

**Design Notes**

This Detailed Planting Plan has been developed after a site visit carried out on 15<sup>th</sup> February 2022 following the brief supplied by the client asking specifically for planting to aid noise reduction. The plants have been chosen based on the soil type and site location to ensure that they have the best opportunity for not only survival but to flourish with minimal expert maintenance.

The site lies on a bedrock layer of London Clay Formation – Clay, Silt and Sand with a recorded superficial layer of River Terrace Deposits – Clay and Silt. These soils are freely draining slightly acid loamy soils of low fertility. They tend to dry out in the East of England during the summer, giving rise to an increased risk of drought stress in planting.

The site is located in the school playing field immediately adjacent to the main dual carriageway servicing Southend on Sea (A127) and under the flight path of Southend Airport. Both these features contribute to an existing high level of background noise in the area.

The focus of this planting design is to mitigate the increased sound effects of the development on the immediate neighbourhood. At the same time care has been exercised in creating a visually appealing planting scheme that requires the absolute minimum maintenance once established.

**The Principles of Noise Mitigation through Planting**

"Density, height, length and width of the green sound barrier are the most important factors to consider in reducing noise." (Cooke & Havebecke, 1974).

Tree belts 4m to 10m wide and 12m high, planted close to the source of noise are the most effective. A 10m wide tree belt can be expected to give a 5db reduction in sound, whereas a 20m wide tree belt will only give an additional 1db reduction in sound (i.e., 6db in total).

Noise mitigation can be made more effective if the planting is carried out on a mound of soil called a "Berm". Ideally, 1m high with a level top of minimum 3m and slopes of 10 degrees as shown below.

**Cross-section of Berm**

12.83m

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It is not possible to create a Berm at this location as the minimum distance between the root protection zone and the MUGA is less than 12.83m – the minimum width required for creating a 1-metre-high berm with a 3m wide top.

The choice of plants is important. Ideally, large leaves, evergreen and with an even distribution from the top to the ground (as found in hedges). A selection of plants with different sized leaves and growth habits achieves the most effective noise reduction across the sound spectrum.

Planting arrangement is important. A crossing planting arrangement reduces low frequency noise better than planting in rows.

Mulch and fallen leaves at ground level play a contributing role in absorbing sound.

**Site Preparation (General)**

The existing tree groups G10 and G11 are to be retained and will provide height along the edge of the new tree belt planting. About 90% of the existing ivy needs to be cleared from these tree groups along with all dead, damaged and fallen vegetation to give clear access to the area to be planted.

Excavation shall not be undertaken within the root protection zone of any existing tree or other plants to be retained.

Existing topsoil shall be stripped in construction areas before landscaping work commences. Imported topsoil shall be to BS3882:2015 and shall be multipurpose grade, of medium texture with a high proportion of fertile loamy material. It shall be free from subsoil, rubbish, rubble, contamination, roots of perennial weeds and other materials injurious to plant growth. The maximum stone content of the soil shall be 20% with the maximum size of stone 25mm in any one dimension. All topsoil shall be stacked in heaps not exceeding 2m high until required. During storage all topsoil heaps shall be kept free from compaction, contamination, and weeds.

Unless otherwise indicated areas to be planted shall be cleared of all surface rubbish and excavated to the dimensions below finished levels as follows when the soil is not waterlogged or frozen. Ensure the locations of all services are known before any excavation operations are carried out:

Planted areas: 450mm deep.

The base of excavated areas shall be forked or otherwise cultivated to a depth of 150mm to facilitate drainage and all bricks, stones, and other debris over 75mm in any one dimension shall be removed. Areas trafficked by construction vehicles shall be ripped to a depth of 150-300mm to relieve compaction.

Where excavated areas are lower than the required depth, excavations shall be backfilled with selected subsoil and lightly consolidated to make up levels. Selected subsoil shall be friable, second quality topsoil or similar and be free of rubbish, roots, stones over 75mm in any one dimension, perennial weeds, or other matter injurious to plant growth.

Planted areas shall be backfilled in layers with clean topsoil (as specified above) thoroughly mixed with an approved planting composted bark product or approved compost incorporated at a rate of 80 litres per 5-6m<sup>2</sup>.

