Appendix 6.4

Tree Survey Report

DixonBrosnan
environmental consultants
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Project

Tree Survey for the Douglas and Togher Flood Relief Scheme.

Client

ARUP

Project no	No pages	Client reference
1653	-	-

v010111

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Report no	Date	Edit	Prepared by	
1666	18/04/17	0 – Issue to client	Mark Donnelly	
			Carl Dixon	

1. Introduction

DixonBrosnan were commissioned to carry out a tree survey as part of the assessment procedure for the Douglas and Togher Flood Relief scheme. The survey was carried out along the lower reaches of the Ballybrack River and along the Togher River within the proposed works area. The purpose of the survey was as follows:

- Within the main works area there is very little scope to retain trees and therefore the focus in this area is to assess the number and type of trees affected.
- The survey identifies trees within 10m of the works area which could be potentially affected. Management recommendations are provided where required.
- All the trees are tagged and described.
- Management prescriptions are provided where required.

2. Statement of authority

Carl Dixon M.Sc. is senior ecologist who has experience in ecological and woodland surveys. Mark Donnelly holds a BSc. (Hons) in Forestry from Bangor University, Wales and is a member of the Institute of chartered Foresters Society of Irish Foresters and is a registered Forester with the Irish Forest Service. He worked as an arboriculture consultant for The National Trust in Wales for 22 years and has worked as a lecturer in Forest Ecology at Bangor University. In Ireland, he has undertaken a range of arboriculture and ecological surveys for projects including windfarms, quarries, housing developments, roads and pipelines.

3. Report limitations

The statements, findings and recommendations made within the report do not take into account any effects of extreme climate and weather incidences, vandalism, changes in the natural and built environment around the trees after the date of this report nor any damage whether physical chemical or otherwise. DixonBrosnan, Environmental Consultants cannot accept any liability in connection with the above factors, nor where recommended tree management is not carried out in accordance with modern tree care techniques.

4. Site description

The proposed flood relief scheme areas will be located in Togher along the Tramore River and in Douglas along the Grange Stream and Ballybrack Stream. The Grange and Ballybrack streams are tributaries to the Tramore River, which ultimately flows to Lough Mahon in Cork Harbour. The proposed works area in Togher is approximately 2.8km south of Cork city centre. The proposed works area in Douglas is to the south and within Douglas village and approximately 3.4km southeast of Cork city centre.

There are sections of treelines at various locations within the proposed works area. A short but well developed treeline with a diverse mix of species occurs along part of the boundary of the Ballybrack River adjacent to the ICA Hall. The western boundary of the Ballybrack Stream, as it flows through the Douglas Community Park, is vegetated and supports a mixture of trees including Sycamore and Ash, Elder and Alder. The trees do not form a long continuous line as

sections of bank and buildings break up the treeline. There is a short section of treeline adjoining an area of open channel adjoining the Togher Road. It includes one large mature Horse Chestnut. There is a patchy treeline along the pedestrian/cycle path which runs south from Douglas village into broadleaved woodland.

Woodland occurs at several locations. Wet willow-alder-ash woodland WN6 north of the Lehenaghmore Industrial Estate blends into broadleaved woodland on a steep escarpment. The trees are generally semi-mature. Species noted include Sycamore, Alder, Willow, Ash, Elder, Hawthorn. A section of broadleaved woodland occurs at the upstream boundary of the works on the Ballybrack Stream. A coarse trash screen is proposed. This woodland area has a relatively natural woodland structure but with a mixture of native and non-native species. Laurel is dominant in places and blocks light and suppresses ground flora. Species noted include Beech, Sycamore, Alder, Laurel, Holly, Ash, Sweet Chestnut, Oak, Lime and Plane. Ground flora is limited due to the heavy shade.

Within the Douglas Community Park ornamental trees have been planted with a wide spacing in amenity grassland. Species noted include Field Maple, Norway Maple, Ash, Lime, Aspen, Birch, Rowan, Horse Chestnut, Oak and Sycamore. Most of the trees are semi-mature. A smaller area occurs at Westbrook Gardens, south of the Douglas Community Park. Trees noted here include Horse Chestnut, Alder, Ash, Poplar, Elder, Sycamore, Rowen, Lime, Red Oak, Birch, Norway Maple, Beech, Western Red Cedar and Atlantic Cedar. A linear group of Lime, Ash, Alder and Horse Chestnut occur within the proposed works area upstream of the Donnybrook Industrial Estate.

