Deadline 5 Submission on Behalf of the

Neighbours and Users of Queen Elizabeth Park

Nick Jarman

Interested Party reference no: **20022545**

Table of Contents

1. Summary of Our Current Position

Our position remains unchanged from that stated at Deadline 3.

- We still favour avoiding the park as the best solution, by routing the pipeline along Prospect Road and Prospect Avenue.
- If the park cannot be avoided we favour using Horizontal Directional Drilling to install the pipe beneath it and the A325 in a single bore.
- We are still concerned that the stringing out activities for the TC018 (Stake Lane) will endanger trees in the park.
- We object to the plan to install the pipeline using a trench through QEP.
- We object to any plan which results in the loss of trees in the park, or puts trees at risk of damage.

New information in Esso's tree survey, submitted at Deadline 4, strengthens our arguments against trenching through the park and siting an auger bore reception pit near the A325. The survey shows that:

- There is no feasible trenched route which does not damage a significant number of Notable trees.
- 37% of the entire trench length within the park is within the root protection areas of Notable and Veteran Trees.
- 100% of the area planned for the auger bore compound is covered by root protection areas (RPA), of which 70% is Notable Tree RPA.
- 95% of the Cabrol Road construction compound is Notable Tree RPA.
- 12 Notable trees and 1 Veteran tree are endangered by the stringing activities.

Analysis of HDD options shows that:

- It is feasible.
- Further refinement of current HDD proposals could lead to a solution which is acceptable to all parties.

1.1. Worst Case Scenario

If Esso proceed with the planned trenched installation and stringing out activities in the park, the worst case scenario is that at least 580 trees will be removed.

Even if the worst case scenario does not happen, many trees in the park are still at risk - more than the 30 or so trees which Esso have identified for removal.

As it stands, the DCO gives Esso the powers to remove any tree which hinders the trenching, stringing or auger bore area, regardless of whether it is Notable or Veteran. This risk applies to all trees in the Order Limits, even those which Esso currently states will be retained.

1.2. Veteran and Notable Trees Within the Order Limits

The Order Limits in Queen Elizabeth Park contain 4 Veteran and 37 Notable Trees.

1.3. Point of Note: Deadline 4 Response from the Woodland Trust[1]

The Woodland Trust state:

> Queen Elizabeth Park contains a significant number of notable trees on site that, given time, are likely to develop veteran characteristics.

[1] Deadline 4 Submission, Woodland Trust (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001137-Woodland%20Trust%20Examination%20Questions%202%20response.pdf)

2. Comments on Esso's QEP Tree Survey

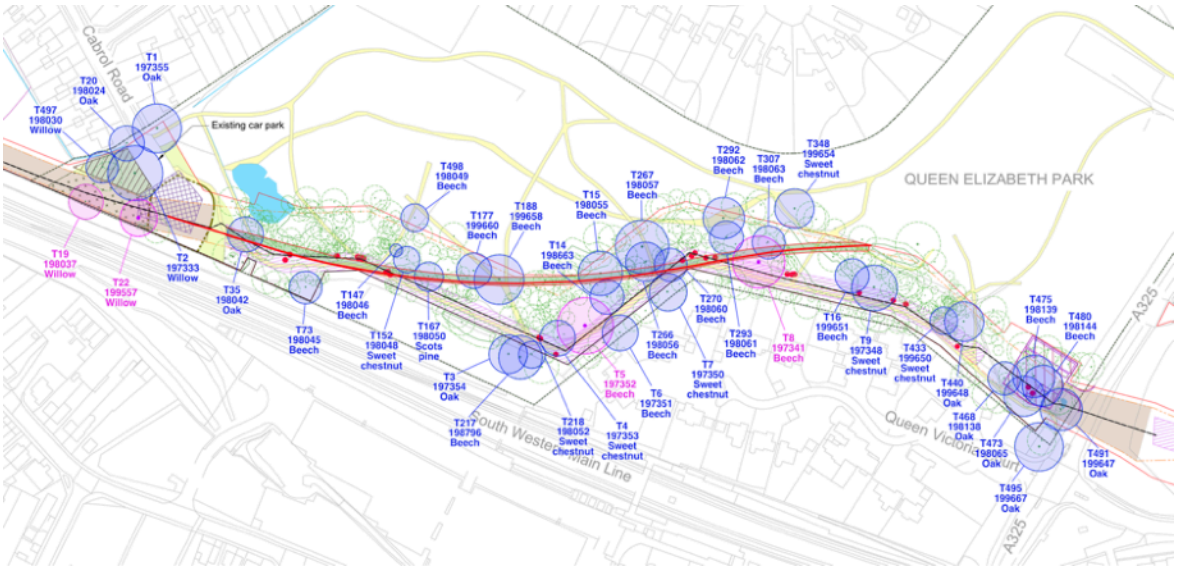
The Queen Elizabeth Park tree survey was submitted as an appendix to Applicant's Comments on Responses submitted for Deadline 3[2]. This section focuses on the tree survey and our comments on the remainder of the document are in section 5.1.

2.1. Identification of Notable and Veteran Trees

The tree survey lists over 580 trees (including groups), almost all of which are within the Order Limits. Although the survey is very comprehensive and mostly accurate, Esso omitted to identify which trees were classified as Notable or Veteran in the Woodland Trust's Ancient Tree Inventory (ATI). In the absence of this information, we have completed the work to map the Notable and Veteran Trees on the survey.

We have produced annotated versions of sheets 1-5 of the Queen Elizabeth Park Arboricultural Survey drawings, showing all trees listed in the ATI. These can be found in Appendix B. Extracts from these drawings are also used to illustrate specific points in the sections which follow.

We have also annotated the Construction Stage drawing from the QEP Site Specific Plan, which again lacked an indication of the ATI trees. This can also be found in Appendix B but a small version is reproduced here to give an overview of where the Notable and Veteran Trees are located.



Veteran Trees are indicated in purple and Notable Trees are blue.

[2] Applicant's Comments on Responses submitted for Deadline 3, Application Document: 8.46, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001094-8.46%20Applicant's%20Comments%20on%20Responses%20submitted%20for%20Deadline%203.pdf)

Each of the four main activities in the park affect one or more ATI-listed trees. Details are:

Activity	Veteran Trees affected	Notable Trees affected	Unclassified Trees affected	Total Trees affected
Trenching	2	12	66	80
Auger Boring	0	5	25	30
Stringing	1	12	96	109
Construction Compound	2	4	3	9

The Construction Compound refers to the Cabrol Road compound and TC018 reception pit combined, including the rising HDD bore. Some trees are affected by more than one activity, which explains why, for example, the total of the Veteran Trees column is greater than the actual number of Veteran Trees in the park.

2.1.1. No Adjustment of Plans to Take Account of Trees

The survey has found over 580 trees within and adjacent to the Order Limits, of which 4 are Veteran and 37 are Notable.

At this stage we would have expected the plans to be adjusted by Esso to take into account the position of large, Notable and Veteran Trees within the Order Limits, however it appears that no changes of any kind have been made.

Our view was that previous plans failed to take account of the trees in the park. The results of the tree survey gave Esso the opportunity to adjust their activities to prevent damage to the trees and to avoid working very closely to the trunks and within root protection areas. Even with the factual tree survey results the current plans are no different to the previous ones.

The tree survey was carried out in December 2019 so there has been ample time to make amendments for the Deadline 4 submission.

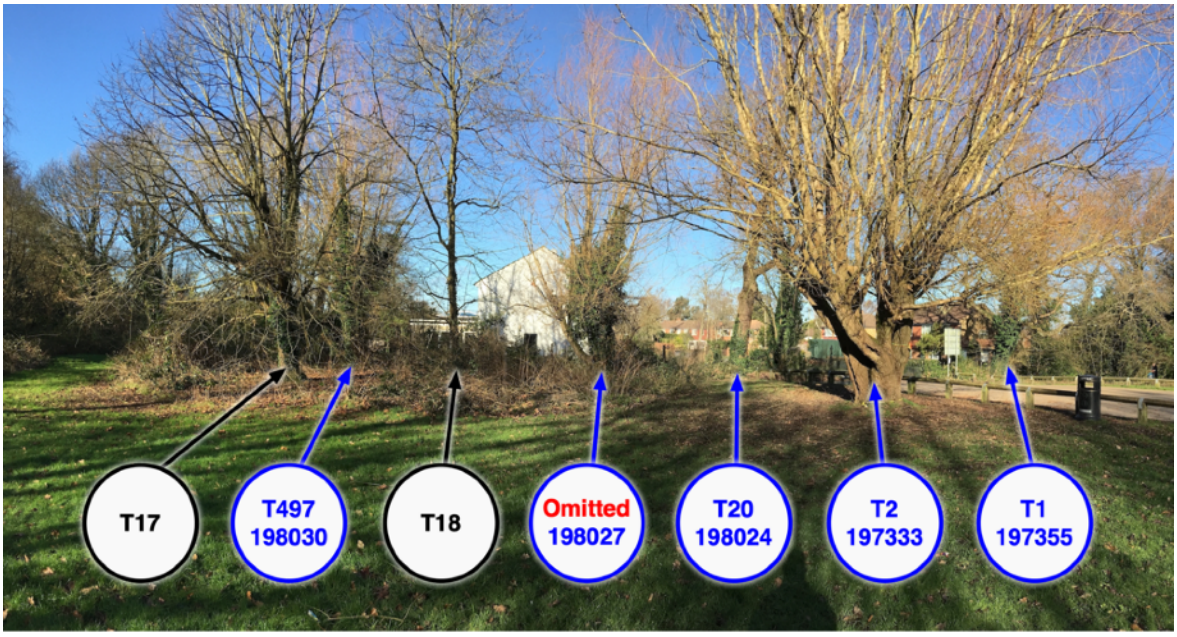
Although Esso's tree survey is comprehensive, it seems that no use has been made of the information they gathered to produce a better, more sensitive and acceptable plan for the park.

2.1.2. Minor Inaccuracies

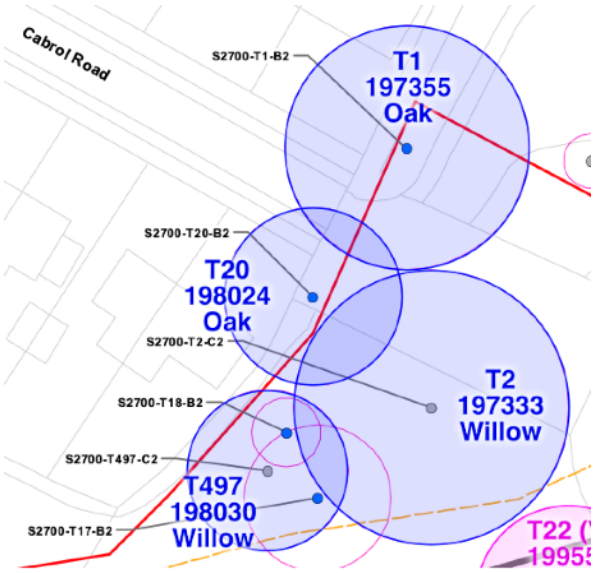
Whilst we have not checked every single tree in the survey, we noticed a number of minor inaccuracies whilst we were correlating the survey with the ATI:

1. Path position near T432 and T433 - these trees are on the other side of the path.
2. T249 is listed as a sweet chestnut but is actually an oak.
3. A Notable Tree within the proposed Cabrol Road construction compound has been omitted.

The image below shows the Notable Tree in the proposed Cabrol Road construction compound. It is listed in the Woodland Trust's ATI as number 198027.



The relevant area of Esso's tree survey map is shown below:



Although the inaccuracies in the tree survey are relatively minor, they were found by checking a small sample of the data, and give a cause for concern that there may be other mistakes and omissions. Given that Esso's first Schedule of Notable Trees[3] was incorrect, we would have expected Esso to ensure this survey was carefully verified.

[3] Environmental Statement (Volume D) Appendix 10.2: Schedule of Notable Trees, Application Document: 6.4, Revision No. 1.0, May 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-000235-6.4%20Appendix%2010.2%20Schedule%20of%20Notable%20Trees.pdf)

2.1.3. 33 Trees Identified for Removal

Also missing from the tree survey is an indication of which trees Esso plans to remove. We derived this information by correlating the red dots on the Construction Stage drawing in the QEP Site Specific Plan with the larger scale plans and tree list in the Applicant's Comments on Responses submitted for Deadline 3.

The table below lists all the trees which Esso plan to remove. We are confident that we have accurately identified the majority of the trees, but have slight uncertainty about two of them (indicated with '?'). The 'In RPA?' column indicates trees which are within the root protection area of another tree which will be retained and (N) indicates that the RPA is that of a Notable Tree.

Tree number	Species	Life Stage	Stem Diameter(s)	In RPA?
S2700-T63-C1	Alder	Early Mature	260	Yes
S2700-T64-C1	Hazel	Young	80	
S2700-T99-C2	Oak	Semi Mature	180	Yes
S2700-T116-C2	Silver Birch	Semi Mature	180	Yes
S2700-T117-C2	Silver Birch	Young	140	
S2700-T118-C2	Sweet Chestnut	Semi Mature	240	
S2700-T119-C2	Silver Birch	Semi Mature	180	
S2700-T120-C2?	Silver Birch	Young	110	
S2700-T121-C2	Silver Birch	Young	120	
S2700-T122-C2	Silver Birch	Semi Mature	180	
S2700-T123-C2?	Silver Birch	Young	110	Yes
S2700-T124-C2	Holly	Semi Mature	70	Yes
S2700-T156-C2	Oak	Young	130	Yes
S2700-T157-C2	Oak	Young	150	Yes
S2700-T158-C2	Oak	Early Mature	220, 230	Yes
S2700-T208-C2	Silver Birch	Semi Mature	220, 110, 140	Yes (N)
S2700-T209-C2	Silver Birch	Semi Mature	200	Yes (N)
S2700-T222-C2	Sycamore	Young	85	Yes (N)
S2700-T276-C1	Lime	Semi Mature	215	Yes (N)
S2700-T284-C2	Sweet Chestnut	Semi Mature	280	Yes
S2700-T283-C1	Beech	Young	60	Yes
S2700-T286-C1	Silver Birch	Semi Mature	150, 245, 40, 65	

Tree number	Species	Life Stage	Stem Diameter(s)	In RPA?
S2700-T287-C2	Sweet Chestnut	Early Mature	260	
S2700-T288-C1	Sweet Chestnut	Young	85	
S2700-T345-C1	Silver Birch	Early Mature	210	Yes
S2700-T346-C1	Sweet Chestnut	Young	120	Yes
S2700-T347-C1	Silver Birch	Semi Mature	140, 120, 140	Yes
S2700-T362-C1	Silver Birch	Early Mature	160	Yes (N)
S2700-T372-C1	Silver Birch	Young	95	Yes (N)
S2700-T380-C1	Silver Birch	Early Mature	210	Yes
S2700-T442-B2	Ash	Semi Mature	310	
S2700-T474-C2	Holly	Early Mature	220	Yes (N)
S2700-T478-C2	Sycamore	Young	120	Yes (N)

Esso have made the statement many times that ‘no mature trees are to be removed’, and whilst that is technically correct, it does not give the full picture. There are 7 Early Mature trees to be removed, and 19 trees which have a stem diameter of over 150mm.

On the basis that Esso’s plans represent the best case scenario, it is likely that more trees will be lost than are listed here.

2.2. Effects of Trenching Activities on Trees

The proposed trenched pipeline installation is the most damaging aspect of Esso’s plans and the part to which we most strongly object.

We estimate that the total length of trench in the park is 532 metres, of which 472 is in narrow working area NW17. This is the length required to connect the TC018 pit to the proposed auger boring pit for TC019. 197 metres of the proposed trench is in root protection areas of Notable and Veteran Trees. That is 37% of the entire trench length within the park.

2.2.1. Trench Digging in Root Protection Areas

The root protection areas of 12 Notable Trees and 2 Veteran Trees will be violated by trench digging for the pipeline route as proposed. This will cause damage to the root systems and in many cases it is highly likely to kill the tree. BS5837:2012 states that:

> Mature trees recover slowly, if at all, from damage to their woody roots.

The table below lists all Notable and Veteran Trees which will be affected by trench digging in their root protection areas. From Esso’s plans, we have roughly calculated the

distance between the edge of the trench and the centre of the tree's trunk, assuming a trench width of 700mm. We have also calculated the percentage of the root area which will be severed by the trench. Figures of most concern are highlighted in red.

