use of planting are two examples that can add to the range of experiences offered by an environment.

The detailed design of the public realm and built form will provide a further level of visual and tactile interest that can further enhance the character and quality of a place. The use of a variety of built forms, different types of streets and street furniture, a range of materials and distinctive design details can all help to add to visual richness.

The presence of water can also add to the richness of an environment through reflections and associated sounds. Running water, associated vegetation such as reed beds and other planting can play an important role in bringing a variety of sounds into the area around pylons. As well as adding to the sensory richness of the environment, this will assist in diminishing the perception of any noise produced by an overhead power line.



Different visual and sensory experiences help to promote environmental richness.