5. Survey Methodology

The survey was carried out during October and November, 2016 and March 2017. All trees within the proposed works area were recorded. The survey was also carried out within a 10m zone from the proposed works area. This was carried out to assess the possible impacts on trees on the periphery of the works area which could be inadvertently damaged.

All trees in excess of 150mm, at approximately 1.3m height, were included in the survey. Recorded trees were numbered with plastic tags. Where possible the tag was placed at the downstream side of the tree at 1-2m height. All individual trees and groups are recorded on tree condition record forms and marked on the Proposed Flood Defences, Plan Layout (**Appendix 2**).

Where detailed recommendations are provided they include specific advice on the value of each tree and protection measures, specifically the Root Protection Areas which must be protected from construction activity. This is defined as the radius of root activity which extends beyond the tree as its diameter multiplied by 12 or the equivalent resultant combined stem diameter for multi stemmed trees (See **Table 1**). It is noted that the Root Protection Area defines the extent of the root mass, however works within this radius may not necessarily impact dramatically on tree mortality or health. The survey key utilised for the survey, which is based on the guidelines outlined in the British Standard *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* as detailed below in **Table 2.**

Table 1. Root Protection area – to be used for single stem trees and the equivalent resultant combined stem diameter for multi-stemmed trees.

Single stem diameter (mm)	Radius of nominal circle	RPA
75	0.90	3
100	1.20	5
125	1.50	7
150	1.8	10
175	2.1	14
200	2.4	18
225	2.7	23
250	3.0	28
275	3.3	34
300	3.6	41
325	3.9	48
350	4.2	55
375	4.5	64
400	4.8	72
425	5.1	81
450	5.4	92
475	5.7	102
500	6.0	113
525	6.3	124
550	6.6	137
575	6.9	150
600	7.2	163
625	7.5	177
650	7.8	191

Single stem Diameter (mm)	Radius of nominal circle	RPA
675	8.10	206
700	8.4	222
725	8.7	238
750	9.0	255
775	9.3	272
800	9.6	290
825	9.9	308
850	10.20	327
875	10.50	346
900	10.80	366
925	11.10	387
950	11.40	408
975	11.70	430
1000	12.00	452
1025	12.30	475
1050	12.60	499
1075	12.90	519
1100	13.20	547
1125	13.50	573
1150	13.80	598
1175	14.10	625
1200	14.40	652
1225	14.70	679
1250	15.00	707

Table 2. Survey Key

Attribute	Description
Species	Recorded as common name. A full list is in **Appendix 1.**
Age	IM - An immature tree greater than 150mm diameter but regarded as a sapling SM - Semi mature tree – A young tree but less than 50% of its ultimate size. M - Mature – A tree having attained dimensions typical of a fully grown specimen of its species. OM – Over mature – An old specimen of a species showing signs of decline in health. Usual symptoms include crown starting to break up and decreasing in size.
Girth	Measured in mm. An average diameter was recorded for multi-stemmed stools and number of stems recorded
Height	Approximate tree height in metres.
Spread	Approximate tree canopy diameter in meters. Where a crown is unbalanced, approximate dimensions for the crown are given for North, East, South and West directions.
Condition:	Good : Full healthy canopy with good form and health Fair: A specimen whose overall condition is typical of the site and may exhibit slightly reduced leaf cover/minor deadwood or maybe predisposed to defects e.g. Coppice re-growth, but otherwise in good health. Poor: A specimen which through defect or disease has a limited longevity, dead or may be un-safe.
Risk code - Risk Assessment (Adapted from International Society of Arboriculture (*ISA)*Tree Risk Accepted Methodology)	**A:** High Risk – Failure likely to, or very likely to occur with severe consequences/impacts on people and or property. **B:** Medium risk – Failure could occur but is unlikely during normal weather conditions within short to medium term (0-5yrs). Regular monitoring is necessary. **C:** Low Risk – Failure unlikely during Short- Medium term (0-5 years). Regular monitoring is necessary.
Value Recommendations Tagged trees	1 = retain as a valuable tree 2= retain if possible – generally refers to trees within 'Works Areas' 3= removal recommended.
RPA	Root protection areas for all trees with value recommendation 1 and 2.

