

Shell Waterloo

Tree Survey Report, and Tree Constraints Plan & Arboricultural Impact Assessment



SQUIRES YOUNG
LANDSCAPE ARCHITECTURE

Date | October 2023
Reference | SY23-370-ARB-23-01



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Client:	Shell UK Oil Products Ltd
Location:	Shell Waterloo, Crosby Road North, Waterloo, Liverpool L22 0LA.
Report Title:	Tree Survey Report and Tree Constraints Plan & Arboricultural Impact Assessment
File Reference:	SY23-370-ARB-23-01
Date of Site Visit	05.08.2023
Site Visit Carried Out By:	Francis Squires
Report Author:	Francis Squires

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1.0 Introduction

- 1.1 It is proposed to seek full planning permission for the provision of an EVC hub and associated works at an established Service Station at Shell Waterloo, Crosby Road North, Waterloo, Liverpool L22 0LA.
- 1.2 Five EV spaces with canopies above are proposed to be located to the south west of the site largely on existing hardstanding albeit utilising a small area of grassland which will be replaced elsewhere in the area.. The existing sales building will remain as existing. Existing boundary treatments will remain as existing. The proposed substation, GRP cabinet and rectifiers will be located along the northern boundary adjacent to the existing sales building, which currently consists of grassland. These will be enclosed by a fence.
- 1.3 As such a tree survey is necessary to determine the extent and value of trees on the site and adjacent to the site which may be affected by any construction works. This tree survey report has been prepared in line with local plan policies and is to be considered as a material part of any application to carry out construction works.

2.0 Brief

- 2.1 We have been instructed by JMS Planning on behalf of Shell UK Oil Products Ltd to survey the trees on the site with the guidance of BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'.
- 2.2 Based upon the data collected we are to provide a Tree Survey Plan (TSP) to show the trees present and a Tree Constraints Plan (TCP) to show the constraints posed by the trees at the design stage. We have provided details of the Root Protection Area (RPA) indicated on the Tree Constraints Plan (TCP) and also shown in the Tree Survey Schedules.
- 2.3 We have been asked to produce an Arboricultural Impact Assessment (AIA) showing the effect of the proposed works on the existing site trees.

NB Until Full Planning permission is granted a Forestry Commission Licence may be required to fell trees on the site - **A felling licence** is required by law if you fell more than 5m³ in one calendar quarter. If you are selling the wood - for logs, for example - then you can only fell 2m³ in a calendar quarter. This applies to trees in hedges as well as woodlands.

3.0 Scope of Report

- 3.1 This report is designed to survey the trees currently present on site and adjacent to the site.
- 3.2 The trees have been surveyed at a preliminary level only. The survey for trees in relation to the planning process must not be substituted for a tree risk assessment report. Detailed inspections involving decay inspection equipment, climbing or aerial inspections were not carried out and are beyond the scope of this report. In cases where we consider further investigation to be necessary this will be highlighted in the report.

- 3.3 Where tree stems and canopy structure are obscured by the presence of Ivy or other climbers it will not be possible to assess the areas of the tree that are not visible.
- 3.4 This survey covers stages 1-3 of the 5 stage Arboricultural process used in relation to planning. Stage 1 is the Tree Survey Plan (TSP). Stage 2 is the production of the Tree Constraints Plan (TCP). Stage 3 is the preparation of an Arboricultural Impact Assessment (AIA) and this is to be found later in this document Stage 4 is the preparation of an Arboricultural Method Statement (AMS). Stage 5 is the implementation, supervision and ongoing monitoring of the Works.

4.0 Survey Method

- 4.1 All observations were conducted from ground level with the aid of binoculars. No detailed inspection of the subject trees was undertaken.
- 4.2 All observations were conducted from within the site boundaries or public places. No access was made to private properties and therefore any commentary on trees within neighbouring sites was made in the context of what could be observed at distance.
- 4.3 The following data was assessed for the trees:
- Dimensions (height, crown spread and stem diameter)
 - Height above ground level of level of the lowest point of the crown base (excluding very minor parts of the crown)
 - The overall structural condition
 - The deadwood in the tree
 - The likely remaining retention span of the trees

The quality and value grade for each tree or group according to the cascade chart contained within BS 5837.

- 4.4 Tree heights were calculated by use of a Tri-Pulse laser measuring device where possible. A clinometer was also used.
- 4.5 Stem diameters were measured in accordance with the recommendations of BS5837.
- 4.6 Crown spreads were calculated using by use of a Tri-Pulse laser measuring device where possible or by pacing. Where access was difficult or unavailable distances were estimated.

- 4.7 The tree survey was carried out by Francis Squires on 5th August 2023. The weather was overcast with periods of very heavy rain.
- 4.8 Each individual tree has been allocated a reference number. 'T' refers to trees on site or just off site. 'G' refers to grouped trees.

5.0 Site Description

- 5.1 The site is located at Shell Waterloo, Crosby Road North, Waterloo, Liverpool L22 0LA.

Ordnance Survey (OS) National Grid Reference SJ 32247 97983.



Figure 1: Approximate site boundary is indicated by the red line (Source: Google Maps - Not to a specified scale)

- 5.2 The application site is within the designated Waterloo District Centre. The site is not located within a Conservation Area nor are there any listed buildings in the vicinity or Tree Preservation Orders (TPO's).
- 5.3 The petrol filling station comprises of a central forecourt with a five pump islands arranged in a starter gate format providing refuelling for ten vehicles. The sales building is to the north of the forecourt – this is a single storey building comprising paying facilities for customers. It also sells some basic items

- 5.4 The application site is approximately 0.22 ha. The site is accessed from Crosby Road. There is a separate access and egress point, and traffic flows through the site in a south to north direction. Customer car parking is provided to the front of the sales building, with cycle parking provided adjacent to the fenced compound to the west of the sales building. An air/water bay is also provided in this location. The western boundary of the site includes a grass strip with some small trees located within it.
- 5.5 The site is located within Flood Zone 1.
- 5.6 The site bedrock geology comprises: Sellafield Member - Sandstone. Sedimentary Bedrock. Soil texture is Light to Medium. The main surface texture class is Sand. Soil depth is deep.
Past development works means some imported topsoil is likely to be present.
- 5.7 We have not included Shadow Effects on the Tree Constraints drawings, as we do not consider them relevant to this commercial project.
- 5.8 All of the trees surveyed were of low quality 'C' grade.
Tree diversity is very limited with only two species Cockspur Thorn (*Crataegus p. 'Prunifolia'*) and Sycamore (*Acer pseudoplatanus*). The Sycamore has a heavy infestation of Scale Insect and is all of low quality. It should be noted that a number of the Cockspur Thorn (T6, TT8, T9, T14, T15, T16, T17, T18) are below the stem diameters to be recorded as recommended in BS5837:2012 but were recorded as retention will be beneficial to site screening.

