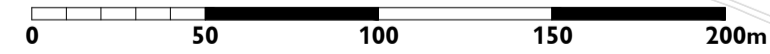
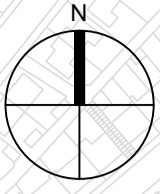


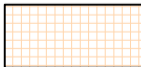


Appendix 6.7 Drawings



- Key:**
-  Street Tree Network
 -  Existing Scrub Corridor (Off-site)
 -  Indicative Easements (Refer to Engineer's Package)

Notes:

Street Trees: The following assumes no site constraints to tree planting (contamination or services) which may result in further revision.

All trees container grown. Plant trees upright in centre of pit not less than 2000 x 2000 x 1000mm deep at original soil depth. All trees to be ground anchored. Unless otherwise stated, backfill pits with urban tree soils. A free draining subsoil layer of 300mm deep should be laid below the tree rootball. Thoroughly break up existing site material to a depth of 300mm prior to laying subsoil to ensure free drainage. Ensure no water is standing in excavated pits.

Prior to preparation of tree pits ensure all ground within 2m radius and 1m depth of finished pit formation is free of any remnant concrete fittings, large boulders, rubble or other undesirable material larger than 500mm in any dimension and where present, break up locally.

Where trees are in hard paving allow tree grilles.

Indicative Plant Schedule:

TREES		
CODE	BOTANICAL NAME	GIRTH/HEIGHT
T1	<i>Acer campestre</i> 'Street Wise'	20 - 25cm
T2	<i>Acer x freemanii</i> 'Autumn Blaze'	25 - 30cm
T3	<i>Acer platanoides</i>	20 - 25cm
T4	<i>Betula utilis jacquemontii</i>	16 - 18cm
T5	<i>Carpinus betulus</i> 'Street Wise'	20 - 25cm
T6	<i>Crataegus laevigata</i> 'Paul's Secret'	18 - 20cm
T7	<i>Fraxinus angustifolia</i> 'Raywood'	25 - 30cm
T8	<i>Liquidambar styraciflua</i>	20 - 25cm
T9	<i>Malus hupehensis</i>	16 - 18cm
T10	<i>Malus transitoria</i>	16 - 18cm
T11	<i>Prunus avium</i> 'Plena'	18 - 20cm
T12	<i>Prunus 'Mount Fuji'</i>	16 - 18cm
T13	<i>Pyrus calleryana</i> 'Chanticleer'	25 - 30cm
T14	<i>Quercus robur</i>	30 - 35cm
T15	<i>Sorbus aucuparia</i> 'Cardinal Royal'	20 - 25cm
T16	<i>Tilia cordata</i>	20 - 25cm

PLANNING

C	13-07-12	Revised Planning Issue
B	12-04-12	Planning Issue
A	28-02-12	Draft Planning Issue
	21-11-12	First Issue
Revision	Date	Comment

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client
Waterfront Barry Consortium

project
The Quays, Barry

drawing title
Ecological Mitigation: Street Tree Network

scale drawn approved date
NTS @ A1 CS SB April 2012

drawing no. revision
0833103/P/GA/065 C

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Plant Schedule:

CODE	BOTANICAL NAME	GIRTH/HEIGHT	SPECIFICATION	ADDITIONAL INFORMATION
T1	<i>Pinus sylvestris</i>	60 - 80	15 Litre Container Grown	From Hillier Nurseries, Single Staked
T2	<i>Acer x freemanii</i> 'Autumn Blaze'	18 - 20cm	Container Grown	From Hillier Nurseries, Double Staked

SCRUB CORRIDOR PLANTING MIX (1 per 1m ²)				
%	BOTANICAL NAME	GIRTH/HEIGHT	SPECIFICATION	ADDITIONAL INFORMATION
5	<i>Cornus sanguinea</i>	40 - 60	3 Litre Container Grown	-
5	<i>Corylus avellana</i>	60 - 80	3 Litre Container Grown	-
40	<i>Crataegus monogyna</i>	60 - 80	3 Litre Container Grown	-
5	<i>Ilex aquifolium</i>	60 - 80	3 Litre Container Grown	-
5	<i>Ligustrum vulgare</i>	60 - 80	3 Litre Container Grown	-
2.5	<i>Lonicera periclymenum</i>	60 - 80	3 Litre Container Grown	-
25	<i>Prunus spinosa</i>	60 - 80	3 Litre Container Grown	-
5	<i>Rosa canina</i>	60 - 80	3 Litre Container Grown	-
5	<i>Sambucus nigra</i>	60 - 80	3 Litre Container Grown	-
2.5	<i>Viburnum lantana</i>	40 - 60	3 Litre Container Grown	-