6. Survey results

A species list is provided in **Appendix 1.** Tree Condition Record Forms and figures are presented, showing the locations of individual trees **Appendix 2 (Sheets 1 – 16).** It is noted that tables associated with the each sheet overlap.

7. Conclusions

7.1 History and general conclusions

Trees along the Ballybrack River are generally amenity trees that have been planted. This is most obvious of these are in the Douglas Community Park where there is a mixture of even aged, semi-mature trees including Norway Maple, Aspen and Horse Chestnut. With the exception of some Alder along the river, most are non-native. There is a small area at Ravensdale, upstream of the Douglas Community Park that has been planted with Poplar, Alder and Rowan.

A treeline runs along the river on the northern side of the ICA building. It is dominated by mature Beech with some Western Red Cedar also recorded. These trees are prominent features in the local landscape. It is considered unlikely that all of these trees can be retained.

Further upstream Ballybrack Woods is a mixed semi-natural woodland with some recreational usage. No extensive works are proposed within this wood. A riverside treeline above the Donnybrook Industrial Estate is within a proposed works area and it is unlikely it can be retained.

The Togher River is largely culverted in the upper sections. Some planted amenity trees were recorded and some mixed broadleaved woodland occurs. One prominent Horse Chestnut is located in proximity to a small section of open channel adjoining the Togher Road. It is unlikely this tree can be retained. There is a mature veteran Ash (Tree no. 873) within woodland adjoining the Lehenaghmore Industrial Estate. This should be retained if possible.

Elm is a significant constituent of established woodland throughout the survey area. All Elm trees are all less than 40 years old and have developed since the Elm Disease epidemic of the 1970/1980s, which killed all mature Elms. However, the disease is currently re-infecting trees and it is unlikely any semi-mature and mature Elm will survive beyond 2020. Accordingly, all elms recorded within the survey area are rated as a high safety risk and low priority for retention.

There is a paucity of mature and veteran trees within the survey area which have the potential to be of high value as bat roosts. Trees with significant potential as bat roosts include the following: two older beech trees close to the ICA Hall in Douglas (Tree no. 812 and 813) and a sycamore (Tree no. 863), and a veteran Ash (Tree no. 873) adjoining the Lehanaghmore Industrial Estate. These trees should be checked for bats prior to the commencement of works.

Appendix 1. Species list

Elm	*Ulmus spp.*
Grey Alder	*Alnus incarna*
Oak	*Quercus robur*
Sycamore	*Acer pseudoplatanus*
Lime	*Tilia spp.*
Wild Cherry	*Prunus avium*
Hornbeam	*Carpinus betulus*
European Larch	*Larix decidua*
White Poplar	*Populus alba*
Willow	*Salix caprea*
Red Oak	*Quercus rubra*
Horse Chestnut	*Aesculus hippocastanum*
Laurel	*Prunus Laurocerasus*
Aspen	*Populus tremula*
London Plane	*Platanus x hispanica*
Western Red Cedar	*Thuja plicata*

Alder	*Alnus glutinosa*
Ash	*Fraxinus excelsior*
Turkey Oak	*Quercus cerris*
Norway Maple	*Acer platanoides*
Elderberry	Sambucus nigra
Rowan	*Sorbus aucuparia*
Monterey Cypress	*Cupressus macrocarpa*
Black Poplar	*Populus nigra*
Beech	*Fagus sylvatica*
Crack Willow	*Salix fragilis*
Birch	*Betula pendula*
Holly	*Ilex aquilifolium*
Black Poplar (hybrid)	*Populus x canadensis*
Callery Pear	*Pyrus calleryana*