Tree Number	ATI Ref	ATI Class	Species	Trench Distance (m)	Root Area Severed
S2700-T35-B2	198042	N	Oak	2.5	34%
S2700-T167-B2	198050	N	Scots pine	6.0	7%
S2700-T4-B2	197353	N	Sweet chestnut	4.8	20%
S2700-T5-U	197352	V	Beech	4.2	32%
S2700-T7-B2	198350	N	Sweet chestnut	9.3	1%
S2700-T270-B2	198060	N	Beech	0.8	44%
S2700-T8-A3	197341	V	Beech	4.7	29%
S2700-T9-B2	197348	N	Sweet chestnut	6.0	20%
S2700-T433-B2	199650	N	Sweet chestnut	5.4	9%
S2700-T468-B2	198138	N	Oak	4.7	18%
S2700-T473-A2	198065	N	Oak	6.3	16%
S2700-T475-C2	198139	N	Beech	5.3	22%
S2700-T480-B2	198144	N	Beech	4.0	27%
S2700-T491-B2	199647	N	Beech	2.5	36%

We are aware that Esso have stated that they will use hand digging with vacuum excavation to dig trenches in root protection areas (mitigation B3 in Esso's Technical Note: Ancient Woodland and Veteran Trees). This is only offered for Veteran trees but we would like clarification on whether this would also be used for Notable Trees.

Rushmoor Borough Council note that a trench which is more than 1 metre deep must be shuttered to protect personnel working in it[4]. Esso state that '*the minimum depth from the top of the pipe to the ground surface would be 1.2m in Open Cut sections*'. With a pipe diameter of 30mm and some allowance for bedding material, this gives a likely trench depth of 1.6 metres.

With a requirement to shutter the trench, roots will need to be severed, but even if the trench is not shuttered, hand digging of a trench will reveal a web of roots which prevent welded pipe lengths from being lowered into the trench.

[4] Comments appertaining to ESSO's response to RBC's written representations 1 (Deadline 2), section 9.3 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001143-Rushmoor%20Borough%20Council%20Comments%20.pdf)

We therefore conclude that extensive severing of tree roots is inevitable and because the majority of a tree's roots are within the top 600mm of the soil, major damage will be done to the tree's root system.

NJUG states:

> Contrary to popular belief, the root system of a tree is not a mirror image of the branches, nor is there usually a 'tap root'. The majority of the root system of any tree is in the surface 600mm of soil, extending radially in any direction for distances frequently in excess of the tree's height. Excavation or other works within this area are liable to damage the roots.

BS5837:2012 states:

> A2.2 Within a short distance of the stem, the roots are highly branched, so as to form a network of small-diameter woody roots, which can extend radially for a distance much greater than the height of the tree, except where impeded by unfavourable conditions. All parts of this system bear a mass of fine, non-woody absorptive roots, typically concentrated within the uppermost 600 mm of the soil.

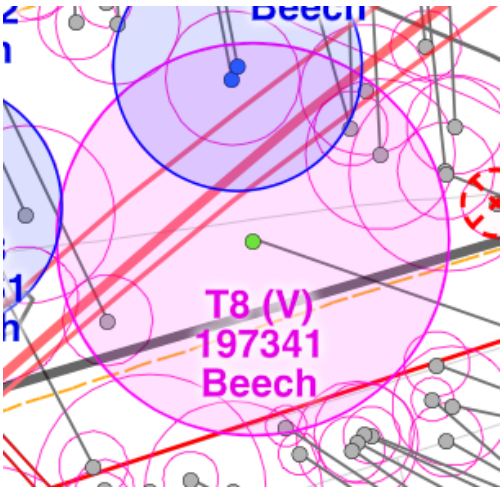
2.2.2. Trees at Most Risk from Trenching

There are several Veteran and Notable Trees which we are particularly concerned about.

Although we only mention trees which are classified as Notable or Veteran, the trench will affect numerous other trees in the park. We are surprised and disappointed that the route for the trench seems to take no account whatsoever of the trees in its path.

The Fairy Tree (T42/S2700-T8-A3 - Veteran)

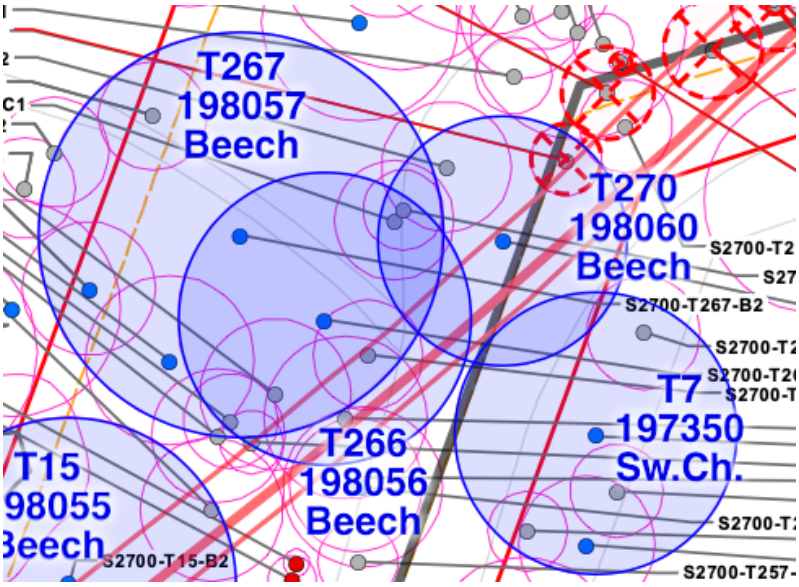
The trench (black line running through the RPA) is only 4.7 metres away from the trunk and severs 29% of the root area.



(Extract from sheet 4)

Beech S2700-T270 (Notable)

This tree is critically endangered by the trench, which passes so close the the trunk that is seems impossible that the tree can be retained. We calculate that the trench passes 0.8 metres from the centre of the trunk and severs 44% of its root area. We are deeply concerned that this tree will be removed to facilitate trenching. Whilst we understand that Esso do not currently plan to remove this tree, the DCO gives them the power do this if needed. We would be interested to hear Esso's comments on this.

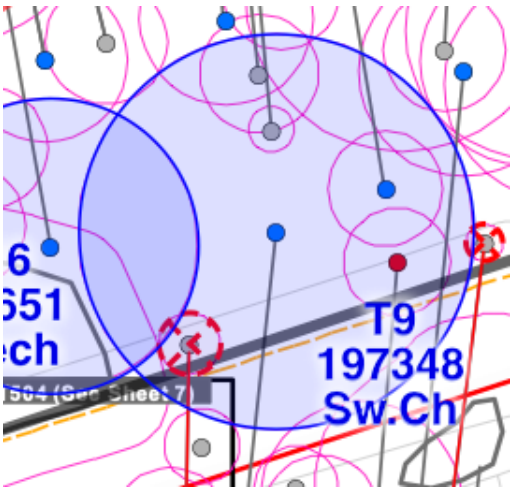


(Extract from sheet 4)

This is a particularly congested area where sweet chestnut S2700-T7 (Notable) will sustain damage to the periphery of its root zone and beech S2700-T266's (Notable) root zone is close to the trench. Damage to the latter is a possibility, depending on the exact route of the pipeline and the eventual width of the trench.

Sweet chestnut S2700-T9

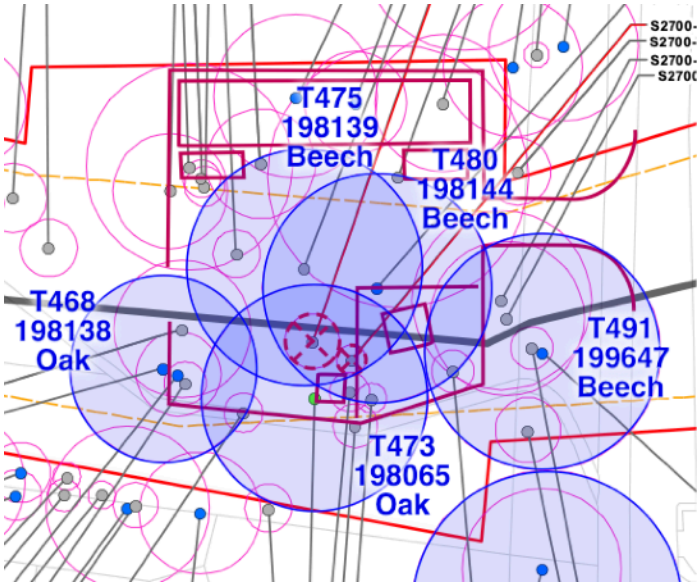
This tree has 20% of its root area severed, with the trench 6 metres away from the centre of its trunk.



(Extract from sheet 4)

Oaks S2700-T468 and S2700-T473 and beeches S2700-T475 and S2700-T480

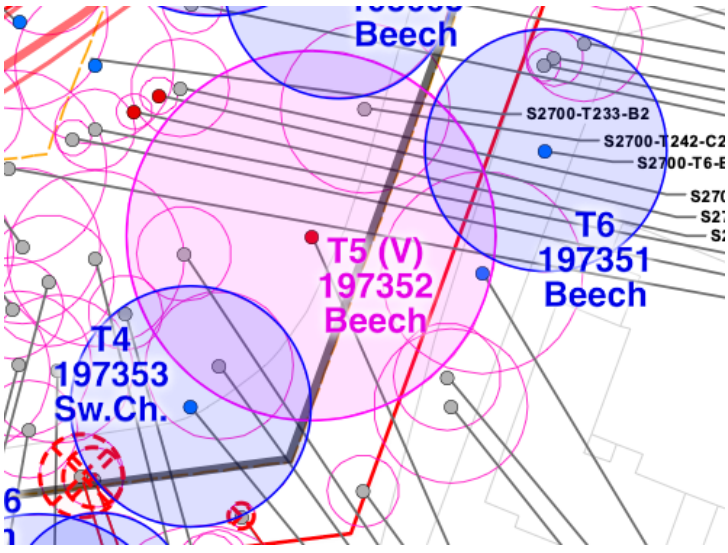
These trees are all affected by the trench, having between 16% and 27% of their root areas severed. These are all Notable Trees. The added complication for this group of trees is that they are in the auger boring compound and will be exposed to other threats described in subsequent sections.



(Extract from sheet 5)

Veteran beech S2700-T5 and sweet chestnut S2700-T4 (Notable)

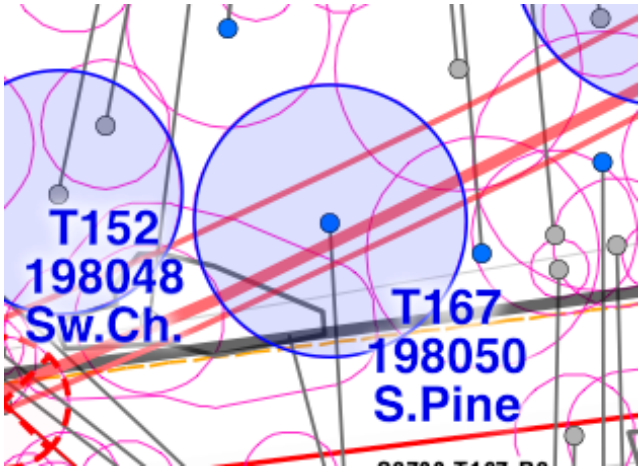
The Veteran beech has 32% of its root area severed, with the trench 4.2 metres from its trunk whilst sweet chestnut S2700-T4 (Notable) has 20% severed. Beech S2700-T6 (Notable) is just outside the trench area but at risk depending on the actual extent of its roots and the final path of the pipeline.



(Extract from sheet 3)

Scots Pine S2700-T167 (Notable)

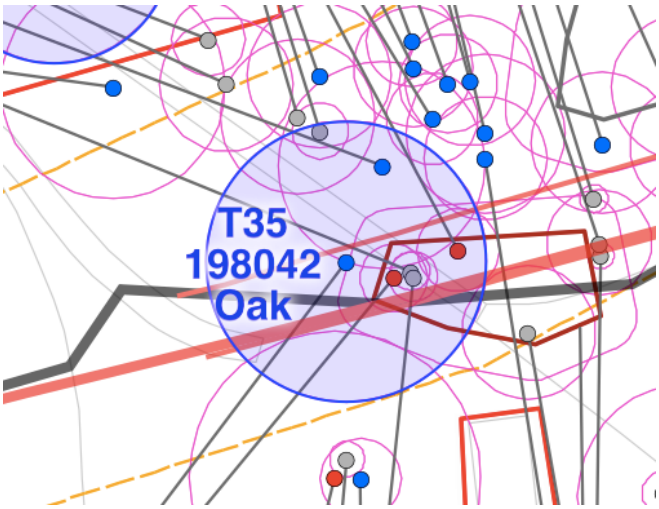
This tree has 7% of its root area severed and will be further stressed by stringing activities (see section 2.4):



(Extract from sheet 2)

Oak S2700-T35 (Notable)

This tree is in grave danger because of the proximity of the trench to its trunk. 34% of its root are will be severed as the trench passes 2.5 metres from the centre of its trunk.



(Extract from sheet 1)

2.2.3. Removal of Trees Within Root Protection Areas

Eight trees which are identified for removal are within the root protection areas of Notable Trees (none are within the RPA of any Veteran Trees). We do not see the benefit of removing a tree from an area where the roots of the retained Notable Tree will be damaged in the process.

Tree to be removed		Notable trees affected			
Tree number	**Species**	**Tree number**	**ATI Ref**	**ATI Class**	**Species**
S2700-T208-C2	Silver Birch	S2700-T218-C2	198052	N	Sweet chestnut
		S2700-T4-B2	197353	N	Sweet chestnut
S2700-T209-C2	Silver Birch	S2700-T4-B2	197353	N	Sweet chestnut
S2700-T222-C2	Sycamore	S2700-T4-B2	197353	N	Sweet chestnut
S2700-T276-C1	Lime	S2700-T270-B2	198060	N	Beech
S2700-T362-C1	Silver Birch	S2700-T16-B2	199651	N	Beech
		S2700-T9-B2	197348	N	Sweet chestnut
S2700-T372-C1	Silver Birch	S2700-T9-B2	197348	N	Sweet chestnut
S2700-T474-C2	Holly	S2700-T473-A2	198065	N	Oak
		S2700-T473-A2	198065	N	Oak
		S2700-T480-B2	198144	N	Beech
S2700-T478-C2	Sycamore	S2700-T473-A2	198065	N	Oak
		S2700-T473-A2	198065	N	Oak
		S2700-T480-B2	198144	N	Beech

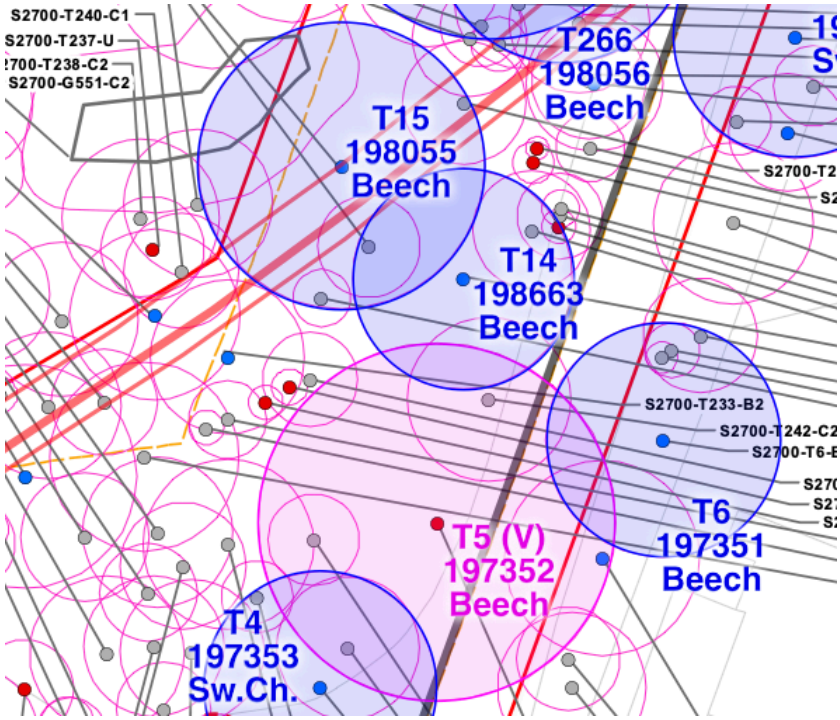
2.2.4. No Viable Route for a Trench

There are three places within the park where the entire width of the Order Limits is blocked by the root protection areas of Notable and Veteran Trees.