5.9 Photos of site, taken during a site visit on 5th August 2023.

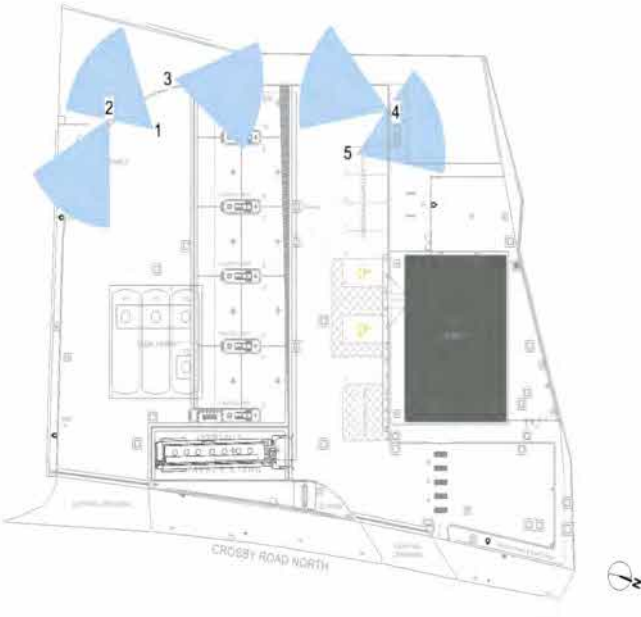


Figure 2: Site plan identifying photo locations - (Source - Jennings Design - Not to a specified scale)



1. View of Southern corner and T1 - T4.



2. View of South Eastern boundary.



3. View of Western boundary.



4. View of Western boundary.



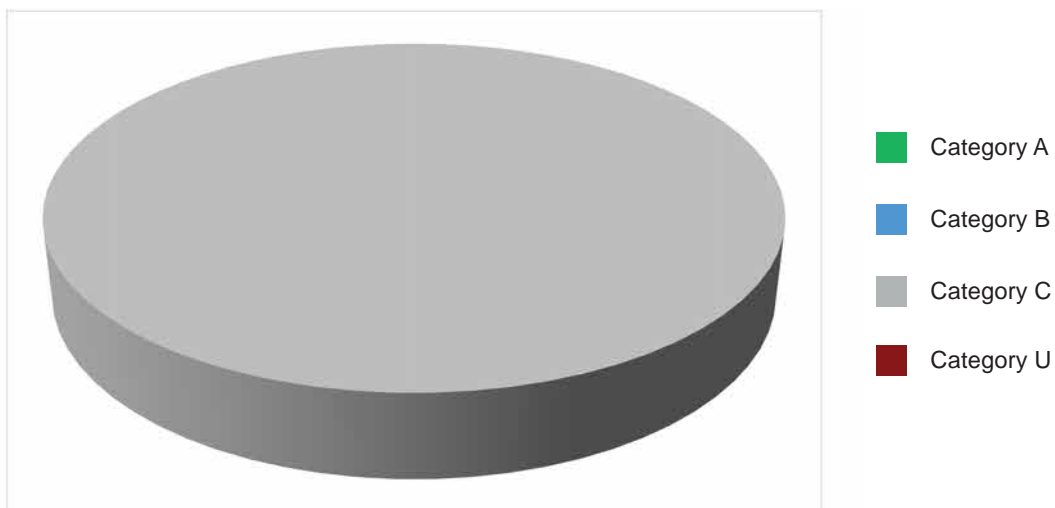
5. North Western corner T16-T19.

6.0 Survey Details

6.1 A total of 19 individual trees and no groups were surveyed and classified according to the BS 5837 valuation criteria. Of the individual trees and group typical trees surveyed:

- None were classified as BS5837 Category A, representing trees of high quality and value.
- None were classified as Category B, which represents trees which should be retained wherever possible, these trees mainly provide screening and make up part of the wider street scene.
- Nineteen were identified as Category C, which represents trees of low quality, due to past management or structural defects or size.
- None were graded U.

Tree Categories Identified on Site



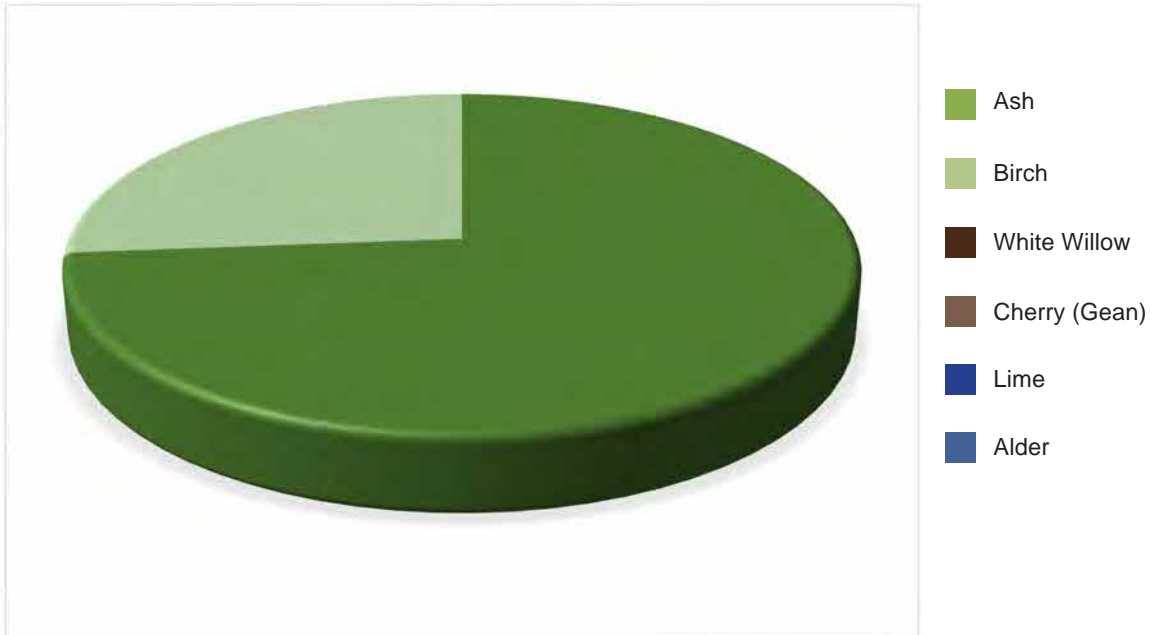
Category	Number of Trees	Approx. Percentage
A - Trees of high quality with an estimated remaining life expectancy of at least 40 years	0	0%
B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	0	0%
C - Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150 mm	19	100%
U - Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	0	0%

6.2 Tree Species Diversity

Two tree species were recorded during the survey.