Planting ideally shall be undertaken between the months of October and April when the temperature is above 5 degrees centigrade. If it is carried out outside of these months regular watering throughout the summer must be planned for to ensure adequate establishment. At the time of planting, the Contractor must incorporate into the soil a slow-release fertiliser, equal parts NPK, and in accordance with the manufacturer's instructions.

**Biosecurity**

"BS8545: Trees – From Nursery to independence in the landscape" shall be adhered to. In the interest of biosecurity, no plant should be imported directly from European suppliers and planted straight into the site unless they have appropriate certification that they are 100% disease free and have come from an area with no known horticultural diseases. If disease free certification is not possible, the plants shall have spent a full growing season in quarantine, in a UK nursery to ensure they are free from foreign pests and diseases. This is a measure to address the threat of the introduction of pests and diseases from outside the UK.

**Plant Schedule**

Plants shall be supplied in accordance with BS3936-1:1992, set out in accordance with this plan and planted to the densities as shown in the Plant Schedule. All plants must be always kept adequately moist whilst waiting to be planted.

**Shrub Planting Specification**

Great care must be taken to avoid damage to the root and stem system when planting. The root-ball around any container grown plants must be disturbed and loosened to prevent the roots circling. Sufficient soil must be taken from the bed to enable the roots to be fully spread. Place containerised plants upright in position and set at the same height as previously growing. Bare root material must have the roots carefully spread out, and finely broken soil must be packed around the roots. As the soil is returned, it must be consolidated.

Following planting, the planted areas must be lightly forked over to level the surface by removing depressions caused during the planting process. All debris must be removed and disposed of. Mulch all planted areas and under tree groups G10 and G11 with a layer of good quality, medium-grade wood chip to an even depth of 75-100mm, taking due care not to excessively cover any leaves of any plant.

**Maintenance During Establishment (The First Five Years After Planting)**

Maintenance visits will be required at three monthly intervals from April to September and once during the dormant season to carry out the following operations to establish healthy growing plants/grass in weed free areas:

- Weed control – in years 1-3, the planted areas will require hand weeding during the growing season (April to September). The presence of mulch should ensure this job is not onerous. From Year 4 onwards removal of weeds will only be required if they are overly suppressing the planted stock.
- Watering – no planting shall be allowed to dry out during establishment. In periods of dry weather manual watering will be required to ensure plants do not wilt. In general, during dry spells in year 1, 5 litres of water will be required per square metre of planted area twice per week.
- Annual inspection – on one occasion during August/September inspect all trees and shrubs, remove any that have died and replant with the same species during the planting season, October to March.

Arisings to be carted away and disposed of in an approved manner. All work to be carried out in accordance with good horticultural practise.



**CATEGORY AND DEFINITION**

| Trees unsuitable for retention       |   |
|--------------------------------------|---|
| Category U                           | Those in such condition that they cannot realistically be retained as living trees in the current land use for longer than 10 years.    |
| Trees to be considered for retention |   |
| Category A                           | Trees of high quality with an estimated remaining life expectancy of at least 60 years.   |
| Category B                           | Trees of moderate quality with an estimated remaining life expectancy of at least 30 years.   |
| Category C                           | Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. |

**LEGEND**

|  |   |
|--|---|
|  | Existing Tree/Hedge BS 5837:2012 Category B |
|  | Existing Tree/Hedge BS 5837:2012 Category C |
|  | Existing Tree/Hedge BS 5837:2012 Category U |

**PLANT SCHEDULE**

| Common Name       | Plant Species        | Quantity | Specification | Planting Density         | Ultimate Height |
|-------------------|----------------------|----------|---------------|--------------------------|-----------------|
| <b>Shrubs</b>     |                      |          |               |                          |                 |
| Darwin's Barberry | Berberis darwinii    | 50       | 5l            | 0.75m spacing            | 2.5m            |
| False Holly       | Osmanthus "Goshiki"  | 250      | 2l            | 0.75m spacing            | 1.5m            |
| Red Tip Photinia  | Photinia "Red Robin" | 40       | 5l            | 1 m spacing              | 4m              |
| Cherry Laurel     | Prunus laurocerasus  | 150      | 2l            | Single Row 0.5 m spacing | 3m              |

Scale 1:200  
0m 4m 8m 12m 16m 20m

"The original of this drawing was produced in colour - a monochrome copy should not be relied upon"

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Date: 27/04/2022  
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Checked by: CIP/93558-D-PS - Prince Ave Academy Westcliffe-on-Sea.dwg