On the basis that no trenching should be undertaken in the root protection areas of Notable and Veteran Trees, there is no viable path through the park within the Order Limits. The only viable solution is to HDD under the park to preserve the health of the trees.

Blocker 1

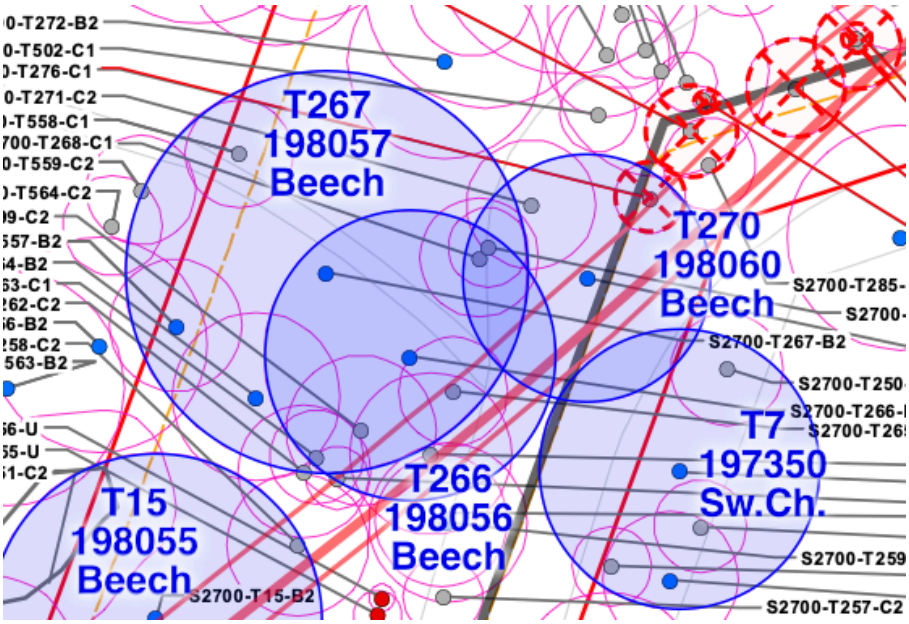
Beeches S2700-T15, S2700-T14 (both Notable) and Veteran beech S2700-T5 span the Order Limits. Beech S2700-T6 also forms part of this group.



(Extract from sheet 3)

Blocker 2

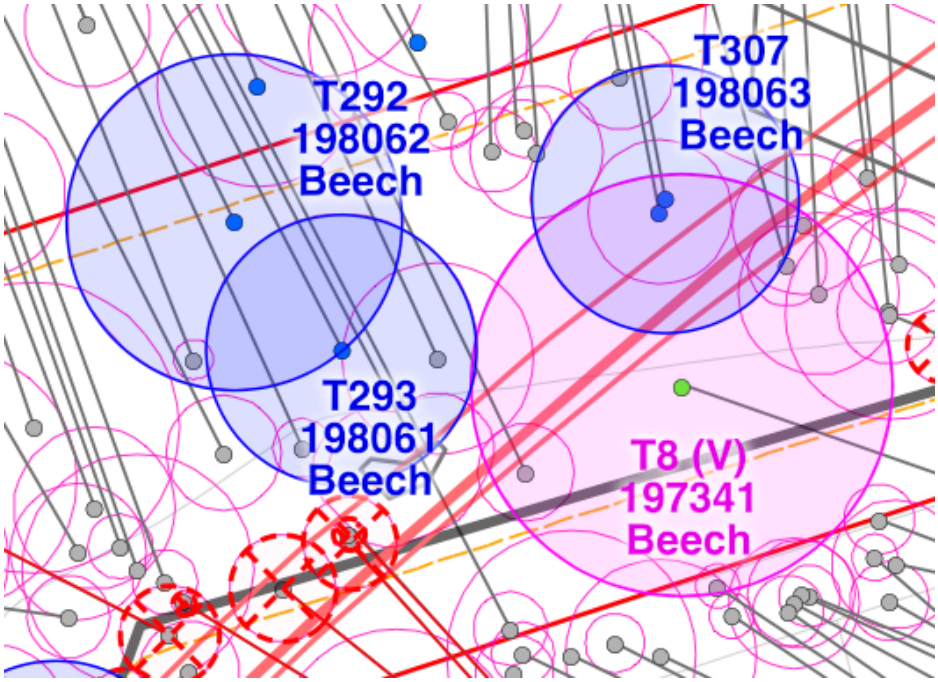
Beeches S2700-T267 and S2700-T270 (both Notable) span the Order Limits, with beech S2700-T266 (Notable) and sweet chestnut S2700-T7 (Notable) contributing additional cover.



(Extract from sheet 4)

Blocker 3

The Fairy Tree (T42/S2700-T8, Veteran) is in a group which also spans the Order Limits, with the help of beeches S2700-T293 and S2700-T292 (both Notable). Also in this group of trees is beech S2700-T307, which although it does not reach the edge of the Order Limits, does cover the Limits of Deviation.



(Extract from sheet 4)

2.3. Effects of TC019 Auger Boring Area on Trees

The area marked for the auger bore compound is unsuitable for the following reasons:

- The auger bore receiving area contains 20 trees.
- The area contains the root protection zones of 29 trees, 5 of which are Notable.
- There is no part of the auger bore area which is not in a root protection zone.
- The topsoil storage area (as indicated in Esso's D3 submission Figure 1.5[5]) contains at least 3 trees.
- The ground levels vary greatly throughout the proposed compound. There is no level working area.

2.3.1. Location and Size of Pit Not Consistently Described

Section 3.7.4 of the QEP Site Specific Plan states that *'A reception pit will then be excavated approximately within the silted up pond'*.

[5] Responses to Written Representations - Other Parties, Application Document: 8.24, Revision No. 1.0, December 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001009-8.24%20Responses%20to%20Written%20Representations%20-%20Other%20Parties.pdf)

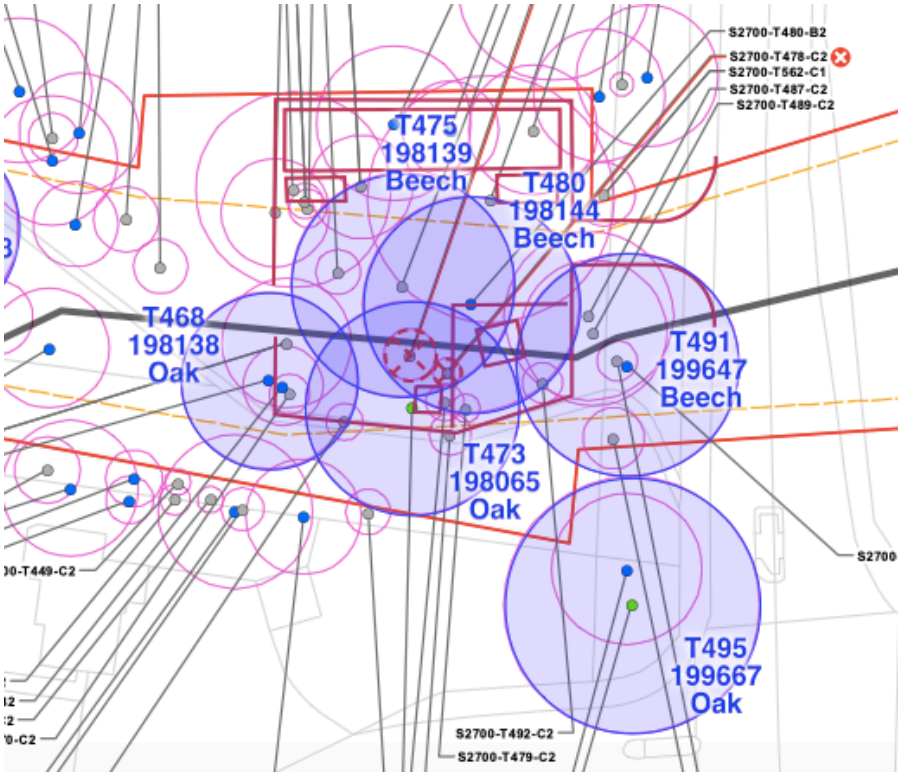
Previous drawings have shown the reception pit being located within the compound, however the 'pond' is outside the compound, as shown in the diagram below (from the QEP SSP):

The QEP Site Specific Plan states that the reception pit will be 6 x 5 metres in size and 3 metres deep. Previously the Detailed Trenchless and Targeted Open Cut Assessment[6], section 1.23, gave the dimensions as 3m x 3m x 6m (deep). No reason is given for the change in size.

[6] Environmental Statement (Volume D) Appendix 8.2: Detailed Trenchless and Targeted Open Cut Assessment, Application Document: 6.4, Revision No. 1.0, May 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-000223-6.4%20Appendix%208.2%20Detailed%20Trenchless%20and%20Targeted%20Open%20Cut%20Assessment.pdf)

2.3.2. Completely Covered by Root Protection Areas

Wherever the pit is located within the compound, excavating it will cause the loss of many of the trees due to the destruction of their root areas. There may be no intention to remove the trees before work starts, but the amount of roots damaged by the work will be significant.



This is one of the densest areas of Notable Trees in the park, containing S2700-T475, S2700-T480, S2700-T468, S2700-T473 and S2700-T491 as shown above.

Esso's claims that a 6m x 5m pit can be excavated, that the proposed compound can be built and that both can be operated at this location without the loss of trees do not seem remotely credible.

2.3.3. Gradients Within the Auger Boring Compound

There are numerous ground level changes within the proposed auger boring compound. Walking though the compound area, starting at the A325, the first obstacle is a ditch, after which the ground rises before dipping again into a large trough. There is then a steep rise before the surface levels out, near the western edge of the compound. Overall elevation change is somewhere between 3 and 4 metres.

There is one map extract which helps to illustrate this, taken from page 9 of Esso's Responses to ExA's Further Written Questions - Queen Elizabeth Country Park, which shows the contours in the area. Unfortunately this map is small and lacks any contour labels so the elevations they represent are unknown (though we estimate they are 1 metre lines).

It is hard to imagine this being a safe working area without significant grading and levelling of the surface before any work can start.

This area is also covered in trees, many of which are Notable. It will be impossible to raise or lower the soil level around the trees and roots without significant damage to the trees. The area cannot be levelled to allow a working area for vehicles, or as a basis for digging a pit.

The gradient changes in this area make this an unsuitable location for an auger bore compound and pit.

2.4. Effects of Stringing Activities on Trees

The stringing activities endanger the trees in their vicinity in two ways. Firstly, there is the risk of root area compaction and secondly the risk that the pipe string will come into contact with and damage the trunks of the trees as it is pulled.

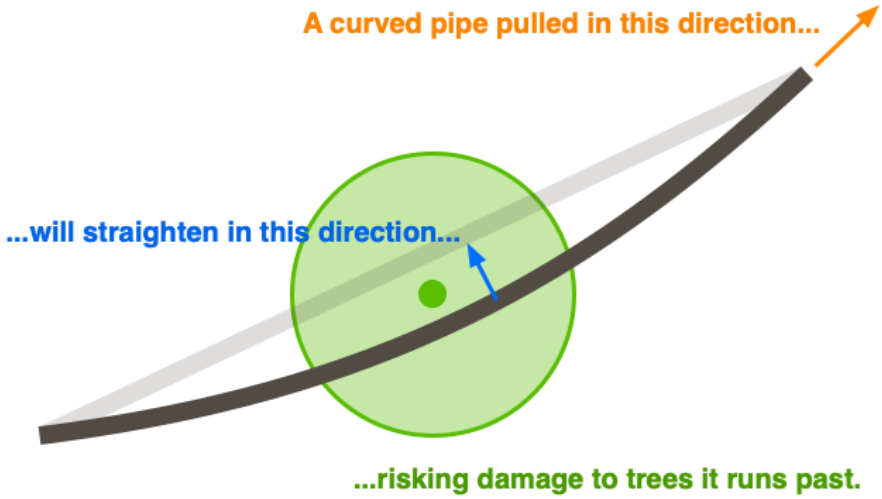
The table below lists the Notable and Veteran Trees which are endangered by stringing. Trees which are particularly threatened by the string have the distance highlighted in red.

Tree Number	ATI Ref	ATI Class	Species	String Distance (m)
S2700-T35	198042	N	Oak	2.5
S2700-T152	198048	N	Sweet chestnut	6.0
S2700-T167	198050	N	Scots pine	0.3
S2700-T177	199660	N	Beech	5.5
S2700-T188	199658	N	Beech	1.5
S2700-T14	198663	N	Beech	9.3
S2700-T15	198055	N	Beech	2.5
S2700-T266	198056	N	Beech	6.0
S2700-T267	198057	N	Beech	14.6
S2700-T270	198060	N	Beech	2.0
S2700-T293	198061	N	Beech	11.6
S2700-T8	197341	V	Beech	3.5
S2700-T307	198063	N	Beech	5.0

2.4.1. Retention of Pipe String During Pulling

The proposed pipe string is a shallow 'S' shape. During construction of the string, it will be pulled into the park. When the string and bore are complete, the string will be pulled back into the bore.

During both pulling operations, forces exerted on the pipe string will cause the string to straighten. Any trees on the inner edge of a straightening curve are at risk of damage.



Control and containment of these straightening forces is critical where the proposed string runs close to any tree. We understand that guides and blocks will be used to counteract these forces but we are still particularly concerned about specific Notable and Veteran Trees.

Beech S2700-T188 (Notable), beech S2700-T15 (Notable), beech S2700-T270 (Notable) and beech T42/S2700-T8 (Veteran) are all at significant risk of damage as the pipe attempts to straighten during pulling.

Unless the guides for the pipe string are properly anchored near these trees, there is a risk that the pipe string will collide with the trunk of the tree during pulling. In the best case, the bark will be lightly abraded but there is a realistic risk of greater damage. The worst case is that the tree is pulled over and uprooted.

In the QEP Site Specific Plan[7], section 3.6.8, Esso state that they will put the pipe string on rollers and that it will be guided round corners with kentledge blocks.

[7] Site Specific Plan - QEP Application Document: 8.57, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001112-8.57%20Site%20Specific%20Plan%20-%20QEP.pdf)

We have a number of concerns:

1. The number and location of kentledge blocks is not specified.
2. The blocks will be placed in the root protection areas of Notable and Veteran trees.
3. The blocks may not be sufficient to hold the string in place and prevent the pipe rubbing and damaging the tree.
4. The forces on the blocks may cause the blocks to move and damage the trees.

2.4.2. Compaction of Root Areas

We are concerned about the impact of soil compaction within the root protection zones caused by:

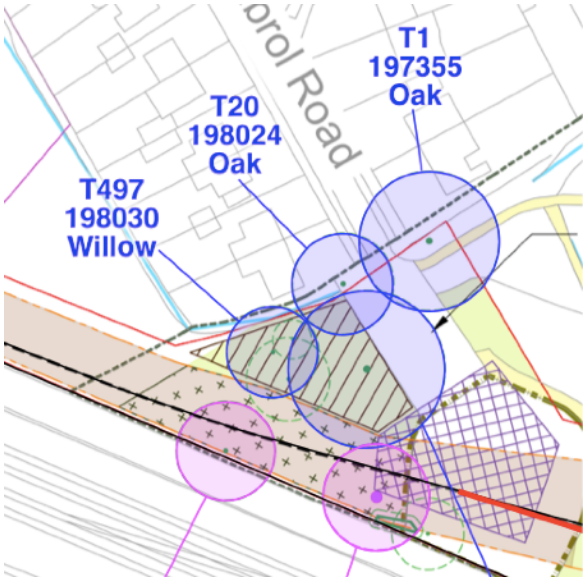
1. Machinery driving over the root protection areas to pull the pipe string.
2. Machinery driving over the root protection areas to place and remove blocks and rollers.
3. Use of heavy kentledge blocks placed in the root protection area.

These activities are all inside of the area which should be fenced off for the protection of tree.

2.5. Effects of Cabrol Road Compounds on Trees

2.5.1. Construction Compound

The area of the proposed Cabrol Road construction compound is contained within the root protection areas of three notable trees: oak S2700-T20 (Notable), willow S2700-T2 (Notable) and willow S2700-T497 (Notable).