SCRUB CORRIDOR TREE PLANTING MIX (1 per 20m ²)				
%	BOTANICAL NAME	GIRTH/HEIGHT	SPECIFICATION	ADDITIONAL INFORMATION
-	<i>Acer campestre</i>	125 - 150	Feathered	15 Litre Container Grown, Single Staked
-	<i>Alnus glutinosa</i>	125 - 150	Feathered	15 Litre Container Grown, Single Staked
-	<i>Malus sylvestris</i>	125 - 150	Feathered	15 Litre Container Grown, Single Staked
-	<i>Salix caprea</i>	125 - 150	Feathered	15 Litre Container Grown, Single Staked

BROWNFIELD MEADOW MIX (Emorsgate Seeds Ref: EM1 - Basic General Purpose Meadow Mixture)				
%	BOTANICAL NAME	COMMON NAME	ADDITIONAL INFORMATION	
20	Wild Flowers			
0.5	<i>Achillea millefolium</i>	Yarrow		-
2.0	<i>Centaurea nigra</i>	Common Knapweed		-
1.0	<i>Daucus carota</i>	Wild Carrot		-
2.0	<i>Gallium verum</i>	Lady's Bedstraw		-
2.0	<i>Leucanthemum vulgare</i>	Oxeye Daisy		-
3.0	<i>Poterium sanguisorba</i>	Salad Burnet		-
2.5	<i>Prunella vulgaris</i>	Selfheal		-
3.0	<i>Ranunculus acris</i>	Meadow Buttercup		-
0.5	<i>Rumex acetosa</i>	Common Sorrel		-
2.5	<i>Silene dioica</i>	Red Campion		-
1.0	<i>Silene vulgaris</i>	Bladder Campion		-
80	Grasses			
8.0	<i>Agrostis capillaris</i>	Common Bent		-
40.0	<i>Cynosurus cristatus</i>	Crested Dogstail		-
28.0	<i>Festuca rubra</i>	Slender-creeping Red-fescue		-
4.0	<i>Phleum bertolonii</i>	Smaller Cat's-tail		-

Notes:

This plan is to be read in conjunction with The Quay Development Phase 1 Ecological Mitigation Strategy, Ref: E0811601/ROS' and The Quays Ecological Management Plan, Ref: E0811601/RO7.

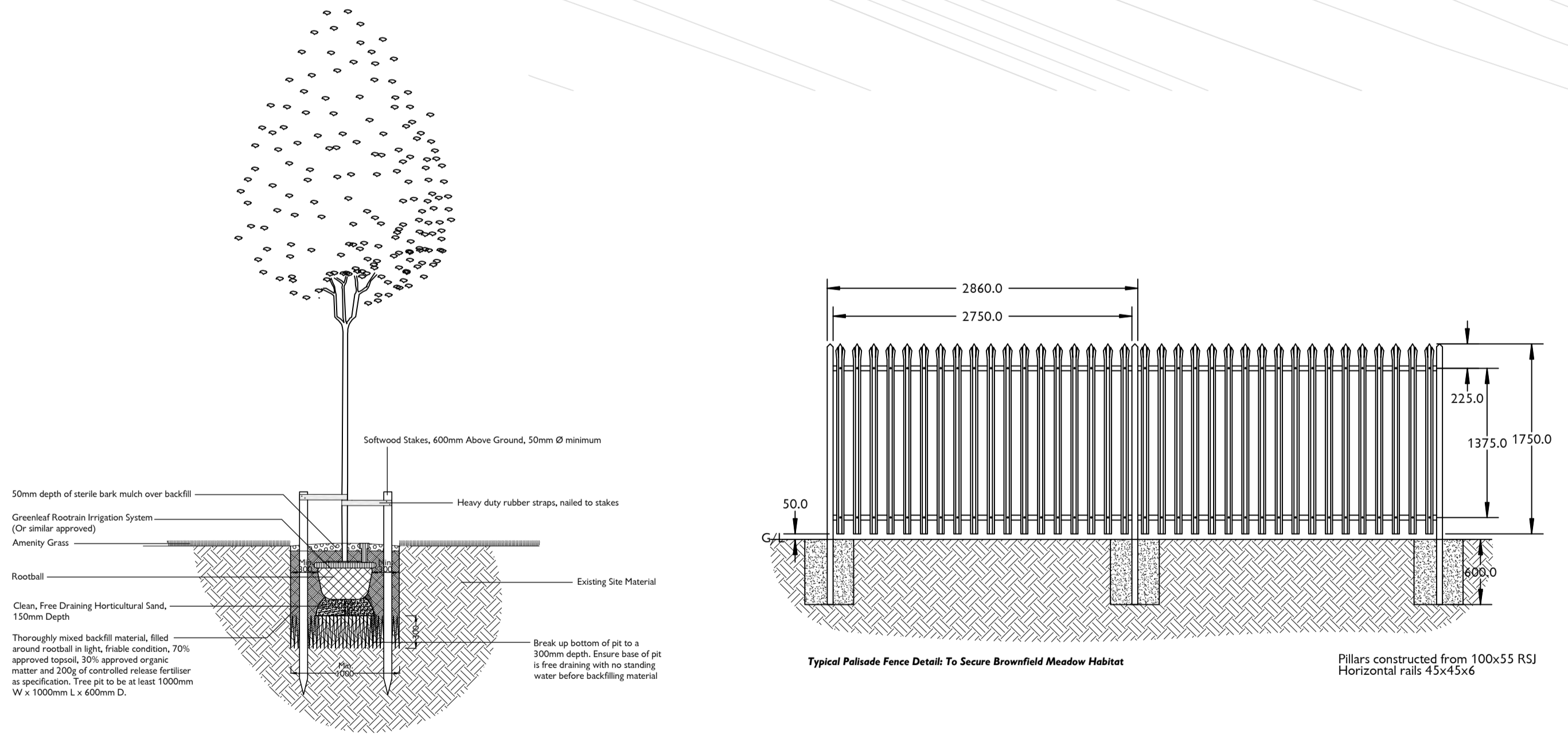
Vegetation Strip: Using a grading bucket, strip the vegetation and approximately 20mm of soil from all areas of brownfield meadow, scrub corridor and pond. Remove arisings from site.