A summary of the tree species surveyed can be within the Tree Schedule and is also provided in the Table below (dead trees or U rated trees not included):

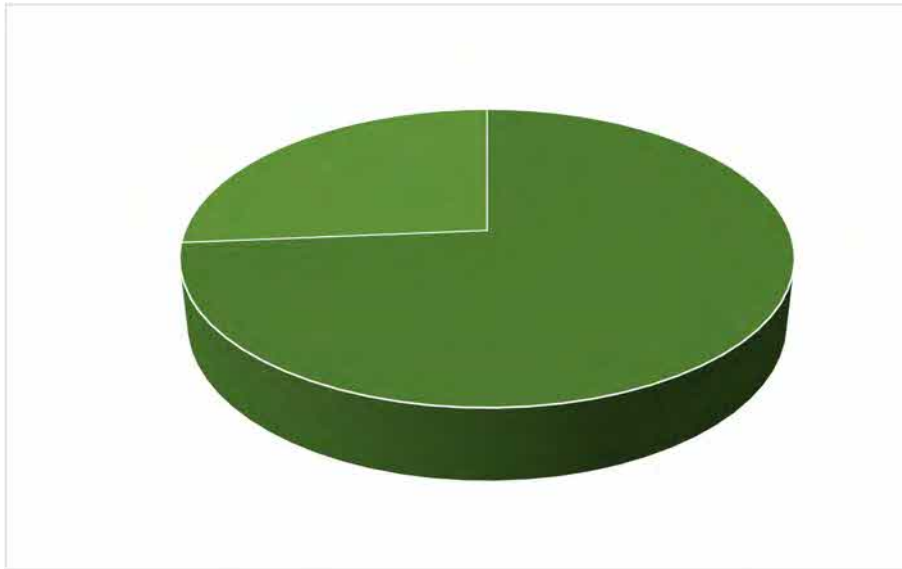
Tree Species Identified on Site



Tree Species	Number	Approx. Percentage
Cockspur Thorn (<i>Crataegus 'Prunifolia'</i>)	14	74%
Sycamore (<i>Acer pseudoplatanus</i>)	5	26%

6.3 Age Diversity (excludes groups and U rated trees)

Age Class of Trees Identified on Site



Age Class	Number of Trees	Approx. Percentage
Young	14	74%
Semi-Mature	5	26%
Early-Mature	0	0%
Mature	0	0%
Over-Mature	0	0%
Veteran	0	0%

7.0 Key to Tree Survey Data

7.1 The following information is in accordance with BS 5837: 2012.

7.2 **Tree number:** As identified on the tree plans.

7.3 **Species:** Given as common names and botanical names on the survey schedule.

7.4 **Stem diameter:** Measured in mm. Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA) Prefixed by * indicates an estimate due to obstructions to access or an offsite tree. Prefixed by § indicates an average is given over several stems for example in the case of a hedge.

7.5 **Crown spread:** Estimated crown extents to the cardinal points as shown on the tree plans. Measured in metres with laser or estimated (*) when line of sight is poor. **WC** – indicates that the crown forms part of the woodland canopy.

7.6 **Height of crown clearance and first significant break:** Existing height above ground level of canopy and the height of the first significant branch if relevant. Direction may be indicated.

7.7 Age Class	Definition
Young (Y)	Recently planted or establishing tree that could be transplanted with specialist equipment, i.e. less than 150 mm Diameter at 1.5m.
Semi-mature (S/M)	An established tree, but with some growth to make before reaching its potential maximum size. A tree within its first third of lifespan.
Early-mature (E/M)	A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread. A tree in its second third of life span.
Mature (M)	A mature specimen with limited potential for any significant increase in size, even if healthy. A tree within its final third of expected lifespan.
Veteran (V)	Specimens exhibiting features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.
Dead (D)	The tree is dead.

7.8 **Landscape Contribution.** Although not always included in BS 5837: 2012 Tree Survey Schedules we find it useful to make an assessment of the Landscape Contribution of the tree as follows:

High	prominent landscape feature
Medium	visible in landscape
Low	secluded/among other trees

Trees of poor quality/appearance will normally be assessed with a lower Landscape Contribution.

7.9 **Comments:** These concern only matters within the interests of good arboricultural practice and do not take any account of the new proposed development. A full hazard assessment is beyond the scope of a report dealing with planning aspects.

7.10 **Estimated remaining contribution:** A guide to the likely period for which the tree is likely to confer benefits to the wider environment. The retention span is categorised into years.

7.11 **Category grading:** To be applied by an arboriculturalist; to identify the quality and value of the tree stock so that informed decisions can be made with regards to which trees should be removed or retained. Four categories are used:

U	Trees unsuitable for retention
A	Trees of high quality
B	Trees of moderate quality
C	Trees of low quality

7.12 **Category sub grading:** May be applied where retention criteria is:

1	Mainly Arboricultural qualities
2	Mainly Landscape qualities
3	Mainly Cultural values including ecological environmental

8.0 Chalara Notes

- 8.1 Ash dieback is caused by the fungus *Hymenoscyphus fraxineus*. Part of the fungus life cycle was formerly known as *Chalara fraxinea*, hence the alternative names including chalara ash dieback or chalara.

In line with the latest recommendations from the Arboricultural Association - Ash Dieback Guidance for Tree Owners, Managers, Contractors and Consultants - Principal Author Michael Sankus which states ' Current knowledge does not provide clarity on the impact of ash dieback on the life expectancy of individual ash trees, although up to 5% of ash trees will show genetic tolerance to the disease and many trees growing in open sites may not succumb to the disease and are likely to persist indefinitely. On these grounds it would be unreliable and premature to downgrade a healthy ash tree or one showing tolerance when categorising trees in accordance with BS5837 simply because of a presumption that life expectancy will be shortened.' We have not downgraded the ash trees on site, we have however, restricted estimated remaining contribution to 10+ years as we believe this may aid forward planning.