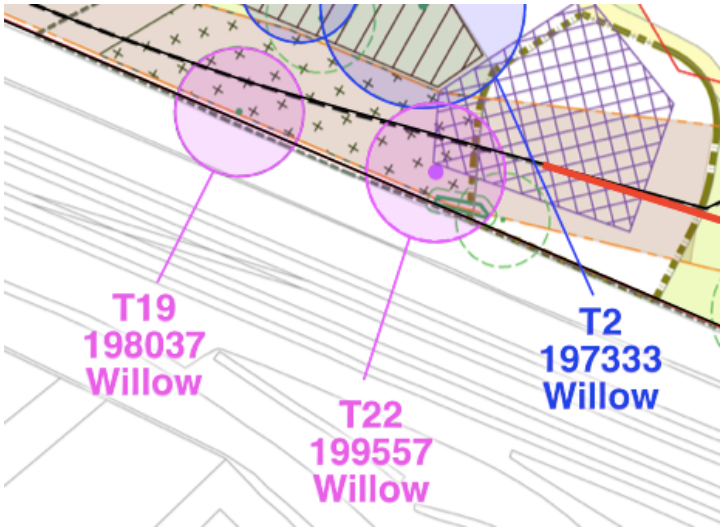
The root protection areas of these Notable trees cover nearly all of the proposed compound area (95%). The following activities should not be undertaken within the compound due to the root protection areas of the Notable trees:

1. Stripping of topsoil in preparation for the compound surface to be installed.
2. Storage of topsoil from the compound surface or elsewhere on the site.
3. Any activities which would lead to soil compaction.

We suggest that the layout and position of the Cabrol Road compound be revised to make better use of the space currently occupied by the play area. We accept that the play area will have to be removed for the duration of the works so it would make sense for the project to get the absolute best use out of the space it occupies.

2.5.2. HDD Reception Compound

The HDD bore for TC018 passes through the root protection areas of two Veteran Trees. These are both willows, S2700-T19 and S2700-T22 (previously identified by Esso as T41).



Both trees are at risk due to the HDD bore rising up through their roots to the reception pit. T22 is most at risk, whilst the potential damage to T19 is unclear without knowing how deep the bore will be as it passes beneath the tree. A sectional diagram showing the bore and trees in this section is needed from Esso.

3. Comments on Esso's Responses to ExA's FWQs - QEP[8]

These questions focused on the feasibility of using Horizontal Directional Drilling to traverse the park and the A325 with a single bore, terminating in Farnborough Hill School grounds.

In their responses, Esso agreed that using HDD in this way is possible but they suggested there were obstacles which mean it is not feasible.

Our opinion is that there is a feasible method for HDD as described in this section.

3.1. Response to QE.2.2

3.1.1. Comparative Tree Loss for Trenching and HDD

Esso's comment *'loss of at least one tree which outweighs the effects of Open Cut, particularly now that it has been confirmed that the tree loss from Open Cut in QEP has been minimised.'*

As shown in section 2.2, the proposed open cut trench will affect 80 trees in the park. With this risk to the Veteran and Notable trees, the effects are not minimal. HDD will drastically reduce the number of affected trees, with the potential for no adverse effects on any Notable or Veteran Trees.

3.1.2. Stringing Options

Esso's comment: '*The Applicant can confirm that, in order to accommodate the final 30m of the pipe stringing through the school ground, it would encroach into land parcel 6072'*

In one of their Deadline 3 responses, Esso state that it is not necessary to lay the entire string out, and that the pipe can be pulled in more than one section, thereby reducing the amount of space needed for stringing out[9]. Using this 2 pull approach means that the pipe stringing is possible without the need to remove trees or to encroach on any land neighbouring the school grounds.

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[8] Responses to ExA's Further Written Questions - Queen Elizabeth Country Park (QE) Application Document: 8.42, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001090-8.42%20Responses%20to%20ExA's%20Further%20Written%20Questions%20-%20Queen%20Elizabeth%20Country%20Park%20(QE).pdf)

[9] Response to Action Points from the Issue Specific Hearing on Environmental Matters on 3 December 2019 (ISH2), Revision No. 1.0, December 2019, Action point 15 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001004-8.20%20Response%20to%20the%20Action%20Points%20from%20the%20Issue%20Specific%20Hearing%20on%20Environmental%20Matters%20on%203%20December%202019%20(ISH2).pdf)

Esso's illustration 2 for point 1.3 shows that a strip of trees 5 metres wide would have to be cleared at the end of the stringing area. This is not consistent with the reassurances which Esso have given about their stringing activities in Queen Elizabeth Park, where they say they can retain all trees in the stringing area. It would be useful if Esso could explain the discrepancies between these two statements.

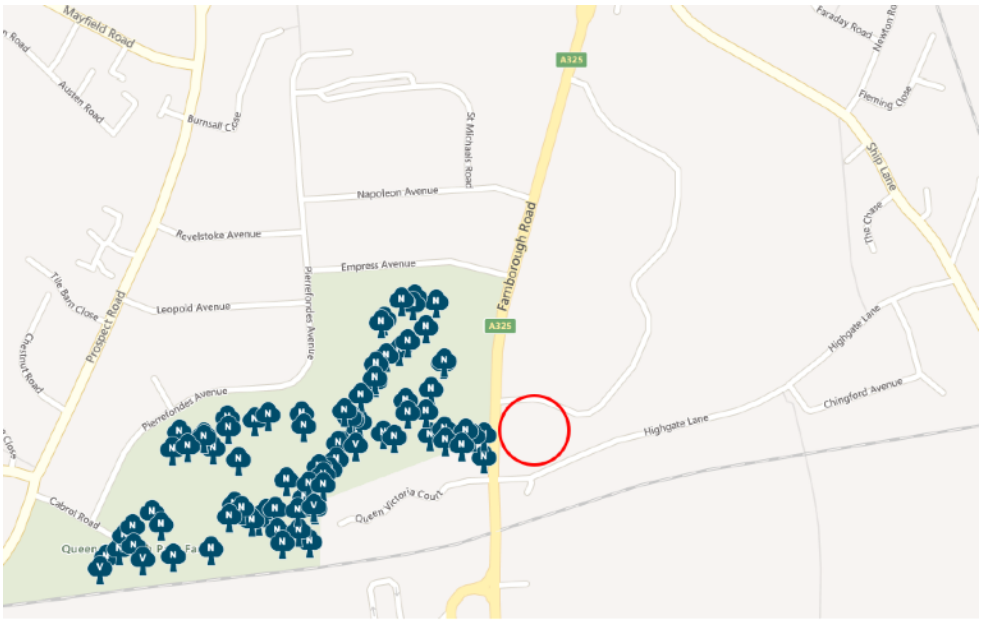
Of course using the 2 pull method above would avoid the boundary trees in Farnborough Hill completely.

3.1.3. Potential Veteran Trees in Farnborough Hill

Esso's point 1.5: *'there are trees within the Conservation Area (two are recorded as veteran trees)'*

In their Comments on Responses submitted for Deadline 3[10], Esso also state: '*There is no statutory designation for veteran trees. Therefore, the Ancient Tree Inventory is the only resource available to highlight their presence.'*

The Woodland Trust's Ancient Tree Inventory does not record any trees in the grounds of Farnborough Hill. The circle on the map below indicates where the claimed trees are.



(Woodland Trust's ATI map, Queen Elizabeth Park on the left of the A325, Farnborough Hill on the right. No Notable or Veteran Trees are recorded in Farnborough Hill)

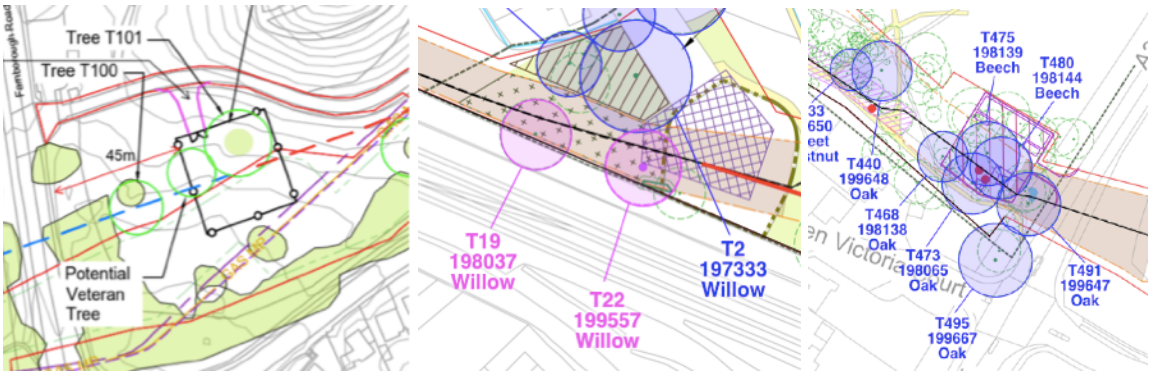
[10] Applicant's Comments on Responses submitted for Deadline 3, Application Document: 8.46, Revision No. 1.0, January 2020, page 3, para ref 2.2.11, item 1.2 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001094-8.46%20Applicant's%20Comments%20on%20Responses%20submitted%20for%20Deadline%203.pdf)

3.1.4. Inconsistencies in Tree Removal in Drill Compounds

Esso's comment: *'Tree T101 would have to be removed, along with the veteran tree'*

Based on the drawings provided so far by Esso, it appears that the Veteran willow tree S2700-T22 (previously T41) in QEP is at least as close to the Stake Lane HDD reception pit (TC018) as the potential veteran tree in Farnborough Hill, yet Esso are not saying that the willow will need to be removed. There is no obvious reason for the difference.

We also note that the proposed auger bore reception pit for TC019 is in an area which is much more densely covered with trees (many of which are listed in the Woodland Trust's ATI), yet Esso state they can retain them all. Esso need to explain the discrepancies in tree removal and why the techniques used to keep the trees in TC019 do not apply to the possible HDD reception pit in Farnborough Hill.



Comparison of Farnborough Hill HDD reception pit (left), TC018 reception pit at Cabrol Road (centre) and TC019 auger bore reception pit (right)

3.1.5. Alternative Reception Pit Alignment

Esso's comment: *'There is limited potential to expand this worksite due to the proximity of the existing lines without additional protection being installed.'*

This suggests that there is scope for adjustments to the position and orientation of the reception pit, particularly if the additional protection which is mentioned is used. We feel that all options should be fully investigated because it seems that a workable solution is close to being found.

It would be useful if Esso could provide a larger scale plan of the HDD launch and reception pits, on the same scale as they did for the ISH3 Action Points for TC019[11].

[11] Response to Action Points from the Issue Specific Hearing on Environmental Matters on 4 December 2019 (ISH3), Application Document: 8.22, Revision No. 1.0, December 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001004-8.20%20Response%20to%20the%20Action%20Points%20from%20the%20Issue%20Specific%20Hearing%20on%20Environmental%20Matters%20on%203%20December%202019%20(ISH2).pdf)

3.1.6. Conclusion on Feasibility

Esso's comment 1.6: *'While a trenchless crossing of Queen Elizabeth Park is physically possible, the Applicant maintains that its adverse impacts would be greater than the current proposal for Open Cut.'*

We are pleased that Esso have confirmed that a trenchless crossing of the park is possible.

We cannot agree with Esso's conclusion on the impact of HDD. We have quantified the damage caused by an open cut trench at 80 trees in Queen Elizabeth Park. HDD has the potential to affect no trees in the park and up to three trees in Farnborough Hill School, though we believe it is possible to reduce the impact in Farnborough Hill by re-aligning the reception pit.

3.2. Response to QE.2.3

Esso's comment: *'HDD working areas are all based on a standard size, with the exception of Stakes Lane due to the limited footprint available between the residential properties and railway embankment, and it would require a bespoke set up for this location with restrictive methodologies being applied.'*

There is no reason why the area for the HDD drill pit in Queen Elizabeth Park shouldn't be treated as an area of restricted size to minimise the impact to the park. The constraints in Stake Lane are imposed by buildings and those in the park are imposed by trees.

4. Deadline 4 Documents - General Comments

This section contains comments which are applicable to more than one document. Rather than repeating the comment in each relevant place, we summarise them here and reference them in later sections.

4.1. Topsoil Removal and Storage

Throughout many of the documents submitted by Esso for Deadline 4 there are statements regarding the removal and storage of topsoil from the compound, trench and pit areas.

These statements give cause for concern because they do not factor in the proximity to root protection areas when topsoil is removed or stored.

Specifically, we would like to see the following absolute commitments made for the root protection areas of Veteran and Notable trees:

1. Maintain the existing soil level within the RPA
2. Do not strip the topsoil within the RPA
3. Do not store or stockpile topsoil within a RPA
4. Do not strip the topsoil within compounds where that area is within a RPA

BS5837:2012 states:

> 7.1.1 Construction within the RPA should accord to the principle that the tree and soil structure take priority, and the most reliable way to ensure this is to preserve the RPA completely undisturbed. Soil structure should be preserved at a suitable bulk density for root growth and function (of particular importance for soils of a high fines content), existing rootable soil retained and roots themselves protected.
>
> 7.2.1 To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ.

4.2. Working Hours

Working hours are defined across a variety of documents, and each definition is slightly different.

All definitions specify Monday - Saturday, 08:00 - 18:00 as the working week, but there are differences when considering whether Sunday working is permitted.

There are several points to make:

1. We still request that there should be no working on a Saturday.
2. Sunday working should not be permitted except in the case of an emergency, which is the definition from the original statement in the DCO.

3. Any working outside normal hours must be notified to affected residents 7 days ahead of schedule.

The baseline statement in the Draft DCO[12] is:

> Subject to sub-paragraphs (3) and (4), construction works must only take place between 0800 and 1800 on weekdays and Saturdays except in the event of an emergency.

The Outline CEMP states:

> Sunday or Bank Holiday working is not anticipated as being typical.
>
> Exceptions may be required for extended hours (including where necessary working on a Sunday or Bank Holiday) for activities such as: the continuous pulling phase for a major crossing using HDD; where daytime working would be excessively disruptive to normal traffic operation;

The Code of Construction Practice states:

> During the 24-month construction period, the works would encounter environmental and other constraints such as unforeseen ground conditions, weather conditions etc. This may require Sunday and Bank Holiday working.

None of the exceptions specified in the Outline CEMP and CoCP are emergencies.

Statements on working hours in the DCO, CEMP, CoCP and any other documents should all be worded to be consistent with each other.

4.3. Tree Fencing

Both NJUG and BS5837:2012 recommend the use of tree protection. The British Standard states:

> 6.2.1.1 All trees that are being retained on site should be protected by barriers and/or ground protection (see 5.5) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences

[12] Draft Development Consent Order (clean), Application Document: 3.1, Revision No. 5.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001122-3.1%20Draft%20Development%20Consent%20Order%20(clean).pdf)

Esso's Technical Note: Ancient Woodland and Veteran Trees[13] states:

> G65: Working widths would be reduced in specific locations where trees or hedges are present. Where notable trees would be retained within or immediately adjacent to the Order Limits, the trees and their root protection areas would be protected where they extend within the Order Limits and are at risk. This would be by means of fencing or other measures.

There are over 580 trees identified in the Esso tree survey, and it seems impossible that these can all be protected using fencing.

Even if only the Veteran and Notable Trees were protected, there are 41 of these in the Order Limits, some groups of which span the entire width of the Order Limits. It is hard to see how any fence protection can be set around these trees.

It would be useful for Esso to include the tree protection fence positions on their plans to show where protection is able to be used, and which trees are at risk due to insufficient fencing. Alternatively detail the protection which will be used for Notable and Veteran Trees instead of fencing.

[13] Technical Note: Ancient Woodland and Veteran Trees, Application Document: 8.15, Revision No. 1.0, November 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-000836-8.15%20Technical%20Note%20Ancient%20Woodland%20and%20Veteran%20Trees.pdf)

5. Comments on Documents Submitted for Deadline 4

5.1. Applicant's Comments on Responses Submitted for Deadline 3[14]

5.1.1. Tree Protection

Page 3, paragraph ref 2.2.10, Esso's comment: *'The Applicant has a commitment (G95) to implement NJUG, which is the recognised tree protection guidance for utility projects in the UK.'*

In Section 2.2.10 Esso state that they are working in accordance with the NJUG regulations, however the NJUG regulations themselves say (with regard to working around trees):

> 4.1.3 Wherever possible trenchless techniques should be used. The launch and reception pits should be located outside the Prohibited or Precautionary Zones.

The location of the A325 reception pit for TC019 clearly does not follow this guideline. The use of a trench throughout the park is also in violation of the advice.