Scrub Corridor Planting: Following vegetation strip, using a 360 excavator and toothed bucket, break-up the ground to a depth of approximately 300mm into loose material, roughly regrading, to create a free draining base subgrade. A cross-ripping effect should be achieved by two passes at an angle of 45° to the edge of the strip at 90° to one another. Remove all stones with largest dimension exceeding 150 mm. Immediately following this operation in each area, place a minimum 300mm depth of imported topsoil as BS3882:2007 and cultivate, incorporating 100mm depth of organic material into the top 200mm layer of topsoil. Ensure no water is standing in planting areas. Between October and March following brownfield meadow establishment, plant plants at a typical rate of 1 per m² in groups of 3 to 7 of a single species within the 4m wide zone. Avoid planting in straight lines or grids. Protect transplants with spiral guards. All plants to be straight and upright. Following planting all transplants to be finished with a mulch mats or mulch as appropriate. Scrub Corridor Tree species to be planted at random as 125-150cm Feathers (unless otherwise stated) at a typical rate of 1 per 20m². Plant trees upright in centre of pit at original soil depth. Unless otherwise stated, topsoil backfill in tree pits to be not less than 1000 x 1000mm and at a depth of 600mm. A free draining subsoil layer of 300mm deep should be laid below the tree. Thoroughly break up existing site material to a depth of 300mm prior to laying subsoil to ensure free drainage. Ensure no water is standing in excavated pits. Prior to preparation of tree pits ensure all ground within 2m radius and 1m depth of finished pit formation is free of any remnant concrete fittings, large boulders, rubble or other undesirable material larger than 500mm in any dimension and where present, break up locally.

Brownfield Meadow: Following vegetation strip, working in sections, to avoid tracking over completed areas, lay a 150mm layer of crushed aggregate using a 360 excavator and toothed bucket and thoroughly mix into the top 75mm of existing site material, roughly regrading, to create a free draining substrate. Remove all stones with largest dimension exceeding 150 mm. Subject to contamination report, all concrete and brick material to be recycled from onsite demolition works. Sow Brownfield Meadow Mix (Emorsgate Seeds EM1 Basic General Purpose Meadow Mixture or equal approved) seed onto substrate mix between September and January at a rate of 4g/m² to suppliers instructions. Do not incorporate or cover the seed. Seed not to be sown onto frozen or waterlogged ground. Create 1m high landforms as illustrated with slopes gradients to a maximum of 1:3. Create 2no. randomly stacked log piles. Log piles to be approximately 1.5m L x 1m W x 1m H and to be constructed using timber and brush of varying sizes. Create 2no. stone piles. Use 5 - 7 large stones/boulders and a variety of smaller stones per pile. Stone piles to be approximately 1.5m L x 1m W x 1m H. Timber and stones/ boulders to be sourced from the site itself if appropriate resources exist, or sourced externally if required. 1no. log pile and 1no. stone pile to be located within 3m of the shallow pond edge.