Tree Survey Schedule

Client: Shell UK

Site: Shell Waterloo

Date: 05.08.23

Weather: Heavy rain

Surveyor: F Squires

Tree Ref. No.	English name	Height (m)	Single stem diameter (mm)	Multi-stem (Y/N)	Stem (mm)						Branch spread NESW (m)	Crown clearance (m)		Age class	Condition	Deadwood	Landscape contribution	RPR (m)	RPA (m2)	Estimated remaining contribution	BS category
					1	2	3	4	5	6		CC	FB								
T1	Cockspur Thorn	6	80	N							2.5,2.5,2.5,2.5	1.6	1.8N	Y	Good	-	M	0.96	3	40+	C2
Comments/Preliminary management recommendations: One of fifteen young thorns. All with crown at 1.8m. remove growth below. No deadwood. Good condition but stakes and ties can now be removed.																					
T2	Cockspur Thorn	6	80	N							2.5,2.5,2.5,2.5	-	1.8	Y	Good	-	M	0.96	3	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m. remove growth below this. No deadwood. Good condition but stakes and ties can now be removed.																					
T3	Cockspur Thorn	5	80	N							2,2,2,2	-	-	Y	Good	-	M	0.96	3	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m. remove growth below this. No deadwood. Good condition but stakes and ties can now be removed.																					
T4	Cockspur Thorn	6	80	N							2.5,2.5,2.5,2.5	-	-	Y	Good	-	M	0.96	3	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood. Good condition but stakes and ties can now be removed.																					
T5	Cockspur Thorn	5	65	N							2,2,2,2	-	-	Y	Good	-	M	0.78	2	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood. Good condition Multi stemmed Sycamore to W																					
T6	Cockspur Thorn	5	70	N							2,2,2,2	-	-	Y	Good	-	M	0.84	2	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood.Good condition																					
T7	Sycamore	9.5	225	N							4,4,4,4	4.5	4.5W	SM	Good	-	M	2.70	23	40+	C2
Comments/Preliminary management recommendations: High crown but well formed. Remove low growth.																					
T8	Cockspur Thorn	5	60	N							1.5,1.5,1.5,1.5	-	-	Y	Good	-	M	0.72	1.6	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood.Good condition.																					
T9	Cockspur Thorn	4	50	N							1,1,1,1	-	-	Y	Fair	-	M	0.60	1.1	40+	C2
Comments/Preliminary management recommendations: Suppressed by T10. Fair quality. Crown should be at 1.8m.remove growth below this																					

Notes	
Age Class	Y Newly planted/ Young – not fully established and capable of being transplanted or easily replaced < 150mm @ 1.5m. SM Semi-mature – in first third of usual life expectancy for species (LES). EM Early-mature – in second third of LES M Mature – Approximately half LES OM Late mature - in last third of LES V Veteran - over usual LES D Dead
Condition	Good / Fair / Poor / Dead
Deadwood	Twigs (small material up to 10mm diameter) / Minor deadwood - MD (dead wood 10mm–50mm diameter) / Major deadwood - MJD (dead wood 50mm + in diameter)
Landscape Contribution	High (prominent landscape feature) / Medium (visible in landscape) / Low (secluded/among other trees)
BS Category	Refers to Tree/Group quality and value: A - High, B - Moderate, C - Low, U - Unsuitable for retention. Retention criteria: 1 - Arboricultural, 2 - Landscape, 3 - Cultural
Root Protection Radius	A minimum radius from the tree trunk that should be left undisturbed during the development process
Stem Diameter	Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA)
Crown Spread (N,E,S,W)	Measured in metres with laser or estimated (*) when line of sight is poor. WC - indicates that the crown forms part of the woodland canopy

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Tree Ref. No.	English name	Height (m)	Single stem diameter (mm)	Multi-stem (Y/N)	Stem (mm)						Branch spread NESW (m)	Crown clearance (m)		Age class	Condition	Deadwood	Landscape contribution	RPR (m)	RPA (m2)	Estimated remaining contribution	BS category
					1	2	3	4	5	6		CC	FB								
T10	Sycamore	9.5	240	N							2,4,4,2	4	-	SM	Good	-	M	3.00	28	40+	C2
Comments/Preliminary management recommendations: Trivergent @ 2m. Scale insect present.																					
T11	Sycamore	9.5	240	N							2,4,2,2	4	-	SM	Good	-	M	3.00	28	40+	C2
Comments/Preliminary management recommendations: Divergent @ 2m and again @2.5m. Scale insect present. Very close to boundary fence.																					
T12	Sycamore	9.5	250	N							4,4,2,2	4	-	SM	Good	-	M	3.00	28	40+	C2
Comments/Preliminary management recommendations: Divergent @ 2m.Scale insect present. Very close to boundary fence.																					
T13	Sycamore	9	175	N							4,4,3,2	2	2S	SM	Good	-	M	2.10	14	40+	C2
Comments/Preliminary management recommendations: Divergent @ 2m. Scale insect present. Very close to boundary wall..																					
T14	Cockspur Thorn	5	65	N							2,2,2,2	-	-	Y	Good	-	M	0.78	2	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood. Good condition. There is a shrubby multi stemmed Sycamore close to W																					
T15	Cockspur Thorn	5	50	N							1.5,1.5,1.5,1.5	-	-	Y	Good	-	M	0.60	1.1	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood.Good condition																					
T16	Cockspur Thorn	5	70	N							2,2,2,2	-	-	Y	Good	-	M	0.90	3	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood.Good condition																					
T17	Cockspur Thorn	5	65	N							3,3,3,3	1.6	-	Y	Good	-	M	0.78	2	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood.Good condition.																					
T18	Cockspur Thorn	5	65	N							2,2,2,2	2	-	Y	Good	-	M	0.78	2	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m.remove growth below this. No deadwood.Good condition																					