We strongly agree with Rushmoor Borough Council[15] that Esso should be working to BS 5837:2012 recommendations[16] for their tree protection strategy, in particular:

> 5.2.3 the requirement to protect the overhanging canopies of trees where they could be damaged by machinery, vehicles, barriers or scaffolding, where it will be necessary to increase the extent of the tree protection barriers to contain the canopy;
>
> 5.4.3 trees to be pruned, including any access facilitation pruning, also clearly identified and labelled or listed as appropriate
>
> 5.5.2 The plan should clearly indicate the precise location of protective barriers to be erected to form a construction exclusion zone around the retained trees. It should also show the extent and type of ground protection, and any additional physical measures, such as tree protection boxes, that will need to be installed to safeguard vulnerable sections of trees and their RPAs where construction activity cannot be fully or permanently excluded.
>
> 6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement.

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[14] Applicant's Comments on Responses submitted for Deadline 3, Application Document: 8.46, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001094-8.46%20Applicant's%20Comments%20on%20Responses%20submitted%20for%20Deadline%203.pdf)

[15] Comments appertaining to ESSO's response to RBC's written representations 1 (Deadline 2), section 9.2 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001143-Rushmoor%20Borough%20Council%20Comments%20.pdf)

[16] Trees in relation to design, demolition and construction – Recommendations, ISBN 978 0 580 69917 7

5.1.2. Registering Veteran Trees Found in Esso Tree Surveys

Page 4, paragraph ref 2.2.11: Esso's response omits to address one of SDNPA's points:

> *In SDNPA's view Esso should record and notify the Woodland Trust of any trees that meet the criteria for a veteran tree*

We do not want this point to go unanswered, so we request that Esso confirm whether they will notify the Woodland Trust of any potential Notable or Veteran trees which they find in their surveys.

5.1.3. Open Cut in Stake Lane and Allotments

Page 17, response to 2.2.2, Esso's point 1.2: *'The Applicant would have to undertake the works across Prospect Road using a closure of the road, due to the road being a single lane as it passes beneath the railway. There is insufficient room to install a traffic management system which would ordinarily allow through traffic.'*

The nearby West Heath Road was closed in rolling sections by South East Water in 2017. Diversions kept traffic flowing. The local road network is quite capable of handling temporary road closures.

'The Open Cut would then pass close to the existing residential property (bungalow). Due to the limited width available and the proximity of the exiting [sic] fuel lines, there is the risk that potentially significant temporary works would be required to protect the property.'

This highlights one of the reasons why the route selected by Esso is a poor choice. Installing along Prospect Road and Prospect Avenue would avoid complications next to the bungalow.

Point 1.3: *'It should be noted that there would still be tree loss. The impact on the residents of Stake Lane would be greater (due to the streetworks in Stake Lane). The works to cross Prospect Road would result in an impact on the wider community and sever the access beneath the railway while the works are undertaken. Users of the allotments, any sheds and mature planting would be impacted, and the allotment reinstatement could take several seasons to re-establish. It should be noted that the Prospect Road allotments has 39 plots, which is approximately 10% of allotment space in Rushmoor Borough'*

1. The statement that temporary street works would have a greater impact on Stake Lane residents than the permanent loss of their garages makes no sense at all.
2. The fact that the area can cope with temporary road closures has been made earlier in this section.
3. Damage caused to the park by the proposed activities will be visible for much longer than 'several seasons'.

4. Allotments tend to have a very high percentage of annual growth, in that they are used very much for growing fruit and vegetables, the majority of which needs to be reseeded every year, and crop rotated. Allotments could be brought back to a high level of function the next growing season after disturbance.

5.1.4. Veteran Tree Care

Page 19, Esso's point 1.1 and page 20, Esso's response to 4.1.2, point 1.1 both reference their Technical Note: Ancient Woodland and Veteran Trees[17] when asked to avoid installation near Veteran Trees.

In both cases, the response given does not answer the specific point because the guidelines in the technical note which are applied to the specific area (the zone around the Fairy Tree) are mitigation B3. We are asking for mitigation B1 and the reason why this is not being applied has not been addressed.

Esso's point 1.4 on page 21 states that *'This methodology [B3 mitigation] has been produced by experienced pipeline engineers and arboriculturalists. It has been approved by Natural England and the Forestry Commission, and therefore the Applicant does not believe there is evidence to support the claim that the risk of damage to the tree would be too great.'*

The Woodland Trust' Deadline 4 submission[18] is not in agreement with this, stating that:

'These trees should be afforded a root protection area (RPA) of 12 times the stem diameter, in line with BS 5837:2012. Unless afforded the appropriate RPA, the Trust agrees that any works within Queen Elizabeth Park will have a detrimental impact on the surrounding population of notable trees'

We continue to request that mitigation B1 is used in the root protection areas of all Veteran Trees in the park. Whilst adhering to the B1 commitment would mean that Esso are unable to trench through the park, the HDD proposal under consideration offers a practical solution which allows that commitment to be met.

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[17] Technical Note: Ancient Woodland and Veteran Trees, Application Document: 8.15, Revision No. 1.0, November 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-000836-8.15%20Technical%20Note%20Ancient%20Woodland%20and%20Veteran%20Trees.pdf)

[18] Deadline 4 Submission - Response to the Examining Authority's Further Written Questions and requests for information, Woodland Trust (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001137-Woodland%20Trust%20Examination%20Questions%202%20response.pdf)

5.1.5. Stringing Out

Page 22, Esso's response to 4.1.4: *'The Applicant has confirmed that the stringing out would be possible between the trees, and therefore would not entail removal of a complete 5m strip of trees in QEP'*

We are still concerned that individual trees, particularly Notable and Veteran Trees are, at risk due to the pipe string passing so close to their trunks. Our concerns are described in detail in section 2.4.

5.2. Site Specific Plan - QEP[19]

5.2.1. Work Timescales

Table 2.1 is based on working six days per week. Please see section 4.2 for our comments about working days.

Also in this table, the enabling works and mobilisation of the compound (4AE) are indicated as being 6 weeks. This compares with 2-3 weeks for a similar compound at Turf Hill. The contents of the compounds are the same and the area of the Turf Hill compound is actually larger, so we believe the discrepancy should be explained.

Queen Elizabeth Park (6 weeks)	**Turf Hill (2-3 weeks)**
Work No. 4AE — Works to construct a temporary compound for use during the construction of the authorised development, comprising an area of up to **25 metres by 25 metres**, at the indicative point shown on Sheets 34 and 105 of the Works Plans, to include	Work No. 5E — Works to construct a temporary compound for use during the construction of the authorised development, comprising an area of up to **64 metres by 45 metres**, at the indicative point shown on Sheet 41 of the Works Plans, to include
(a) office, welfare and security facilities;	(a) office, welfare and security facilities;
(b) a parking area for staff;	(b) a parking area for staff;
(c) power supplies and temporary lighting;	(c) power supplies and temporary lighting;
(d) pipe equipment and fittings storage;	(d) pipe equipment and fittings storage;
(e) plant storage;	(e) plant storage;
(f) a fabrication area;	(f) a fabrication area;
(g) a plant wheel wash area;	(g) a plant wheel wash area;
(h) waste processing and management areas; and	(h) waste processing and management areas; and
(i) fencing and gating (to an approximate height of 2.4 metres).	(i) fencing and gating (to an approximate height of 2.4 metres)

[19] Site Specific Plan - QEP, Application Document: 8.57, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001112-8.57%20Site%20Specific%20Plan%20-%20QEP.pdf)

5.2.2. A325 Car Park

Table 3.1, Esso state: *'Note: The northern A325 access and car park are outside of the Order Limits and will not be impacted by the proposals.'*

In section 2.8.2 of our Deadline 2 submission[20] on 18th November 2019, we stated that the A325 car park will be impacted by the proposals due to the additional use caused by the closure of the Cabrol Road Car Park:

> 4. Closing the Cabrol Road car park will displace all cars to the Farnborough Road car park, which does not have a hard surface.
> 5. The surface of the Farnborough Road car park will deteriorate excessively due to increased use.

Esso's response at Deadline 3 (Responses to Written Representations - Other Parties, section 7, WR paragraph 2.8.2[21]) was:

> 'In response to points 4 and 5, the surface of the car park has not been raised with the Applicant before. The Applicant has secured a commitment to fully reinstate those within the Order Limits including the full resurfacing of the Cabrol Road car park'

We consider that the points we raised at Deadline 2 are sufficient for Esso to understand the impact of the closure of the Cabrol Road car park on the A325 car park. Whilst they stated at Deadline 3 that this had not been raised before, we assumed this constituted acknowledgement of the issue. This now seems to have been ignored and the result is that the A325 car park will deteriorate due to its unsuitability for increased use.

We still expect Esso to address this issue by improving the A325 car park before the Cabrol Road car park is closed.

5.2.3. Rhododendron Clearing

Section 3.3.3 (emphasis in **bold** is ours): *'The project does not intend to remove vegetation over the existing pipelines. In addition, given the residential boundaries **to the south** are offset from the Order Limits, vegetation forming the boundary with these properties **will not be removed** by the project.'*

The statement in 3.8.5 from the same document seems to contradict this. It implies that the area to the south of the path will be cleared and therefore need to be reinstated:

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[20] Written Representation on Behalf of the Neighbours and Users of Queen Elizabeth Park (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-000841-Nick%20Jarman%20on%20behalf%20of%20Neighbours%20and%20Users%20of%20Queen%20Elizabeth%20Park%20Written%20Representation.pdf)

[21] Responses to Written Representations - Other Parties, Application Document: 8.24, Revision No. 1.0, December 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001009-8.24%20Responses%20to%20Written%20Representations%20-%20Other%20Parties.pdf)

Section 3.8.5 (emphasis in **bold** is ours): '*It has been proposed that areas of rhododendron **either side of the cycle/pedestrian path** will be reinstated with a mix of woodland species, which will create the feel of a woodland ride and lead to an increase in biodiversity.'*

5.2.4. Tree Removal

Section 3.3.4: '*Based on the current intended pipe alignment, although a small number of trees will be removed, approximately 30 non-mature trees will need to be removed, largely adjacent to the cycle/pedestrian path. These are trees of a lower arboricultural value and are in areas previously discussed with Rushmoor Borough Council as benefitting from some tree removal. The installation will not require the removal of any mature or veteran trees.'*

Esso have not supplied a list of trees which have been identified for removal, even though such a list must exist (based on the indication of trees to be removed in the plans in Appendix B of the Site Specific Plan). In the absence of this information we identified the trees ourselves (see section 2.1.3).

Based on this list we do not agree with Esso's characterisation of some of the trees to be removed:

- 7 are Early Mature
- 13 are Semi Mature
- 19 have a stem diameter over 150mm
- 1 is category B2 - a large Ash with a stem diameter of 310mm
- 8 are in the root protection areas of Notable Trees

We also believe that there is a misunderstanding regarding which areas Rushmoor Borough Council have said would benefit from tree removal. We do not believe that the areas and types of trees proposed for clearance match the council's vision for the park.

5.2.5. Lopping of Notable Trees

Section 3.4.7: '*The compound will need to be constructed on the grassed area to the south of the car park. No trees will need to be removed to construct the compound but may require some branch lopping, which will be undertaken by specialists. Trees within the area of the compound will be suitably protected (with ground protection or fencing).'*

The compound area contains a number of mature trees, most of which are registered as Notable in the ATI. These should be protected and not subject to branch lopping.

Branch lopping would destroy the character of many trees in the park, but in particular the willow T2700-T2 (Notable), which covers most of the area of the proposed construction compound, would lose its pleasing distinctive and symmetrical shape.

Willow T2700-T2 should not be lopped.

We also suggest that Esso should revise the compound boundary to avoid root protection areas of these notable trees and make better use of the open space where the play area is located.

5.2.6. Topsoil Removal in the Compound Area

Section 3.4.8: '*The topsoil will be stripped and neatly stored to one side of the compound, which will provide additional noise and visual screening of the compound from users of the park.'*

See Section 4.1.

5.2.7. Removal of Vegetation

Section 3.5.4: *'The vegetation clearance works (undertaken by a specialist) will be undertaken for the full length of the Open Cut section. This work will be completed before the construction fencing is erected.'*

The statement lacks clarity in a number of areas:

1. The area within which vegetation will be cleared is not stated: i.e. whether this is the working width, or the Order Limits.
2. Whether the term vegetation includes trees.
3. If the working width is cleared, whether additional clearance will be needed if the route later turns out not to be viable.

5.2.8. Use of Protection Guidelines

Section 3.5.5 (emphasis in **bold** is ours): *'Trees being retained will be protected from the installation activity in line with commitment G95: 'The contractor(s) will consider and apply the relevant protective principles set out in the National Joint Utilities Group Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees ('NJUG Volume 4' (2007). This will be applied to trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits* ***where such measures do not hinder or prevent the use of the relevant working width for construction****.'*

We are extremely concerned that the 'where' clause removes all commitments to protect trees, because any protection measure could be claimed to be hindering the working width.

5.2.9. Topsoil Removal in the Trench Area

There is no statement regarding the limiting of topsoil removal in the trench area.

Commitments on this topic are given in other areas of the project, for example, Turf Hill. Section 3.5.8 of the Turf Hill SSP[22] states: *'Topsoil will only be stripped from the area required for the trench.'*

An equivalent statement is not present in the QEP SSP.

1. We would like Esso to explain why this commitment is not in the QEP SSP.
2. We would like a statement on the width of topsoil that will be removed from the working width area in QEP.
3. Alternatively, a commitment similar to 3.8.5 in the Turf Hill SSP should be added to the QEP SSP.

[22] Site Specific Plan - Turf Hill Application Document: 8.58, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001113-8.58%20Site%20Specific%20Plan%20-%20Turf%20Hill.pdf)

5.2.10. Removing Trees in the Stringing Area

Section 3.6.3: *'Vegetation clearance will take place to clear small scrub and plants from the string area, although it is expected that no trees will be removed (based on current conditions).'*

This is not a commitment to keep all trees in the stringing area, and provides Esso with the flexibility to remove all the trees in the stringing area if desired.

5.2.11. Damage to Trees in the Stringing Area

Section 3.6.8: *'The pipe string will be placed on rollers, with suitable step overs (described below) to allow access to both sides of the stringing out area. When the string has to be pulled around a bend, kentledge (weighted blocks) will be placed to guide the string'*

Our concerns about possible damage to trees in the stringing area are described in sections 2.4.1 and 2.4.2.

5.2.12. Tree Retention in the Auger Bore Receiving Area

Section 3.7.2: *'Vegetation will need to be cleared from this area, but no mature trees will be removed.'*

It does not seem to be possible for Esso to construct and operate the auger bore compound without removing numerous mature trees. We have described why in detail in section 2.3.

5.2.13. Auger Bore Pit Size and Location

Section 3.7.4: *'A reception pit will then be excavated approximately within the silted up pond, at approximately 5m wide, 6m long and 3m deep.'*

The location of the water body on Esso's plans is outside the proposed compound.

Previous plans of the auger bore compound show the pit at a different location - and within the compound.

The stated dimensions of the reception pit differ from those previously published in the Detailed Trenchless and Targeted Open Cut Assessment[23], section 1.23, where the dimensions were given as 3m x 3m x 6m (deep):

> 1.23 TC 019 – A325 Farnborough Road
> Reception pit depth: assumed as 6.0mbgl
> Reception pit length: approximately 3m
> Reception pit width: approximately 3m

No explanation has been given for the increase in size.

5.2.14. Wildlife Pond

Section 3.8.3: '*The largely overgrown pond at the eastern end of the park within the auger bore site will be reinstated as a wildlife pond.'*

As stated in the previous section, the water body is outside the proposed compound. This is shown in Appendix B of the QEP SSP:

We would like to clarify that there is no wildlife pond on the eastern side of the park. There is a dip in the ground which collects water during heavy rain, but is is not a wildlife pond.

We request that Esso do not build a pond in the park and are confident that Rushmoor Borough Council, as the land owner, will not permit this.

[23] Environmental Statement (Volume D) Appendix 8.2: Detailed Trenchless and Targeted Open Cut Assessment, Application Document: 6.4, Revision No. 1.0, May 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-000223-6.4%20Appendix%208.2%20Detailed%20Trenchless%20and%20Targeted%20Open%20Cut%20Assessment.pdf)

5.3. Outline Construction Environmental Management Plan[24]

5.3.1. Wildlife Surveys

In response to Section 2.3, we understand that detailed wildlife surveys have yet to be carried out in Queen Elizabeth Park. These should include at least the following:

- Bat
- Reptiles
- Otter
- Badger
- Birds (though this type of survey is not mentioned in the Outline CEMP)

We would like:

1. An assurance that the results of surveys carried out by, for example, Rushmoor Borough Council will also be used by Esso.
2. Confirmation that these surveys will be completed for the park, and details of what action will be taken should new information be gathered.