Shallow Pond: Construction of the pond should replicate the existing water-filled depressions found onsite. Using 360 excavator with grading bucket, create the scrape with a scalloped perimeter as illustrated, assuming a 200mm thick clay lining layer to retain water. The maximum surface area of the pond should measure 80m² and the water level should be approximately 500mm deep at the central points. Gradually grade the edges of the pond to a shallow gradient to create marginal areas. Ensure the completed base layer beneath the clay lining is graded with no rocks, uneven surface, or surface level deviation greater than 50mm. 200mm thick clay lining to be installed over base layer. Surface of clay lining to be roughened following completion, without piercing the depth of lining. Allow pond to fill with rainwater, or fill artificially. If filled artificially (with mains water) allow water to stand for a minimum of 14 days. Transfer flora and fauna material from top 50mm of existing water-filled depressions onsite to the prepared pond using a straight edged (blade) excavator bucket to encourage colonisation. Preferential timing for transfer of material is in late summer/autumn, although transfer would need to be undertaken prior to any surcharging works in the area associated with the existing pond. Use excavated fill to create the mounds in the meadow area, as illustrated, spreading any additional surplus material evenly over brownfield meadow areas.

Fences: Scrub corridor and brownfield meadow to be enclosed with a suitable steel palisade fence and lockable gates to prevent unauthorised public access. Steel palisade and close boarded timber fence to housing boundaries to run in parallel around the brownfield meadow.



Key:

- Scrub Corridor Planting
- Brownfield Meadow
- Shallow Seasonal Pond
- Mounds (Typically 1m high)
- Tree Planting
- Existing Easements (Location to be confirmed on site)
- Existing Water Treatment Fencing Retained
- Proposed Steel Palisade Fencing with Double Vehicle Gate
- Proposed Temporary 'Heras' Fencing, with Concrete Fixed Posts
- Indicative location for log piles
- Indicative location for stone piles
- Existing Levels Retained
- Indicative Proposed Levels

PLANNING

13-07-12	Revised Planning Issue
12-04-12	Planning Issue
16-03-12	Planning Issue
28-02-12	Draft Planning Issue
21-12-11	First Issue
	Comment

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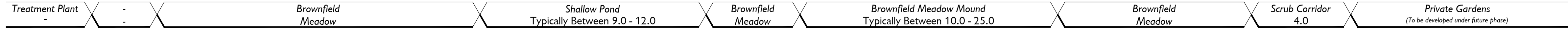
client
Waterfront Barry Consortium

project
The Quays, Barry

drawing title
Ecological Mitigation: Brownfield Meadow & Shallow Pond

scale: 1:500 @ A1
drawn: CS
approved: SB
date: July 2012

drawing no.: 0833103/PI/GA/066
revision: D



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Indicative Plant Schedule

Table with 4 columns: CODE, BOTANICAL NAME, GRTH/HEIGHT, ADDITIONAL INFORMATION. Lists various tree species like Acer campestre and Salix caprea.

Table with 4 columns: CODE, BOTANICAL NAME, SIZE, DENSITY. Lists various shrub species like Carex canem and Galium aparine.

Table with 4 columns: CODE, BOTANICAL NAME, SIZE, ADDITIONAL INFORMATION. Lists formal hedges like Fagus sylvatica.

Table with 4 columns: BOTANICAL NAME, COMMON NAME, ADDITIONAL INFORMATION. Lists Wildflower Meadow Mix species like Achillea millefolium.

Table with 4 columns: BOTANICAL NAME, COMMON NAME, ADDITIONAL INFORMATION. Lists Standard Cornfield Mix species like Agrostis capillaris.

Table with 4 columns: BOTANICAL NAME, COMMON NAME, ADDITIONAL INFORMATION. Lists Flowering Lawn Mix species like Galium verum.