Notes

Age Class	Y Newly planted/ Young – not fully established and capable of being transplanted or easily replaced < 150mm @ 1.5m. SM Semi-mature – in first third of usual life expectancy for species (LES). EM Early-mature – in second third of LES M Mature – Approximately half LES	OM Late mature - in last third of LES V Veteran - over usual LES D Dead
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Root Protection Radius	A minimum radius from the tree trunk that should be left undisturbed during the development process	
Stem Diameter	Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA)	
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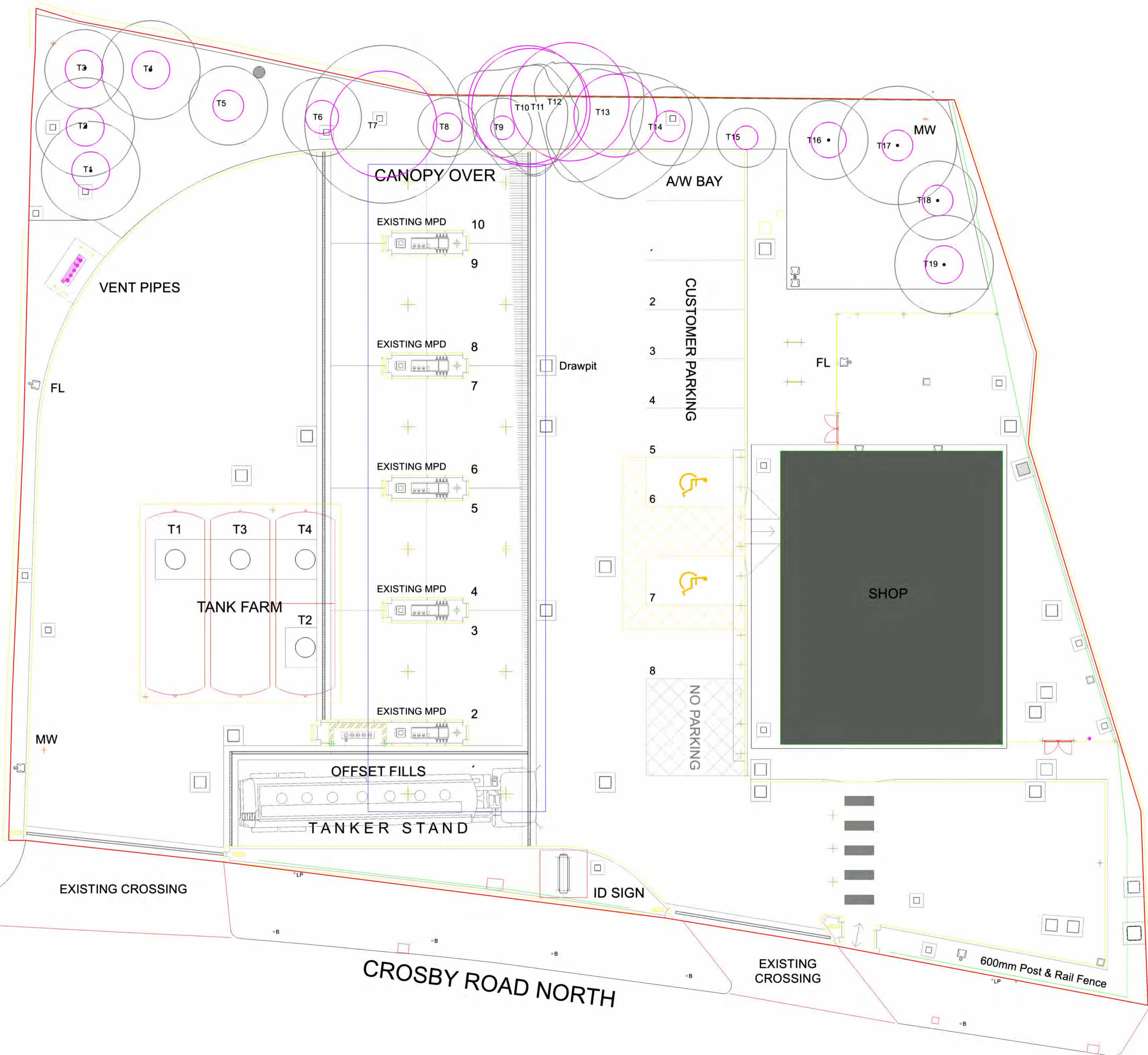
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					1	2	3	4	5	6		CC	FB								
T19	Cockspur Thorn	6	80	N							2.5,2.5,2.5,2.5	1.6	1.8N	Y	Good	-	M	0.96	3	40+	C2
Comments/Preliminary management recommendations: crown at 1.8m. remove growth below. No deadwood. Good condition but stakes and ties can now be removed.																					


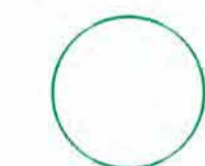
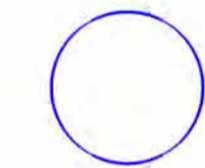
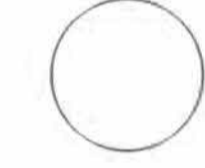

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BS Category	Refers to Tree/Group quality and value: A - High, B - Moderate, C - Low, U - Unsuitable for retention. Retention criteria: 1 - Arboricultural, 2 - Landscape, 3 - Cultural
Root Protection Radius	A minimum radius from the tree trunk that should be left undisturbed during the development process
Stem Diameter	Measured at 1.5m above ground level and used to calculate the Root Protection Area (RPA)
Crown Spread (N,E,S,W)	Measured in metres with laser or estimated (*) when line of sight is poor. WC - indicates that the crown forms part of the woodland canopy

10.0 Cascade Chart for Tree Quality Assessment

Table 1 cascade chart for tree quality assessment

Category and definition	Criteria (Including subcategories where appropriate)		
Trees unsuitable for retention (see Note)			
<p>Category U</p> <p>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</p>	<ul style="list-style-type: none"> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p>NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>		
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention			
<p>Category A</p> <p>Trees of high quality with an estimated remaining life expectancy of at least 40 years</p>	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
<p>Category a</p> <p>Trees of moderate quality with an estimated remaining life expectancy of at least 20 years</p>	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
<p>Category C</p> <p>Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm</p>	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value



- 
Category U
 Those in such a condition that they cannot realistically be retained as living trees in the context of 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 40 years
- 
Category B
 Trees of moderate quality with an estimated remaining life expectancy of at least 20 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 150 mm
- 
 Calculated Root Protection Area

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

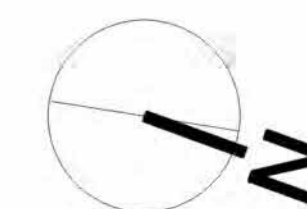
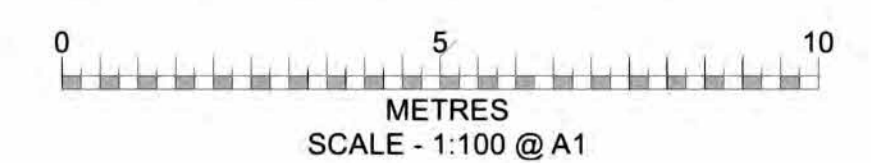
Project: Shell Waterloo
 Title: Tree Survey Tree Constraints Plan

Scale: 1:100 @ A1
 Dwg No.: SY23-370-TS-TCP-23-01
 Date: 10.08.23

Revision: 0
 Revision Date:

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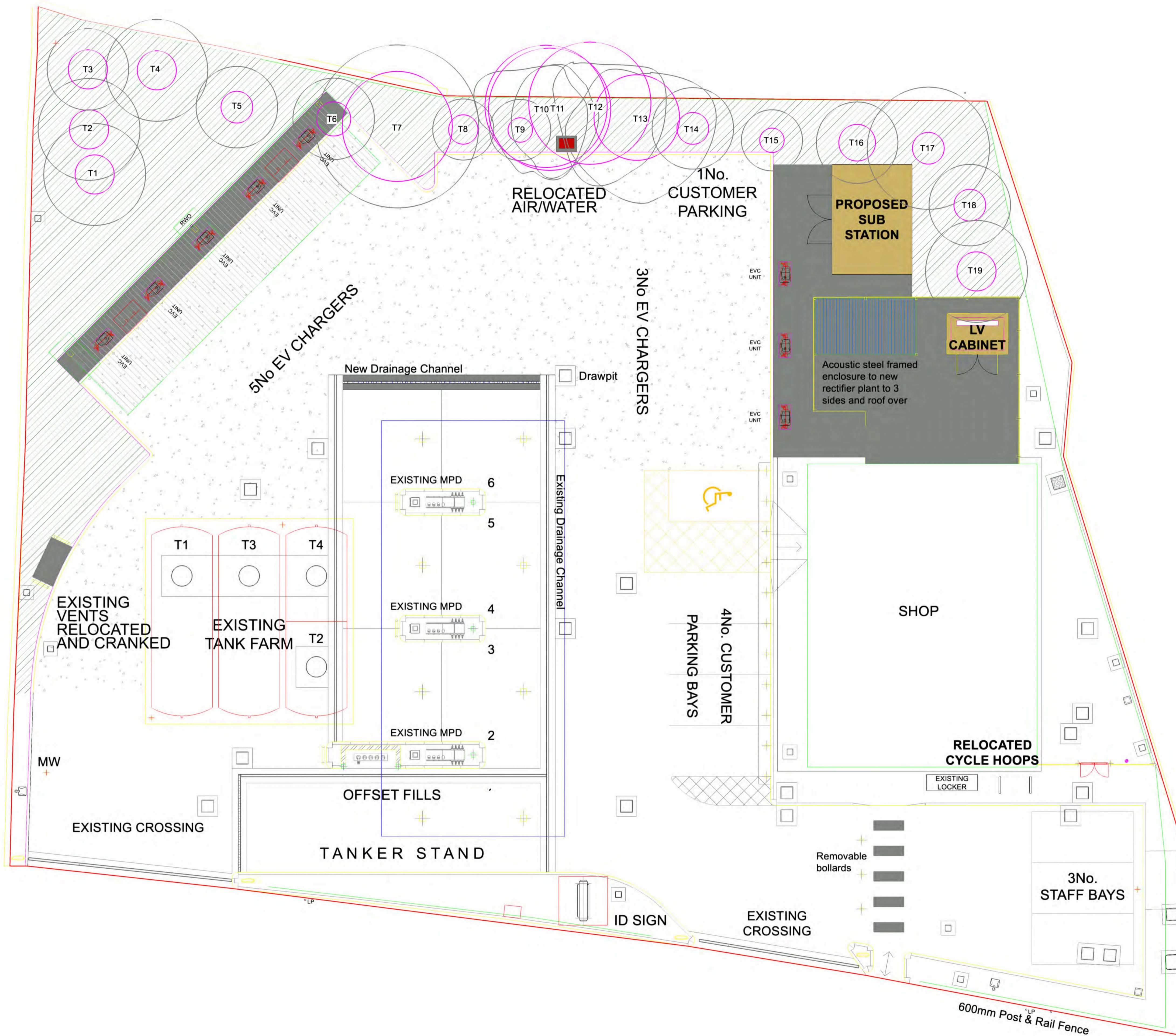


12.0 Arboricultural Impact Assessment

- 12.1 The proposed works shown on drawing No 10019306 PLNG 003 2023 rev D PLNG-02-01 23 was produced by Jennings Design Ltd after the production of our Tree Survey and Tree Constraints drawing SY23-370-TS-TCP-23-01. The original drawing produced was redrawn in response to our Tree Survey to reduce the compound and associated infrastructure sizes to attempt retention of the Cockspur Thorn.
- 12.2 Drawing SY23-370-AIA-TCP-23-02 shows the Tree Constraints together with the proposed works.
- 12.3 Drawing SY23-370-AIA-TRR-23-03 shows that two trees are to be removed to allow works to take place these are T6 a 'C' rated Cockspur Thorn of 70mm diameter at 1.5m and T7 a 'C' rated Sycamore. To mitigate for their removal we have proposed the planting of new trees as shown on drawing SY23-370-LPP-23-05.
- 12.4 Drawing SY23-370-AIA-TPP-23-04 shows the draft positions of Tree Protection fencing to protect the retained trees and Landscaped areas. Any personnel involved in demolition or construction works will not be allowed access to these areas unless under Arboricultural supervision. It is important that these areas are not used for the storage of any materials or machinery even on a temporary basis.
- 12.5 Existing levels will be retained within the RPAs of the retained trees. As such some of the Tree Protection Fencing will be on sloping ground and will require pole support rather than being on 'feet'. There will be limited incursion into the RPA of T6 but we do not consider this should prove a problem. Note that what appears to be a path to the North and West of the proposed hard surfacing indicates reinstated landscaping, in this case grass.
- 12.6 We believe that light facilitation pruning is required to install the Tree Protection Fencing and this should be done under Arboricultural Supervision as should the installation of the concrete pad for the Air/Water pumps. The service connections for these will be under existing hard surface..

12.7 BS 5837:2012 states 'Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. Barriers should be maintained to ensure they remain rigid and complete.'

Barrier details are to be found on the drawing. In this case we recommend the following specification of fencing to protect the TPO'd trees and trees close to the proposed works - 2m tall welded mesh panels on rubber or concrete feet or attached to scaffold poles driven into the ground. The panels should be joined together with 4 no. non-releasable plastic ties. All weather notices (min.A4 size) marked 'Construction Exclusion Zone No Access' (or similar) should be attached to the barriers. It is important that these notices are fixed where they are visible to the site construction labour force, so the majority of these signs should be fixed to the site side of the barrier and not on the 'public' side. It is important that all of the site labour force are aware that these barriers are not to be removed, even temporarily, without permission of the Local Planning Authority or Site Arborist. After erection any Tree Protection fencing should be examined by ourselves to ensure that it fulfils the recommendations of BS5837:2012.