For example, should bats be found within trees in the park, we would expect those trees be retained and the bats be protected.

5.3.2. Working Hours

Section 2.5.1: *'The requirements regarding working hours are set out in Requirement 14 of the DCO and in Commitment G5. The project is required under the DCO to adhere to normal working hours of 08:00 to 18:00 Monday to Saturday. Sunday or Bank Holiday working is not anticipated as being typical. Exceptions may be required for extended hours (including where necessary working on a Sunday or Bank Holiday) for activities such as: the continuous pulling phase for a major crossing using HDD; where daytime working would be excessively disruptive to normal traffic operation; cleaning/testing of the pipeline; or overnight traffic management measures.'*

See Section 4.2.

[24] Outline Construction Environmental Management Plan (CEMP), Application Document: 8.51, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001106-8.51%20Outline%20Construction%20Environmental%20Management%20Plan%20(CEMP).pdf)

5.4. Responses to ExA's Further Written Questions - People and Communities (PC)[25]

5.4.1. Noise Levels in Residential Properties and in QEP (PC.2.1, PC.2.3)

Esso were asked why various locations, including Queen Victoria Court, would not be shielded from site noise by Echo Barrier fencing. A summary of their response is that they did not consider it was necessary at this location.

We do not find this response to be satisfactory for a number of reasons:

1. Esso are depending on windows being closed to achieve acceptable noise reduction indoors, regardless of the season, temperatures and need for ventilation.
2. The proposed working area within the park is adjacent to the gardens of a number of houses in Queen Victoria Court so noise levels outside will be greater than the 55 dB(A) required for conversation.
3. The project's working week is still six days, meaning that noise disturbance will occur during weekends - times when the park and residential gardens are used more often.
4. Esso should use noise reducing fencing throughout the park section to reduce the noise disturbance experienced by park users and residents in their gardens.

If HDD were used in the park, noise disturbance in Queen Victoria Court would be avoided altogether.

Alternatively, if the working week were reduced to five days (Monday to Friday) this would also help to alleviate the disturbance caused by the noise levels.

5.4.2. Securing the Generator Promises (PC.2.2)

Esso's comment 1.2: *'Commitment G24 has been revised at Deadline 4 to ensure that the generators at construction compounds comply with these requirements. It is secured through DCO Requirement 5 (CoCP). Also included within the Outline CEMP.'*

We cannot find a statement regarding generators in the Outline CEMP. It would be useful if Esso could point out where this is.

5.4.3. Generator Running Times (PC.2.2)

Esso's comment: 1.4: *'In response to ii), the generators would operate during the 'normal working hours', which are assumed to be between 08:00 and 18:00 on weekdays and Saturdays'*

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[25] Responses to ExA's Further Written Questions - People and Communities (PC), Application Document: 8.41, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001089-8.41%20Responses%20to%20ExA's%20Further%20Written%20Questions%20-%20People%20and%20Communities%20(PC).pdf)

This does not take account of how electrical equipment which operates outside normal working hours is powered. For example, compounds will have security lighting, CCTV and alarms. Security guards might also require the use of welfare facilities which need power.

We would like Esso to confirm that these will be powered silently, e.g. via battery.

5.5. Responses to ExA's Further Written Questions - General Questions (GQ)[26]

GQ.2.2, item 1.3: *'However, until a final pipeline alignment is developed, the Applicant cannot confirm exactly which vegetation and trees would be affected.'*

This statement from Esso calls into question Esso's assurance that they know exactly how many and which trees will be removed in QEP, and that they are currently able to say which trees are secure.

It would be useful if Esso could clarify whether the presence of the tree survey and marking of trees for removal in the Construction Stage drawing in the Queen Elizabeth Park Site Specific Plan mean that item 1.3 does not apply in this case.

5.6. Appendix A: Outline Emergency Action Plan Application[27]

Section 4.4: *'In the event of a fire, site staff will: proceed to the assembly point; and dial 999 and ask for the appropriate emergency service.'*

Given the nature of the works (e.g. welding) being undertaken in a heavily wooded area, an action plan which attempts to extinguish any fires immediately would be more appropriate. It would be useful for Esso to confirm that any hot works are only undertaken if the appropriate type and size of fire extinguisher is present.

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[26] Responses to ExA's Further Written Questions - General Questions (GQ), Application Document: 8.34, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001082-8.34%20Responses%20to%20ExA's%20Further%20Written%20Questions%20-%20General%20Questions%20(GQ).pdf)

[27] Appendix A: Outline Emergency, Action Plan Application Document: 8.51, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001099-8.51%20Appendix%20A%20Outline%20Emergency%20Action%20Plan.pdf)

5.7. General Arrangement Plans (3 of 3)[28]

Sheet 34:

1. Two Veteran Trees in the park are still omitted: Beech S2700-T5 and willow S2700-T19.
2. The water body by Cabrol Road is missing from the plan. This ephemeral pond is partially inside the order limits and is an important wildlife feature within the park.

5.8. Outline Landscape and Ecological Management Plan (LEMP)[29]

5.8.1. Tree Protection (Fencing)

There are two statements on the subject of protecting trees with fencing.

Table 2.1, G65: *'Working widths would be reduced in specific locations where trees or hedges are present. Where notable, TPO, Ancient Woodland and veteran trees would be retained within or immediately adjacent to the Order Limits, the trees and their root protection areas would be protected where they extend within the Order Limits and are at risk. This would be by means of fencing or other measures.'*

Section 4.3.9: *'The extent of TPZ shall be identified in the Vegetation Retention and Removal Plans and delineated with fencing. The TPZ may be identified using tree groupings rather than individual trees. In this case, an arboriculturalist will advise on the TPZ using experience based on the site features.'*

See Section 4.3.

5.8.2. Tree Protection (Veteran Trees)

Section 4.3.6: *'Appendix C sets out the agreed mitigation hierarchy for the protection of Ancient (and potential ancient) Woodland and Veteran (and potential veteran) Trees. The starting assumption is that the project will seek to locate the pipeline trench outside of a 15 [metre] buffer around designated trees where practicable. If this is not practicable, for example due to engineering or other environmental constraints, then the project would avoid locating the pipeline trench within the Root Protection Area (RPA). Where avoidance of the RPA is also not practicable, specialist construction measures for use within the RPA would be adopted and set out in a method statement.*'

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[28] General Arrangement Plans (3 of 3), Application Document: 2.6, Revision No. 4.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001128-2.6%20General%20Arrangement%20Plans%20(3%20of%203).pdf)

[29] Outline Landscape and Ecological Management Plan (LEMP), Application Document: 8.50, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001098-8.50%20Outline%20Landscape%20and%20Ecological%20Management%20Plan%20(LEMP).pdf)

None of the Veteran Trees in QEP have a 15 metre buffer to avoid work within their RPAs.

Esso's plans show no attempt to route the pipeline around root protection areas of any trees, with the exception of oak 2700-T440 (Notable). However, with so many Veteran and Notable Trees in the park, we suggest that the practicable way to avoid disturbing the root protection area of these trees is to use HDD beneath the park.

5.8.3. Tree Protection (Vegetation Plans)

Section 4.3.12: *'The location of protection measures, such as fencing, will be shown on the Vegetation Retention and Removal Plans.'*

It would be useful if Esso could publish the Vegetation Retention and Removal Plans for QEP for Deadline 6, as there are many unanswered questions on the feasibility of the planned work.

We understand that such information is not usually provided during an Examination but we think this is a reasonable request due to the sensitive nature of the area and its identification by the Examining Authority as a hotspot.

5.8.4. Tree Removal to Create a Scalloped Woodland Edge

Section 4.3.13 (emphasis in **bold** is ours): '*There is limited potential for 'windthrow' (trees uprooted or damaged by wind) of trees by the project. This is because there are limited locations where trees are being removed from the edge of a woodland* ***in exposed locations****. As a precautionary approach, where there are trees being removed on the edge of woodland areas in exposed locations, the contractor will undertake a risk assessment of the potential for windthrow and, if required, will identify risk reduction measures in the final LEMP and the Vegetation Retention and Removal Plans. Measures could include prioritising the removal or coppicing of weaker specimens, taking care not to create wind tunnels which could exacerbate the risk of windthrow, to create a softer, more scalloped, woodland edge.'*

Scalloping is identified as a possible activity in Queen Elizabeth Park in Esso's Environmental Investment Programme document.

We are concerned that the trees which are going to be removed to scallop the edge have not been identified. We are also concerned that there there is no requirement to provide any detail of this in the plans submitted for the Examination.

The park is not in an 'exposed location' and modifications to the shape of the woodland's boundaries are neither necessary nor wanted.

5.8.5. Tree Removal (Impact on Surrounding Trees)

Section 4.4.3: *'All tree works will be carried out by a specialist contractor. Where trees and shrubs are removed to facilitate construction access but do not lie within the direct route of excavation, these may be coppiced to allow rapid regeneration. Where trees are removed within the direct route of excavation, stumps shall be ground out or excavated using a tracked excavator. Details of the location of trees to be removed and those to be coppiced would be shown on the Vegetation and Removal Plans.'*

Within QEP, all the trees marked for removal are within the direct route of excavation and will be excavated.

1. 22 of the 33 trees to be removed are within the RPAs of other trees.
2. 8 of the trees to be removed are within the RPAs of Notable trees.

There seems to be no benefit in removing a tree which is within the root protection area of a tree which will be retained. The retained tree is likely to suffer root damage as a consequence of the removal, so the eventual loss of trees is likely to be greater than only those which are directly removed.

The commitment should be altered so that trees which are in the RPA of trees to be retained will not be removed.

5.9. Appendix F: Outline Soil Management Plan[30]

See comments on topsoil in Section 4.1.

5.10. Responses to ExA's Further Written Questions - Landscape and Visual (LV)[31]

5.10.1. Location of Notable Trees (LV.2.3)

Esso's comment: *'The Applicant has provided updated General Arrangement Plans (Document Reference 2.6 (4)), showing the location of Notable trees'*

On the updated General Arrangement Plans, Notable Trees within Queen Elizabeth Park were only shown as an area of beige shading. Individual Notable Trees were not shown, even though the necessary information was easily available on the Woodland Trust website.

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[30] Appendix F: Outline Soil Management Plan, Application Document: 8.51, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001104-8.51%20Appendix%20F%20Outline%20Soil%20Management%20Plan.pdf)

[31] Responses to ExA's Further Written Questions - Landscape and Visual (LV), Application Document: 8.40, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001088-8.40%20Responses%20to%20ExA's%20Further%20Written%20Questions%20-%20Landscape%20and%20Visual%20(LV).pdf)

Even at Deadline 4, Notable Trees are not shown on the Arboricultural Survey drawings. In the absence of this detail from Esso, we have provided it ourselves and attached it in Appendix B.

5.10.2. Tree Protection Methods (LV.2.5)

Esso's comment: *'There is however a concern that the combined effect of fencing for multiple RPAs may prevent effective operation of the pipeline working width for example when maintaining safe operation of the haul road. In such circumstances, some of the protective fencing would need to be removed and other protective methods used instead.'*

See Section 4.3.

5.11. Appendix C: Outline Site Waste Management Plan[32]

This document contains errors which are probably the result of copying and pasting text from elsewhere and failing to make the necessary adjustments. As with other areas of the project, we are concerned that this shows lack of attention to detail and inadequate reviewing of published documents.

The sections in question, with errors underlined in bold are:

> 1.5.2 The Outline SWMP includes:
> The main body of the outline SWMP, with the good practice measures, as set out within the Register of Environmental Actions and Commitments (REAC) in ES Chapter 16 (Application Document APP-056) and details about methods that will be employed to **reduce noise and vibration** during construction including additional mitigation measures; and
> The site checks and reporting that will be undertaken in respect **of noise and vibration**.

and:

> 1.9.2 The final project programme has yet to be developed in detail, as this would be undertaken during the detailed design stage. The high-level project programme will be included within the final CEMP. Details in relation to site waste management will be added to this section in the final SWMP, **for example the anticipated rates of progress for different types of open cut sections and the anticipated duration of works at trenchless crossing sites**.

[32] Appendix C: Outline Site Waste Management Plan, Application Document: 8.51, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001101-8.51%20Appendix%20C%20Outline%20Site%20Waste%20Management%20Plan.pdf)

5.12. Responses to Hearing Actions Points Required for Deadline 4[33]

Plans, sheet 20: This shows that compound 4AD serves two sections of the route. The first section runs from Cove Road to Stake Lane, whilst the second covers Farnborough Hill and the A331 crossing.

Between these sections, the stretch through the allotments and Queen Elizabeth Park is served by compound 4AE.

It would seem to be possible for compound 4AD to also serve the work at QEP, avoiding the need for a compound in the park.

5.13. Outline Community Engagement Plan (CEP)[34]

The CEP is lacking in the following areas:

1. There is no commitment to the frequency of communication.
2. There is no commitment to the level of detail contained within the communication.
3. The e-newsletter should be available and working before the start of the project to ensure that the communications are in place.
4. Friends of QEP are not listed in the Community Stakeholders List.

5.14. Appendix 16.1 Code of Construction Practice[35]

The Code of Construction Practice document covers the project methodologies for the installation methods in many types of sites. The methodology for working within the root protection areas of trees is not covered in the same level of detail as areas such as golf courses and sports pitches within the document. Whilst accepting that there are procedures covered in the *Technical Note: Ancient Woodland and Veteran Trees*[36], that document does not detail the COCP methods for trees.

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[33] Responses to Hearing Actions Points required for Deadline 4, Application Document: 8.48, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001096-8.48%20Responses%20to%20Hearing%20Actions%20Points%20required%20for%20Deadline%204.pdf)

[34] Outline Community Engagement Plan (CEP) Application Document: 8.52, Revision No. 1.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001107-8.52%20Outline%20Community%20Engagement%20Plan%20(CEP).pdf)

[35] Appendix 16.1 Code of Construction Practice (clean), Application Document: 6.4, Revision No. 3.0, January 2020 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-001133-6.4%20Appendix%2016.1%20Code%20of%20Construction%20Practice%20(clean).pdf)

[36] Technical Note: Ancient Woodland and Veteran Trees, Application Document: 8.15, Revision No. 1.0, November 2019 (https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN070005/EN070005-000836-8.15%20Technical%20Note%20Ancient%20Woodland%20and%20Veteran%20Trees.pdf)

The COCP needs to be expanded to describe the working methodologies for working in tree protection areas.

5.14.1. Topsoil Stripping

Esso's comment: '*2.5.14 Topsoil will be stripped, in accordance with the Outline Soil Management Plan, using a combination of excavators and bulldozers. These will be delivered on low-loaders to the construction compound, before being transferred onto the working spread. Topsoil will be pushed to the edge of the working area and heaped such that the spoil heap does not encroach outside the fenced area.'*

See Section 4.1.

5.14.2. Trench Bedding

Esso's comment: *'2.5.37 As the trench excavation progresses the condition of the excavated trench bottom is assessed. If the trench bottom is not suitable to receive the pipe (e.g. presence of stones or flint that may damage the pipe coating) bedding to the trench bottom will be required. Bedding will consist of either filtered subsoil taken from the adjacent area or imported bedding material such as sand which will be delivered to site using HGV tipper wagons.'*

BS5837:2012 states:

> 7.2.4 Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots)

We request confirmation that within the park, filtered subsoil will be used for as trench bedding material, in places where bedding is required and that the CoCP is updated to reflect this.

5.14.3. Bell-Holes

Esso's comment: '*2.5.38 Periodically to match the breaks in pipe strings, 'bell-holes' – larger excavated holes around the laid pipe used for man access into the trench – will be excavated at locations where below-ground welds are required. Because the workforce need to enter bell-holes they are designed to make entry and working within the bell-hole safe. Temporary works systems at bell-holes include 'battering' (creating a slope) of the excavation sides, stepping the excavation sides, trench boxes, and sheet piles with supporting frames. These may be at locations such as buried services, ditches, roads and areas where trenchless crossings have been carried out where it is not possible to lay the pipe strings in a single continuous length'*

No bell-holes are shown in Queen Elizabeth Park and we request confirmation that none will be required. If any are needed we would like Esso to indicate their location.

5.14.4. Working Hours

Esso's comment: '*2.18.3 During the 24-month construction period, the works would encounter environmental and other constraints such as unforeseen ground conditions, weather conditions etc. This may require Sunday and Bank Holiday working, so prolonged disruption in any one area could be limited.'*

See Section 4.2.

5.14.5. Incomplete Commitments for Veteran and Notable Trees

We note that various good practice commitments have been secured for specific types of sites within the project. The commitments are 2.9.7, 2.13.3, 2.13.4 and 2.13.5.