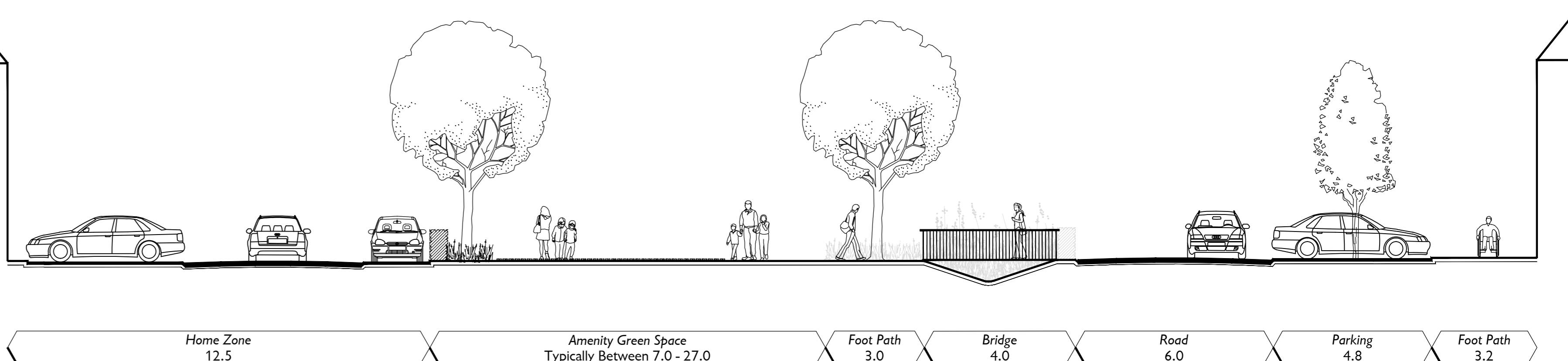
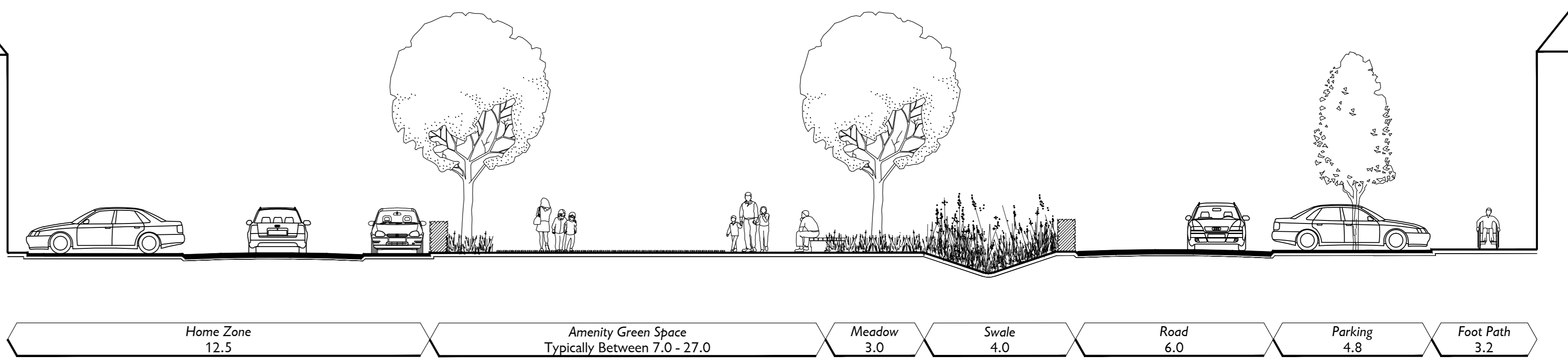
Table with 4 columns: BOTANICAL NAME, COMMON NAME, ADDITIONAL INFORMATION. Lists Swale Wildflower Meadow Mix species like Achillea millefolium.

Table with 3 columns: CODE, BOTANICAL NAME, COMMON NAME. Lists Wildflower and Grasses like Anemone pulsatilla.

Table with 4 columns: CODE, BOTANICAL NAME, GRADE, DENSITY. Lists Bulbs like Crocus (various colors).

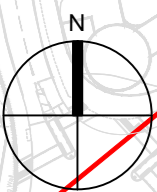


Key: Tree Planting, Mass Evergreen and Deciduous Shrub Planting, Formal Hedgerows, Swale Wildflower Meadow and Plug Planting, Wetflower Meadow Mix, Flowering Lawn Mix with Bulb Drifts, Waterfront Area, Various Hard Landscape Finishes, Children's Play Area, Park Benches, Recycling, Litter and Dog Waste Bins, Hardwood Timber and Galvanised Steel Bridges, Feature Lighting, Indicative Elements.



Notes section containing project details, planning information (Soitysbrewster Ecology Consulting Ltd), and technical notes regarding ground levels, tree planting, and material specifications.