ARBORIST SURVEY

DOUGLAS- Flood Relief Scheme

(including Togher Culvert) 04/04/2017

CONTENTS:

DIXON BROSNAN
ENVIRONMENTAL CONSULTANTS

Douglas FRS - Arborist Survey

Brook Avenue

Industrial Estate

20.4

24.9

HEDGE 854

HEDGE 854

5200

5250

5300

5350

5350

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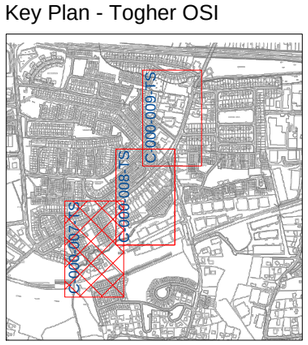
Key Plan - Togher OSI



Key to Plan

Recommendations

- Retain (1)
- Retain if possible (2)
- Remove (3)

171 — Location of groups of trees (Colour reflects category unless otherwise stated)

Watercourse

Channel centre line & chainage

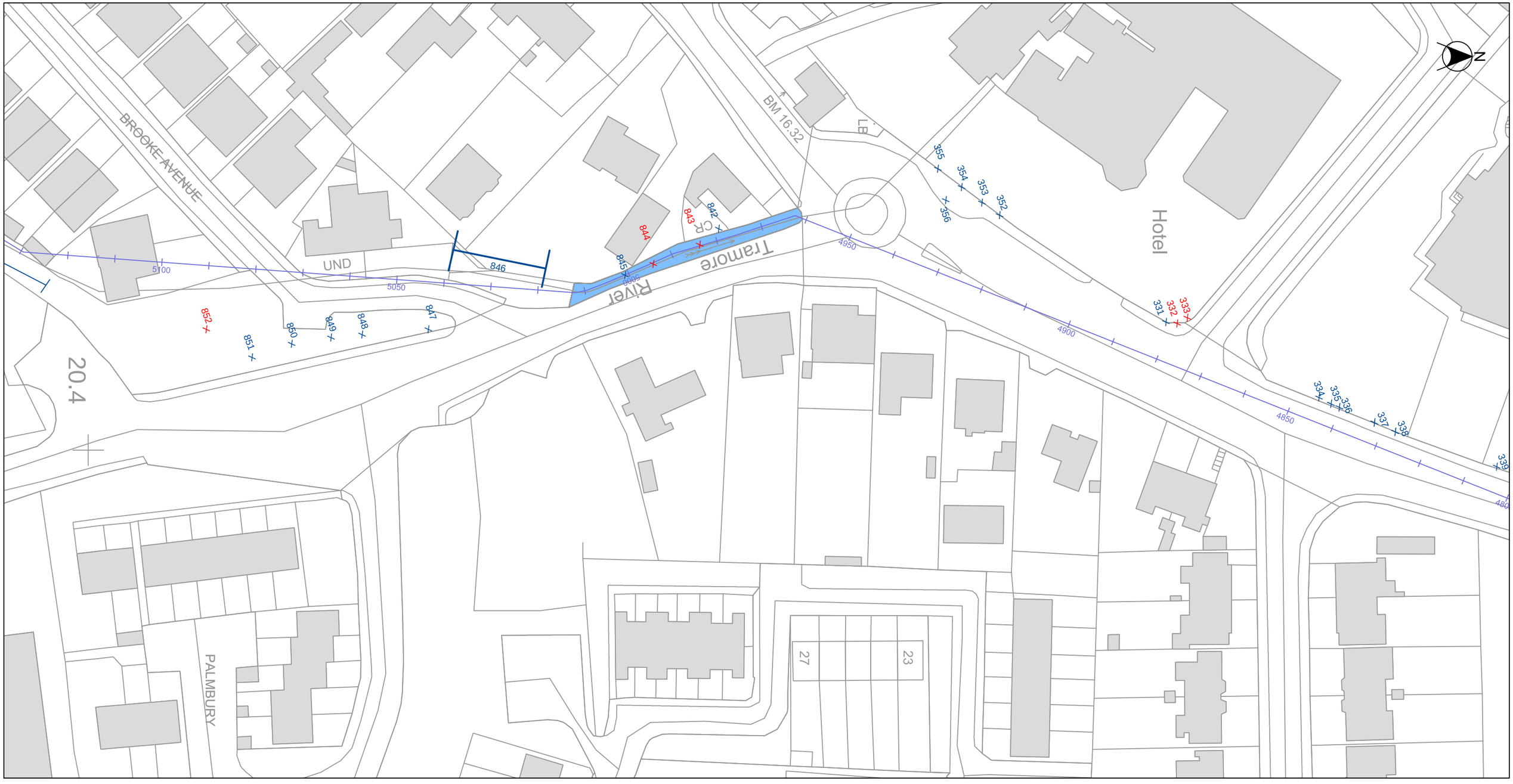
Drawing No.: C-000-007-TS (04/04/2017)-Tree Survey (Not to Scale)