These commitments are also relevant to, and should be secured for, areas of woodland (section 2.10).

For reference, the commitments are:

2.9 Watercourses
2.9.7 Topsoil and subsoil will not be stored directly adjacent to the watercourse but will be moved further along the working area

2.13 Sports Pitches and Golf Courses
2.13.3 Typically, topsoil would not be stripped and ground protection would be used to evenly distribute the load from vehicles and machinery. The type of ground protection would be selected, either matting, timber, metal, rubberised or similar, dependent on the ground conditions and the machinery/plant being used.

2.13.4 The ground protection would be installed in advance of fencing or alignment demarcation. Heras fencing with weighted feet would be used to reduce the need to install fence posts

2.13.5 The only area that would require topsoil to be removed is above the trench. Turf would be removed, topsoil and subsoil would be stored (separately) away from the trench in a suitable location.

A. List of Notable and Veteran Trees Within the Order Limits

This table lists Notable and Veteran Trees where the any part of the root protection area is within the Order Limits.

Tree Number	ATI Ref	ATI Class	Species
S2700-T19	198037	V	Willow
S2700-T497	198030	N	Willow
S2700-T20	198024	N	Oak
S2700-T2	197333	N	Willow
S2700-T22	199557	V	Willow
S2700-T1	197355	N	Oak
S2700-T35	198042	N	Oak
S2700-T73	198045	N	Beech
S2700-T147	198046	N	Beech
S2700-T152	198048	N	Sweet chestnut
S2700-T498	198049	N	Beech
S2700-T167	198050	N	Scots pine
S2700-T177	199660	N	Beech
S2700-T188	199658	N	Beech
S2700-T3	197354	N	Oak
S2700-T217	198706	N	Beech
S2700-T218	198052	N	Sweet chestnut
S2700-T4	197353	N	Sweet chestnut
S2700-T5	197352	V	Beech
S2700-T6	197351	N	Beech
S2700-T14	198663	N	Beech
S2700-T15	198055	N	Beech
S2700-T7	198350	N	Sweet chestnut
S2700-T266	198056	N	Beech
S2700-T267	198057	N	Beech
S2700-T270	198060	N	Beech

Tree Number	ATI Ref	ATI Class	Species
S2700-T292	198062	N	Beech
S2700-T293	198061	N	Beech
S2700-T8	197341	V	Beech
S2700-T307	198063	N	Beech
S2700-T348	199654	N	Sweet chestnut
S2700-T16	199651	N	Beech
S2700-T9	197348	N	Sweet chestnut
S2700-T433	199650	N	Sweet chestnut
S2700-T440	199648	N	Oak
S2700-T468	198138	N	Oak
S2700-T473	198065	N	Oak
S2700-T475	198139	N	Beech
S2700-T480	198144	N	Beech
S2700-T491	199647	N	Beech
S2700-T495	199667	N	Oak

B. Annotated Arboricultural Survey Drawings

NOTES

1. Pipeline centreline alignment is intended only.
2. Trees to be retained are shown based on the intended pipeline alignment.
3. The illustration of existing trees on these plans is based on project survey data up until 24/01/20.
4. The contractor(s) would retain vegetation where practicable and in accordance with, as a minimum, the vegetation retention drawings (Commitment G91).
5. Where notable, TPO, Ancient Woodland and Veteran Trees would be retained within or immediately adjacent to the Order Limits, the trees and their root protection areas (within Tree Protection Zones)[1] would be protected where they extend within the Order Limits and are at risk. This would be by means of fencing or other measures (Commitment G65).
6. Further information regarding mitigation for Veteran Trees is set out in the Ancient Woodland and Veteran Trees Approach (LEMP Appendix).
7. The contractor(s) would consider and apply, where practicable, the relevant protective principles set out in the National Joint Utilities Group 'Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees' (NJUG Volume 4, 2007) (Commitment G95).
8. Works to notable, TPO and Veteran Trees, where at risk of damage, would be supervised by the ECoW (Environmental Clerk of Works) and supported by an experienced aboriculturalist (Commitment G86).
9. Appropriate techniques would be used for the removal, storage and transplantation of any vegetation which is to be reused, relocated or transplanted (Commitment G89).
10. The existing footpaths shown on this drawing are based on a combination of Ordnance Survey map data February 2019 and a topographic survey undertaken in 2020.

[1]Tree Protection Zones are based on the 'Precautionary Zone' shown in Figure 1 of the NJUG guidelines referred to in Note 6.

N

Pierrefondes Avenue

Cabrol Road

Existing car park

QUEEN ELIZABETH PARK

South Western Main Line

Queen Victoria Drive

A325

Union Street

Farnborough Train Station

T1 197355 Oak
T20 198024 Oak
T497 198030 Willow
T19 198037 Willow
T22 199557 Willow
T2 197333 Willow
T35 198042 Oak
T73 198045 Beech
T147 198046 Beech
T152 198048 Sweet chestnut
T167 198050 Scots pine
T3 197354 Oak
T217 198796 Beech
T218 198052 Sweet chestnut
T4 197353 Sweet chestnut
T5 197352 Beech
T6 197351 Beech
T7 197350 Sweet chestnut
T498 198049 Beech
T177 199660 Beech
T188 199658 Beech
T14 198663 Beech
T15 198055 Beech
T266 198056 Beech
T270 198060 Beech
T293 198061 Beech
T8 197341 Beech
T267 198057 Beech
T292 198062 Beech
T307 198063 Beech
T348 199654 Sweet chestnut
T16 199651 Beech
T9 197348 Sweet chestnut
T433 199650 Sweet chestnut
T440 199648 Oak
T468 198138 Oak
T473 198065 Oak
T475 198139 Beech
T480 198144 Beech
T491 199647 Oak
T495 199667 Oak

LOCATION PLAN
SCALE 1:500,000

LEGEND

- ORDER LIMITS
- LIMITS OF DEVIATION
- INTENDED PIPELINE CENTRELINE
- INDICATIVE PIPE STRINGING LAYOUT
- NARROW WORKING AREA (NW17)
- HDD STRINGING AREA
- TRENCHLESS CROSSING
- COMPOUND
- AREA REQUIRED FOR HORIZONTAL DIRECTIONAL DRILLING
- AREA REQUIRED FOR AUGER BORING ACTIVITIES

EXISTING CONTEXT

- TREE PROTECTION ZONES
- PARK FOOTPATHS
- WATER FEATURES
- PARK BOUNDARY

EXISTING FEATURES TO BE RETAINED

- POTENTIAL VETERAN TREES TO BE RETAINED
- TREE GROUPS TO BE RETAINED
- OTHER INDIVIDUAL TREES TO BE RETAINED
- AMENITY GRASS TO BE RETAINED

EXISTING FEATURES TO BE REMOVED

- TREE TO BE REMOVED
- AMENITY GRASS TO BE REMOVED
- PLAY AREA TO BE TEMPORARILY REMOVED DURING CONSTRUCTION

QEP Additions

- Veteran Tree
- Notable Tree
- Pipe centreline
- Pipe string
- Pipe string working area

0 10 20 30 40 50 60 70 80 90 100 m
SCALE 1 : 1000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P01.2	22/01/20	DRAFT FOR DCO SUBMISSION		---	---	---

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Client: Esso Petroleum Company, Limited
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KT22 8UX

Project: Southampton to London Pipeline Project

Drawing title: QUEEN ELIZABETH PARK: CONSTRUCTION STAGE

Drawing status: Initial Status or WIP

Scale	1:1000	DO NOT SCALE
Jacobs No:	B2325300	Rev: P01.2
Client no:		

Drawing number: B2325300-JAC-000-ENV-DRG-111139

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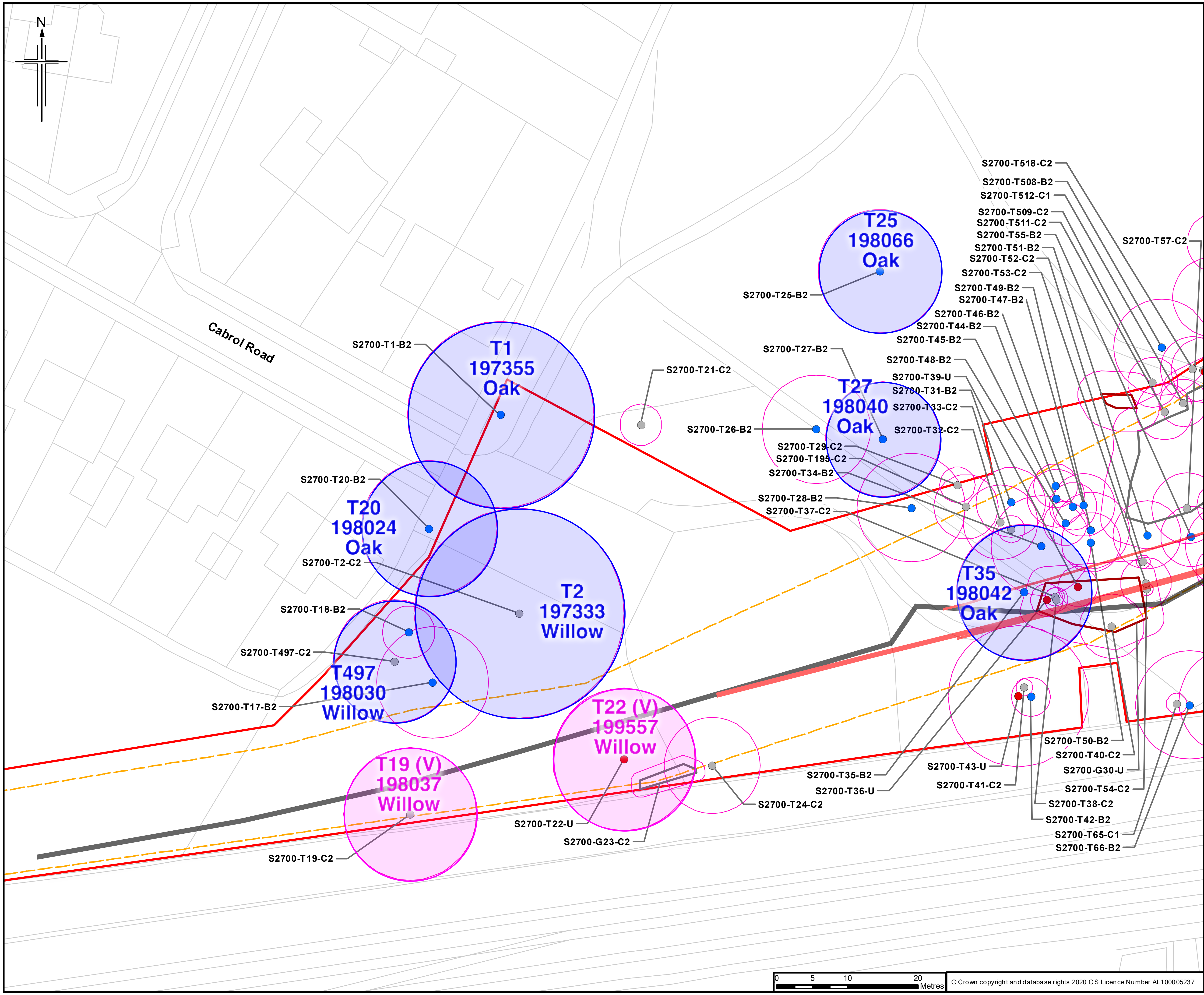

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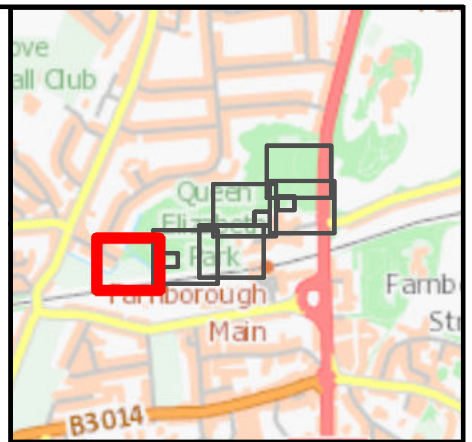

Legend

- Order Limits
- Limits of Deviation
- Tree Stem - Category A
- Tree Stem - Category B
- Tree Stem - Category C
- Tree Stem - Category U
- Group Tree - Category C
- Group Tree - Category U
- Root Protection Area (RPA)

S2700-T284-C2 – Tree number and category

QEP Additions

- Veteran Tree
- Notable Tree
- Tree to be removed
- Pipe centreline
- Pipe string
- Pipe string working area

Rev.	Rev. Date	Purpose of revision	Orig/Dwn	Checkd	Rev'd	Apprv'd
0	29/01/2020	For Issue	RG	TC	KS	SN

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Project

Esso

Southampton to London Pipeline Project

Drawing title

QUEEN ELIZABETH PARK
ARBORICULTURAL SURVEY

Drawing Status	For Issue	
Scale	1:500 @ A3	DO NOT SCALE
Jacobs No.	B2325300	
ProjectWise No.		
Drawing number	Sheet 1 of 8	Rev 0

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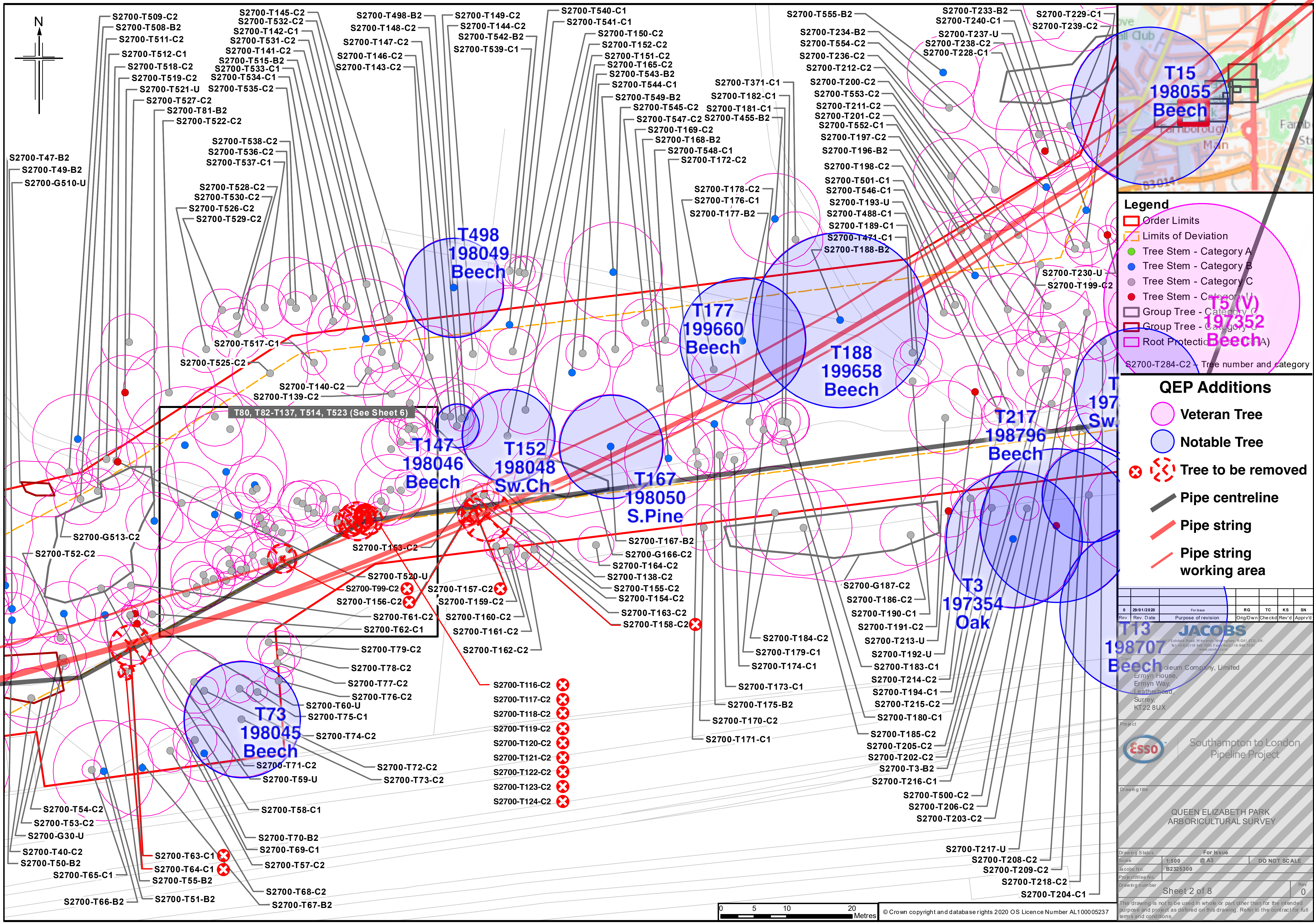