Project information block including client name (Waterfront Barry Consortium), project name (The Quays, Barry), drawing title (Ecological Mitigation: Linear Park & Swale), scale (1:500 @ A0), drawing number (0833103/PJ/GA/067), and date (July 2012).



Notes:

Bird Boxes: Bird boxes are to be included on 1:5 (20%) of the houses within South Quay. Recommended bird box locations are indicative only. Final locations will be dependent upon confirmed site layout.

Suitable bird boxes include the Schwegler variety (available from Alana Ecology or similar), and those that can be incorporated into the building wall or affixed to external walls.

Where possible box entrance holes are to be positioned to face between north and east, out of the prevailing wind and direct sunlight. Boxes are to be affixed using galvanized or stainless steel screws, or nails that will not rust. Where possible boxes are not to be affixed directly above windows to prevent droppings falling onto them. It may be necessary to affix a droppings board below House Martin nests boxes in certain locations to avoid problems with a build-up of bird droppings on building walls (suitable designs include the Schwegler Droppings Board).

Boxes for species which nest in colonies such as Swift, House Martin and House Sparrow are to be positioned in appropriately sized groups to encourage their use. House Sparrows tend to nest in loose colonies of 10-20 pairs, with House Martins nesting in colonies of around 5-10 pairs. Swift colony size is determined largely by the availability of suitable nesting sites.

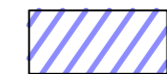
Appropriate boxes for inclusion at South Quay and optimal positioning for each type of box is detailed below.

Box type	Species	Position	Height above the ground	Percentage of boxes
Schwegler No 11 House Martin Nest	House Martin	On unobstructed walls directly beneath the eaves, or on walls without eaves	2m or above	15
Schwegler No 17 Triple Cavity Swift Box	Swift	Near the roof of the building	6-7m	30
Schwegler 1SP Sparrow Terrace	House Sparrow	Incorporated into the building or affixed to walls	2m or above	20
Schwegler 2H Open Fronted Robin Box	Robins, Pied Wagtails, Wrens etc	Hung from building walls or fences, with the entrance to the side	1.5m - 2.5m	20
Schwegler 1N Deep Nest Box	Robins, Pied Wagtails, Tits and Sparrows	Hung from building walls or fences	2 - 3m	15

Key:



Suitable locations for Swift and House Martin Nest Boxes (Schwegler No.11 and No.17)



Suitable locations for Sparrow Terrace, Open Fronted Robin Box and Deep Nest Box (Schwegler 1SP, 2H and 1N)

PLANNING

Revision	Date	Comment
B	13-07-12	Revised Bird Box Schedule
A	12-04-12	Planning Issue
*	28-02-12	First Issue