Category U
Those in such a condition that they cannot realistically be retained as living trees in the context of 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 40 years

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 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 150 m

Calculated Root Protection Area

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Project: Shell Waterloo
Title: Arboricultural Impact Assessment Tree Constraints Plan

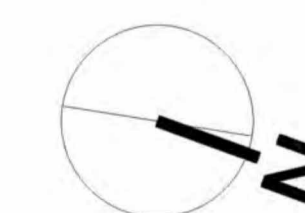
Scale: 1-100 @ A1
Dwg No.: SY23-370-AIA-TCP-23-02
Date: 27.10.23

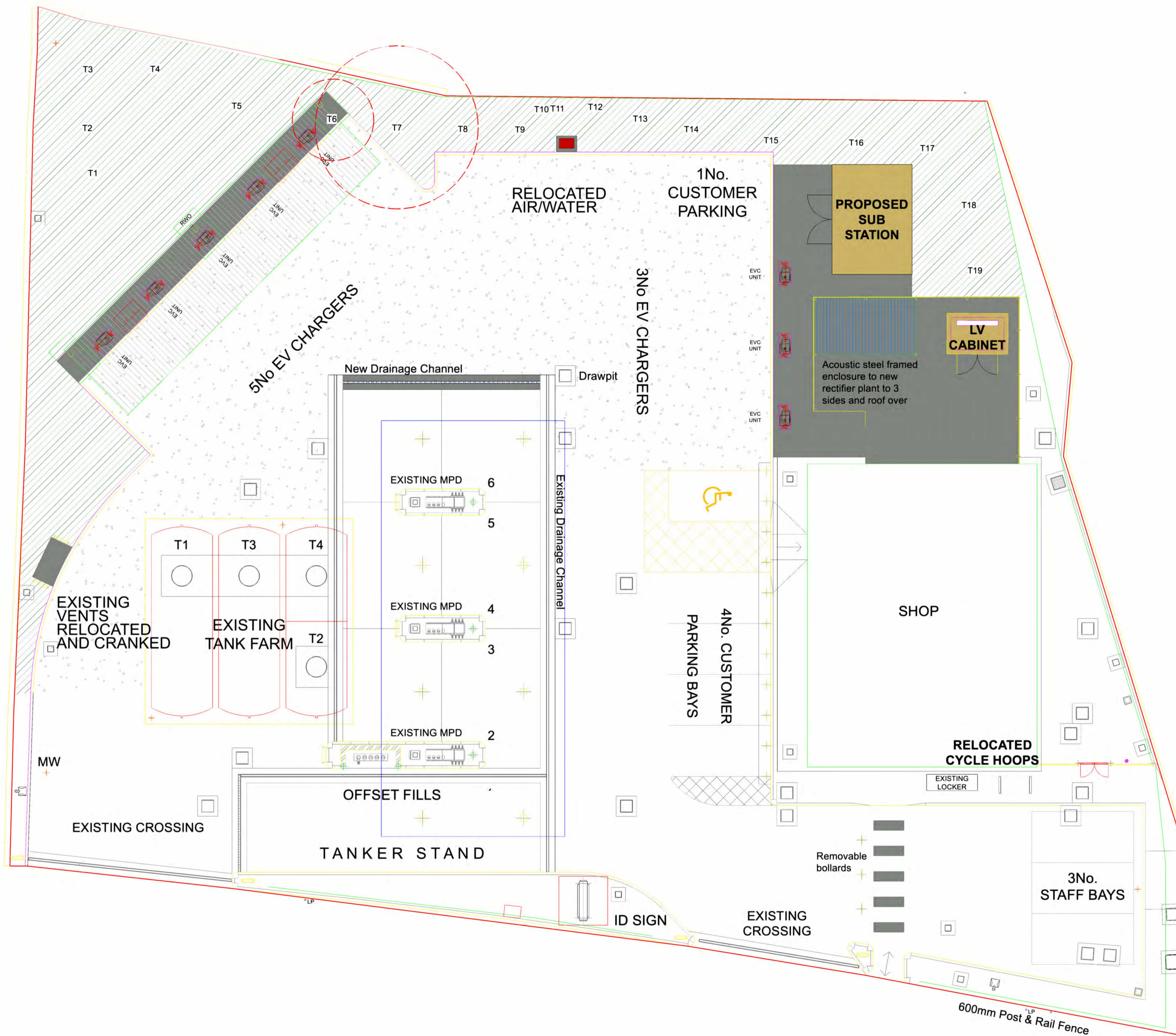
Revision: 0
Revision Date:

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0 5 10
METRES
SCALE - 1:100 @ A1





Trees to be removed to allow works to take place-
 T6 'C' rated Cockspur Thorn 70 mm stem diameter
 T7 'C' rated Sycamore

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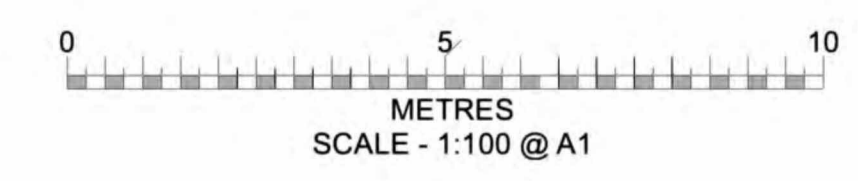
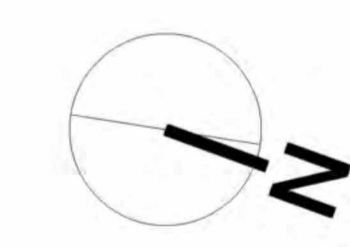
Project Shell Waterloo
 Title Arbicultural Impact Assessment
 Trees Removed /retained