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S2700-T519-C2
S2700-T521-U
S2700-T527-C2
S2700-T81-B2
S2700-T522-C2
S2700-T145-C2
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S2700-T142-C1
S2700-T531-C2
S2700-T141-C2
S2700-T515-B2
S2700-T533-C1
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S2700-T529-C2
S2700-T178-C2
S2700-T176-C1
S2700-T177-B2
T498
198049
Beech
T177
199660
Beech
T188
199658
Beech
T5 (V)
197352
Beech
S2700-T517-C1
S2700-T525-C2
S2700-T140-C2
S2700-T139-C2
S2700-T230-U
S2700-T199-C2
T80, T82-T137, T514, T523 (See Sheet 6)
T147
198046
Beech
T152
198048
Sw.Ch.
T167
198050
S.Pine
T217
198796
Beech
S2700-G513-C2
S2700-T52-C2
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Oak
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198707
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S2700-T71-C2
S2700-T59-U
T73
198045
Beech
S2700-T116-C2
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S2700-G30-U
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S2700-T50-B2
S2700-T65-C1
S2700-T66-B2
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S2700-T209-C2
S2700-T218-C2
S2700-T204-C1
0 5 10 20 Metres
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T15
198055
Beech
Legend
Order Limits
Limits of Deviation
Tree Stem - Category A
Tree Stem - Category B
Tree Stem - Category C
Tree Stem - Category U
Group Tree - Category C
Group Tree - Category A
Root Protection Area (RPA)
S2700-T284-C2 – Tree number and category
QEP Additions
Veteran Tree
Notable Tree
Tree to be removed
Pipe centreline
Pipe string
Pipe string working area
0 29/01/2020 For Issue RG TC KS SN
Rev. Rev. Date Purpose of revision Orig'Dwn Check'd Rev'd Apprv'd
JACOBS
Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX
Project
Southampton to London Pipeline Project
Drawing title
QUEEN ELIZABETH PARK ARBORICULTURAL SURVEY
Drawing Status For Issue
Scale 1:500 @ A3 DO NOT SCALE
Jacobs No. B2325300
Drawing number Sheet 2 of 8
Rev 0
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N

T267
198057
Beech

T270
198060
Beech

T7
197350
Sw.Ch.

T266
198056
Beech

T15
198055
Beech

T14
198663
Beech

T6
197351
Beech

T5 (V)
197352
Beech

T4
197353
Sw.Ch.

T188
199658
Beech

T217
198796
Beech

T218
198052
Sw.Ch.

T3
197354
Oak

T13
198707
Beech

S2700-T268-C1
S2700-T564-C2
S2700-T557-B2
S2700-T264-B2
S2700-T263-C1
S2700-T262-C2
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S2700-T247-C2
S2700-T248-B2
S2700-T258-C2
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S2700-T256-U
S2700-T255-U
S2700-T246-C2
S2700-T501-C1
S2700-T253-C1
S2700-T252-U
S2700-T251-C2
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S2700-T243-C1
S2700-T235-C1
S2700-T233-B2
S2700-T242-C2
S2700-T6-B2
S2700-T232-C2
S2700-T231-U
S2700-T230-U
S2700-T229-C1
S2700-T228-C1
S2700-T199-C2
S2700-T5-U
S2700-T224-C2
S2700-T227-B2
S2700-T226-C2
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S2700-T207-C1
S2700-T210-C2
S2700-T4-B2
S2700-T223-C1
S2700-T222-C1
S2700-T221-U
S2700-T220-C1
S2700-T204-C1
S2700-T219-B2
S2700-T203-C2
S2700-G187-C2
S2700-T186-C2
S2700-T190-C1
S2700-T191-C2
S2700-T213-U
S2700-T192-U
S2700-T214-C2
S2700-T194-C1
S2700-T215-C2
S2700-T185-C2
S2700-T205-C2
S2700-T202-C2
S2700-T3-B2
S2700-T216-C1
S2700-T500-C2
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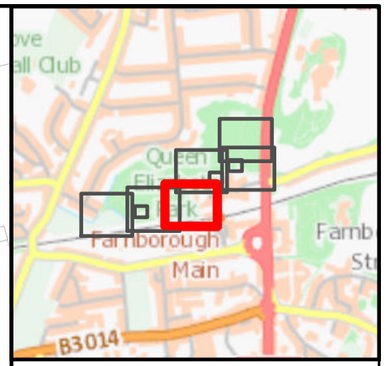

Legend

- Order Limits
- Limits of Deviation
- Tree Stem - Category A
- Tree Stem - Category B
- Tree Stem - Category C
- Tree Stem - Category U
- Group Tree - Category C
- Group Tree - Category U
- Root Protection Area (RPA)

S2700-T284-C2 – Tree number and category

QEP Additions

- Veteran Tree
- Notable Tree
- Tree to be removed
- Pipe centreline
- Pipe string
- Pipe string working area

Rev.	Rev. Date	Purpose of revision	Orig/Dwn	Checkd	Rev'd	Apprv'd
0	29/01/2020	For Issue	RG	TC	KS	SN

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Project: Esso | Southampton to London Pipeline Project

Drawing title: QUEEN ELIZABETH PARK ARBORICULTURAL SURVEY

Drawing Status	For Issue		
Scale	1:500 @ A3	DO NOT SCALE	
Jacobs No.	B2325300		
ProjectWise No.			
Drawing number	Sheet 3 of 8	Rev	0

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0 5 10 20 Metres

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N

S2700-T302-C2
S2700-T301-B2
S2700-T573-U
S2700-T299-B2
S2700-T300-C1
S2700-T298-B2
S2700-T296-C1
S2700-T294-C2
S2700-T297-B2
S2700-G295-C2
S2700-T312-C1
S2700-T293-B2
S2700-T292-B2
S2700-T290-C1
S2700-T572-C1
S2700-T291-C2
S2700-T289-C1
S2700-T282-C1
S2700-T281-C2
S2700-T280-C1
S2700-T571-C2
S2700-T279-C2
S2700-T277-C2
S2700-T569-B1
S2700-T278-C2

S2700-T339-C1
S2700-T307-B2
S2700-T308-B2
S2700-T303-C1
S2700-T306-C1
S2700-T304-C1
S2700-T305-C1

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S2700-T342-C1
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S2700-T340-C2
S2700-T338-C2
S2700-T348-B2

S2700-T575-C1
S2700-T574-B2
S2700-T16-B2
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S2700-T360-C2
S2700-T359-C1

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S2700-T368-B2
S2700-T366-C2
S2700-T363-C1
S2700-T364-C1
S2700-T365-B2
S2700-G570-C1

S2700-T374-C2
S2700-T577-B2

S2700-T357-B2
S2700-T354-B2
S2700-T356-C1
S2700-T355-C1
S2700-T352-C1

T348
199654
Sw.Ch.

T307
198063
Beech

T292
198062
Beech

T16
199651
Beech

T9
197348
Sw.Ch

S2700-T274-B2
S2700-T273-C2
S2700-T567-C2
S2700-T568-C2

S2700-T346-C1
S2700-T347-C1

T326-T337, T346-T347, T404-T419, T503-T504 (See Sheet 7)

S2700-T284-C2
S2700-T565-B2
S2700-T566-B2

T293
198061
Beech

T8 (V)
197341
Beech

S2700-T362-C1
S2700-G353-C2
S2700-T343-C2

S2700-T272-B2
S2700-T502-C1
S2700-T276-C1
S2700-T271-C2
S2700-T558-C1
S2700-T268-C1
S2700-T559-C2
S2700-T564-C2
S2700-T499-C2
S2700-T557-B2
S2700-T264-B2
S2700-T263-C1
S2700-T262-C2
S2700-T556-B2
S2700-T258-C2
S2700-T563-B2

T267
198057
Beech

S2700-T325-C1
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S2700-T8-A3
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S2700-T324-C1
S2700-T322-C1
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S2700-T320-C2
S2700-T319-C2

T270
198060
Beech

S2700-T285-C2
S2700-T269-C1
S2700-T267-B2
S2700-T270-B2

S2700-T310-C1
S2700-T288-C1
S2700-T287-C2
S2700-T286-C1
S2700-T283-C1
S2700-T309-B2

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S2700-T311-C1

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S2700-T420-C2
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S2700-T422-C2
S2700-T367-U
S2700-T375-B2
S2700-T372-C1
S2700-G423-C2

S2700-T250-C1
S2700-T266-B2
S2700-T265-C1

T7
197350
Sw.Ch.

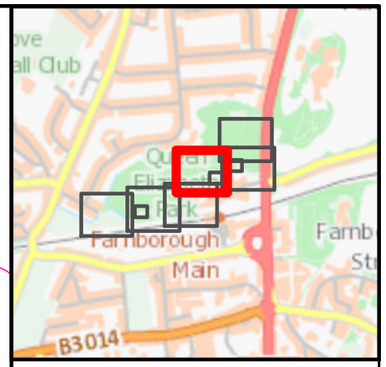
S2700-T254-C2
S2700-T7-B2
S2700-T261-C1
S2700-T260-C2
S2700-T249-C1
S2700-T259-B2
S2700-T247-C2
S2700-T257-C2
S2700-T248-B2

S2700-T256-U
S2700-T255-U
S2700-G551-C2

T15
198055
Beech

T266
198056
Beech

S2700-T15-B2



Legend

- Order Limits
- Limits of Deviation
- Tree Stem - Category A
- Tree Stem - Category B
- Tree Stem - Category C
- Tree Stem - Category U
- Group Tree - Category C
- Group Tree - Category U
- Root Protection Area (RPA)

S2700-T284-C2 – Tree number and category

QEP Additions

- Veteran Tree
- Notable Tree
- Tree to be removed
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- Pipe string
- Pipe string working area

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Scale	1:500 @ A3	DO NOT SCALE	
Jacobs No	B2325300		
Projectwise No.			
Drawing number	Sheet 4 of 8	Rev	0

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0 5 10 20 Metres

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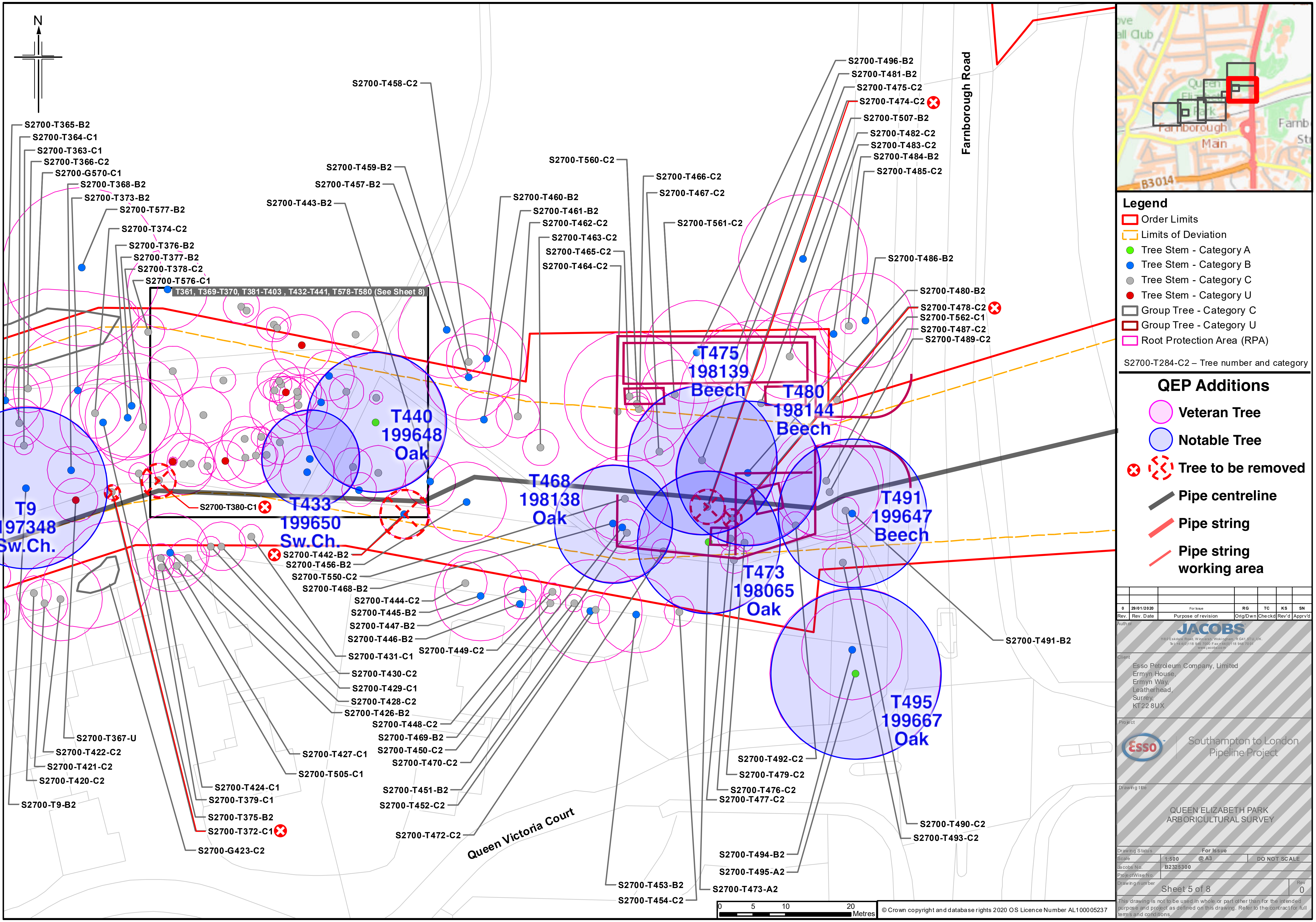
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S2700-T363-C1
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S2700-T368-B2
S2700-T373-B2
S2700-T577-B2
S2700-T374-C2
S2700-T376-B2
S2700-T377-B2
S2700-T378-C2
S2700-T576-C1
T361, T369-T370, T381-T403 , T432-T441, T578-T580 (See Sheet 8)
S2700-T458-C2
S2700-T459-B2
S2700-T457-B2
S2700-T443-B2
S2700-T560-C2
S2700-T460-B2
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S2700-T483-C2
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S2700-T485-C2
Farnborough Road
S2700-T486-B2
S2700-T480-B2
S2700-T478-C2
S2700-T562-C1
S2700-T487-C2
S2700-T489-C2
T475
198139
Beech
T480
198144
Beech
T440
199648
Oak
T468
198138
Oak
T491
199647
Beech
T9
197348
Sw.Ch.
T433
199650
Sw.Ch.
S2700-T380-C1
S2700-T442-B2
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S2700-T550-C2
S2700-T468-B2
S2700-T444-C2
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S2700-T470-C2
S2700-T451-B2
S2700-T452-C2
S2700-T472-C2
T473
198065
Oak
T495
199667
Oak
S2700-T491-B2
S2700-T367-U
S2700-T422-C2
S2700-T421-C2
S2700-T420-C2
S2700-T9-B2
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S2700-T424-C1
S2700-T379-C1
S2700-T375-B2
S2700-T372-C1
S2700-G423-C2
Queen Victoria Court
S2700-T492-C2
S2700-T479-C2
S2700-T476-C2
S2700-T477-C2
S2700-T494-B2
S2700-T495-A2
S2700-T473-A2
S2700-T453-B2
S2700-T454-C2
S2700-T490-C2
S2700-T493-C2
0 5 10 20
Metres
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Farnborough
Main
B3014
Legend
Order Limits
Limits of Deviation
Tree Stem - Category A
Tree Stem - Category B
Tree Stem - Category C
Tree Stem - Category U
Group Tree - Category C
Group Tree - Category U
Root Protection Area (RPA)
S2700-T284-C2 – Tree number and category
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Veteran Tree
Notable Tree
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0 29/01/2020 For Issue RG TC KS SN
Rev. Rev. Date Purpose of revision Orig/Dwn Check'd Rev'd Apprv'd
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KT22 8UX
Project
Southampton to London Pipeline Project
Drawing title
QUEEN ELIZABETH PARK ARBORICULTURAL SURVEY
Drawing Status For Issue
Scale 1:500 @A3 DO NOT SCALE
Jacobs No. B2325300
Drawing number Sheet 5 of 8
Rev 0
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