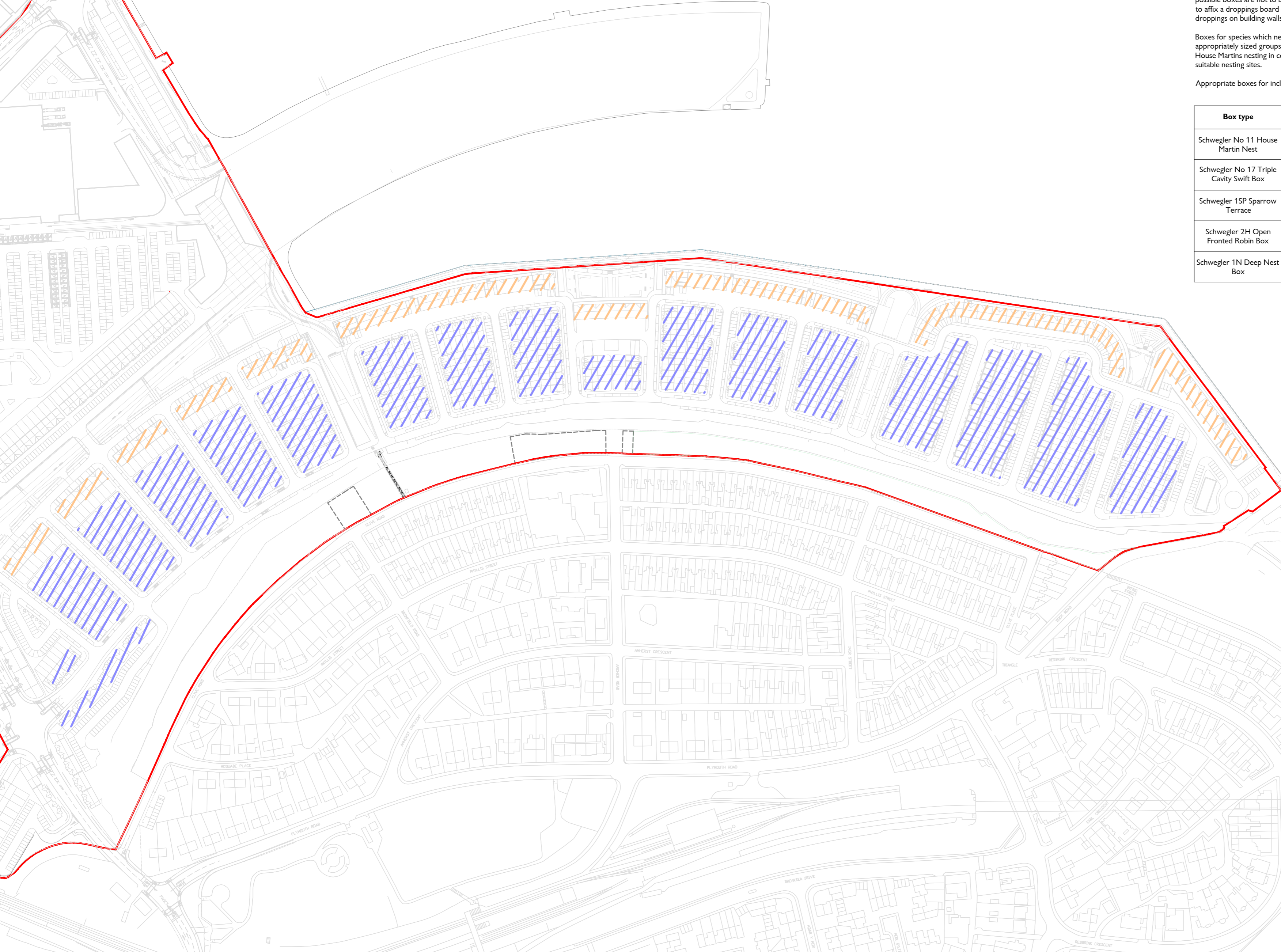
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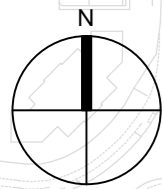
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Stanwell Road,
Penarth,
Vale of Glamorgan,
CF64 2AA




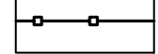
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o client	Waterfront Barry Consortium		
o project	The Quays, Barry		
o drawing title	Ecological Mitigation: Bird Box Locations		
o scale	o drawn	o approved	o date
1:2000 @ A2	AP	MW	July 2012
o drawing no.	0833103/PI/GA/071	o revision	B

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- Key:**
-  Grassland to be managed via annual cutting in September/ October in the interim prior to development
 -  Grassland to be retained and protected
 -  Grass seed mix to be sown on any re-graded/ disturbed ground (Emorsgate EM10 Tussock Mixture)
 -  Fence with lockable gates

Notes:

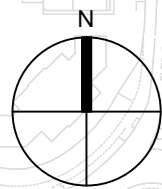
In the interim prior to development at East Quay, the existing grassland is to be maintained via cutting to ground level annually in September/October. All arisings are to be removed and disposed off or composted off-site as appropriate. No cutting is to be undertaken in the breeding bird season, which typically runs from March to August inclusive.

The retained grassland is to be managed with the aim of maintaining a resource for ground nesting birds such as Skylark and Meadow Pipit. The retained grassland is to be fenced out during all site clearance/construction works to prevent damage occurring during construction across the rest of the site. Vehicles are not to be tracked over the area and it is not to be used for storage or for any other purpose.

A grass sward is to be re-established over any areas that required re-grading directly adjacent to the residential development. Emorsgate EM10 Tussock Mixture is to be sown over disturbed ground in spring or autumn to supplier specifications.

Following completion of construction the retained grassland is to be enclosed by a fence with lockable gates to prevent unauthorised public access. The fence is to have bird deterrent devices (e.g. bird spiking) fitted onto all potential perching posts that could be used by predatory birds.

The retained grassland is to be managed via cutting annually in September/October, with all arisings removed.