DIXON BROSNAN
ENVIRONMENTAL CONSULTANTS

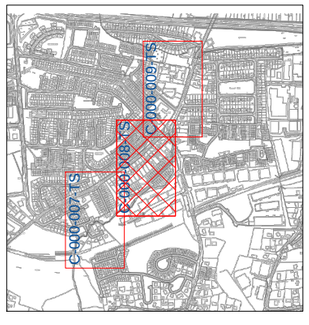
Read in conjunction with drawing C_000_007_TS Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
853	Sycamore	M	400	12			10			Fair	B	4 stems	3	-
854	Western Red Cedar	SM	200	4						Good	C	Hedge (and *Cypressus macrocarpa*)	2	2.4
855	Alder	SM	250	12			5			Good	C	GROUP of 20 trees	2	3.0
856	Elm	M	500	15			10			Poor	A	Dead 2 trees	3	-
857	Willow	M	250	9			8			Good	C	GROUP of 5 trees	2	3.0
858	Elm	M	350	10		5				Poor	A		3	-
859	Elm	M	380	20			10			Poor	A	GROUP of 4 trees	3	-
860	Sycamore	SM	300	18			10			Fair	B	5 stems	2	3.6
861	Elm	M	500	20			9			Poor	C	2 dead Elm	3	-
862	Sycamore	SM	300	15			9			Good	C	2 trees (1 ash)	1	3.6
863	Sycamore	M	900	20			20			Good	C	2 stems	1	10.8
864	Ash	M	350							Poor	B	Poor tree. 2 stems	3	-
865	Sycamore	M	380	18			10			Good	C		1	4.2
866	Alder	M	280	14			8			Good	C	1 tree	2	3.3
867	Alder	M	200	15			8			Fair	C	3 trees	2	2.4
868	Alder	M	300	18			8			Fair	B		3	-
869	Beech	SM	350	18			8			Poor	A	Rot at base	3	-
870	Alder	M	300	18			8			Poor	A	Rot at base	3	-
871	Elm	M	350	15			6			Poor	A	Dead	3	-
872	Elm	SM	300	12			6			Poor	A	Dead	3	-
873	Ash	M	1000	18			15			Poor	B	Veteran tree. Dead top. Rot at base. POLLARD	1	12.0
874	Evergreen Oak	M	450	13			10			Good	C	Specimen tree - RETAIN	1	5.4
875	Elm	M	450	13			10			Poor	A	2 trees dead	3	-

Douglas FRS - Arborist Survey



Key Plan - Togher OSI



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Recommendations

- Retain (1)
- Retain if possible (2)
- Remove (3)

- 171 — Location of groups of trees (Colour reflects category unless otherwise stated)
- Watercourse
- Channel centre line & chainage