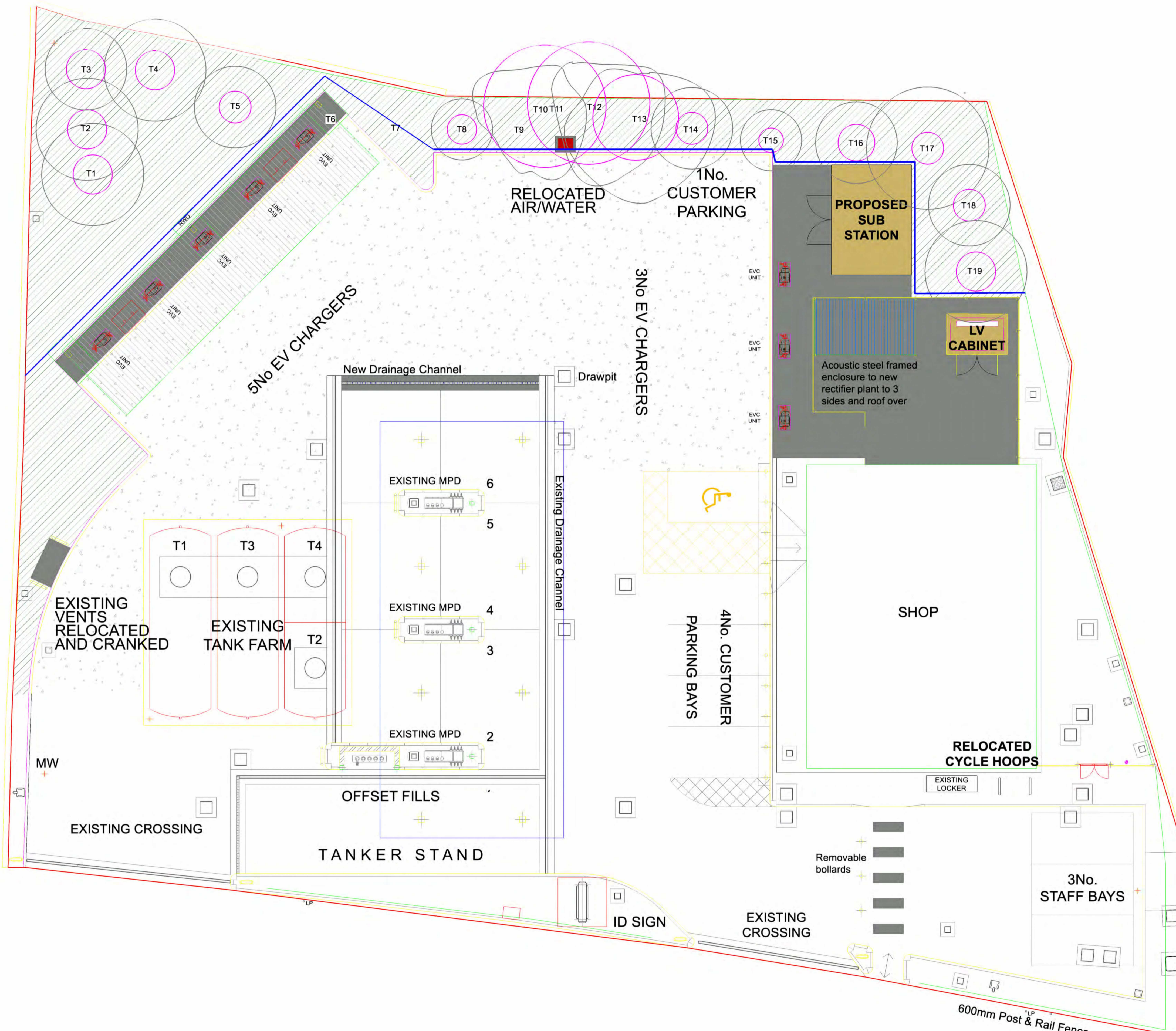
Scale 1-100 @ A1
 Dwg No. SY23-370-AIA-TRR-23-03
 Date 27.10.23

Revision 0
 Revision Date

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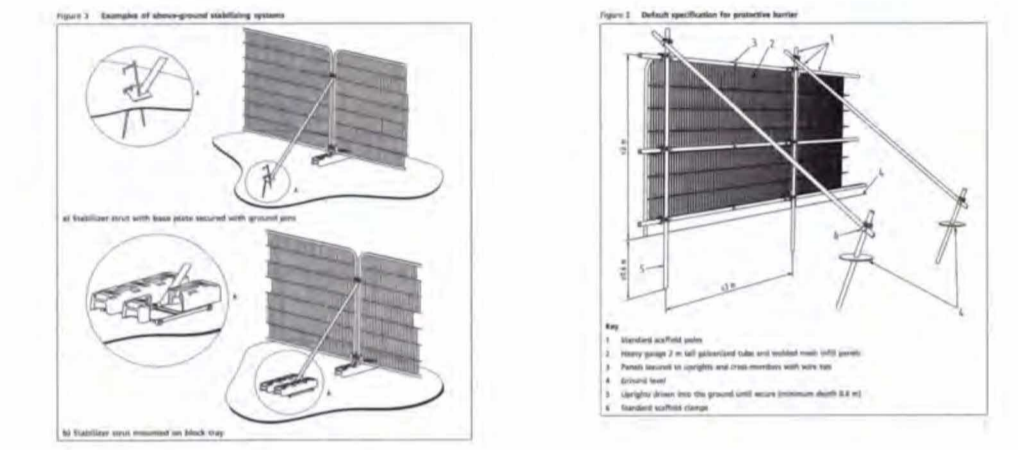
The retained trees and planting will require protection

Landscape & Tree Protection fencing- as per details shown below.

Fencing will be installed before any demolition or construction works take place and be removed after construction works are completed to allow landscape works to be carried out.

2m high panels to be joined together with two plastic ties 1m apart. Signage to be fixed to the panels (facing towards site operations) saying 'CONSTRUCTION EXCLUSION ZONE- NO ACCESS' or similar.

The purpose of this fencing is to remind contractors of the importance of avoiding damage to the retained trees and to protect the retained landscape areas.



Category U
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Trees to be considered for retention

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Calculated Root Protection Area

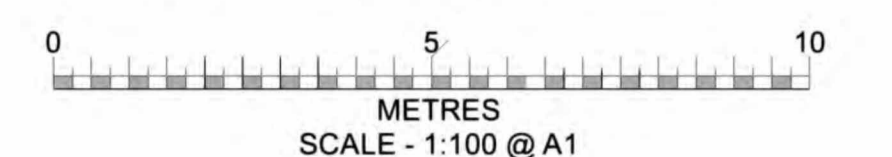
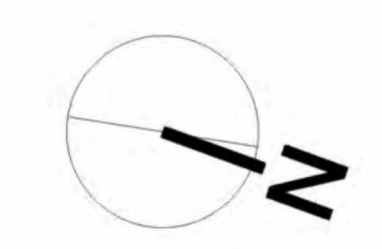
Note- Arboricultural Supervision required for pruning required for installation of Tree Protection Fencing and installation of Air/Water equipment.

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Project	Shell Waterloo
Title	Arboricultural Impact Assessment Tree Protection Plan
Scale	1-100 @ A1
Dwg No.	SY23-370-A1A-TPP-23-04
Date	27.10.23
Revision	0
Revision Date	

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