PLANNING

Revision	Date	Comment
B	13-07-12	Revision of Fence Location
A	12-04-12	Planning Issue
*	28-02-12	First Issue

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client	Waterfront Barry Consortium		
project	The Quays, Barry		
drawing title	Ecological Mitigation: Retained Grassland at East Quay		
scale	drawn	approved	date
1:2000 @ A2	AP	MW	July 2012
drawing no.	revision		
0833103/PI/GA/072	B		

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Key:

- Existing allotments / gardens retained
- Proposed allotments / wildlife gardens
- Clearance for allotments from February 2012
- Areas retained and managed principally for biodiversity
- Strip to be re-instated as cliff base/ scree habitat
- Indicative location for log piles
- Fence with lockable gates

PLANNING

Revision	Date	13-07-12	12-04-12	28-02-12	Revision of Text Planning Issue First Issue Comment
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Notes:

The cliff top is considered suitable to support breeding birds and common reptiles (Slow Worm *Anguis fragilis* have been identified on site). To avoid conflict with these species, timings and working methodology are to be undertaken as set out below.

Cliff Top - Clearance for Allotments/ Wildlife Gardens

Areas proposed for allotments/wildlife gardens are to be cleared of vegetation to reduce the suitability of the habitat for reptiles and nesting birds and to encourage these species to disperse into adjacent habitats. Vegetation is to be cleared over winter between December and February, with clearance of all trees and scrub to be undertaken outside the bird nesting season. Clearance between December and February would coincide with the period of reptile hibernation and would avoid the need for successive, gradual cuts of vegetation that would be required later in the year.

Vegetation is to be cleared by hand to ground level (c.50mm) using stimmers, chainsaws, brush cutters or similar. All arisings are to be removed and disposed of/ composted off-site. Vegetation height is to be maintained at or below 50mm until works to construct the allotments/ gardens have commenced.

Works to construct the allotments/ gardens are to be undertaken between April and September, during the period when reptiles are active. No works (including storage of material, tracking of vehicles etc) are to be undertaken in any area except that cleared for allotments/ gardens.

Cliff Top - Retained Habitat

A 4-5m wide strip is to be retained along the length of the cliff top, with larger retained areas at the eastern and western ends. Retained areas are to be managed principally for the benefit of biodiversity.

Scrub cover is to be cut back until approximately 20% cover remains in patches. The 4-5m wide strip is to remain in-situ, with only minimal management to prevent encroachment into allotment/garden areas. Clearance of all scrub/trees is to be undertaken outside the breeding bird season. All vegetation clearance is to be undertaken by hand using stimmers, chainsaws, brush cutters or similar. All arisings are to be removed and disposed of or composted off-site. Clearance of scrub from retained habitats is to be programmed in from winter 2013. Woody scrub is to be stump treated with herbicide, or roots are to be 'grubbed out' between late spring and summer (during the period when reptiles are active). Grubbing out is not to be undertaken over winter to avoid the risk of affecting hibernating reptiles.

Cleared areas are to be allowed to naturally colonise with grassland species from the surrounding area or, to speed establishment, bare areas are to be sown with an appropriate native seed mix (such as Emorsgate EM10 Tussock Mixture, sown at 4g/m² to suppliers instructions) or seed sourced from a grassland site in the local area.

4no. log-piles are to be created in the retained habitat at the eastern and western ends of the cliff-top (2no. log-piles at each end). Log piles are to be approximately 1.5m L x 1m W x 1m H and are to be constructed using timber and brush of varying sizes. Timber is to be sourced from the site, or sourced externally if required.

All retained habitat is to be enclosed with a suitable fence and lockable gates to prevent unauthorised public access. Retained habitat is to be managed via a cutting regime to maintain the grassland/scrub mosaic.

Cliff Base

The grassland and scree at the base of the cliff is a key habitat for invertebrates. A strip at least 2m wide along the cliff base is to be re-established following surcharging to provide continued habitat resource in this area.

Scree and large boulders are to be excavated from along the length of the cliff base and stored in an appropriate location. The substrate at the foot of the cliff is to be excavated to a depth of 400mm and stored in an appropriate location. Following surcharging, the cliff base habitat is to be recreated using the stored substrate material, scree and boulders. The excavated substrate is to be replaced along the base of the cliff, with the scree placed on top of the substrate (to recreate the cliff base habitat). To prevent damage to the excavated substrate it should be moved no more than twice i.e. once to an appropriate storage location and once to return the substrate to the cliff base. Selected large boulders are to be replaced along the length of the cliff base (surplus boulders could be used elsewhere on the site, e.g. at the edge of the brownfield meadow and pond, or in the swale corridor). Vegetation should be allowed to naturally colonise the area, or sown with seed sourced from a grassland site in the surrounding area.

○ client			
Waterfront Barry Consortium			
○ project			
The Quays, Barry			
○ drawing title			
Ecological Mitigation: Cliff Top and Cliff Base			
○ scale	○ drawn	○ approved	○ date
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○ drawing no.		○ revision	
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