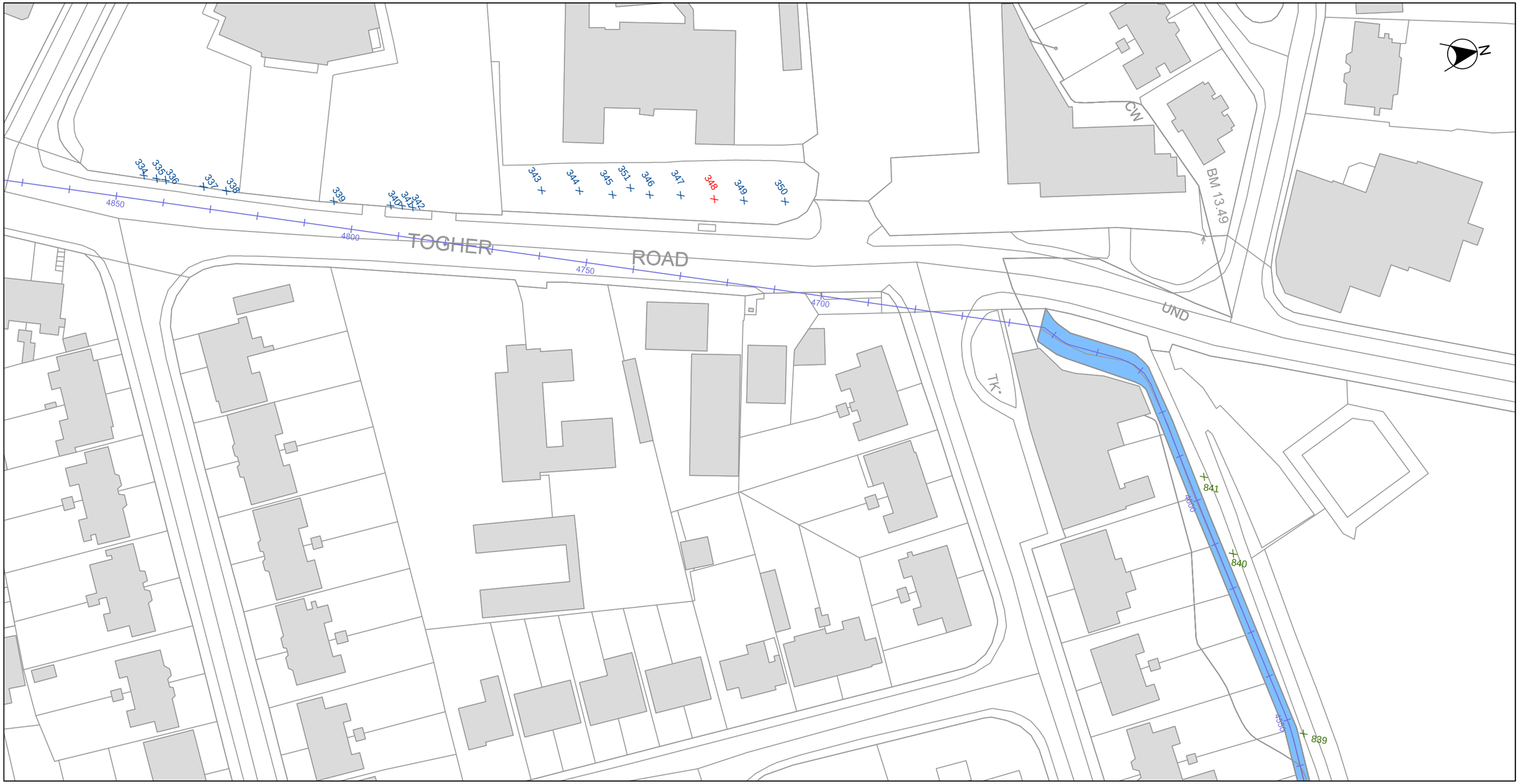
Drawing No.: C-000-008-TS (04/04/2017)-Tree Survey (Not to Scale)

DIXON BROSNAN
ENVIRONMENTAL CONSULTANTS

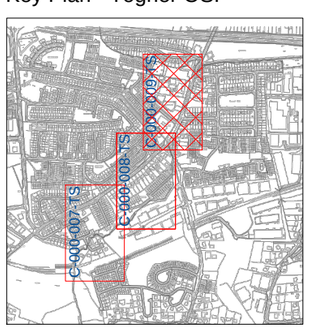
Read in conjunction with drawing C_000_008_TS Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)				Condition	Risk Code	Comments	Rec	RPA (m)
					N	E	S	W					
842	Horse Chestnut	M	450	23		18			Fair	B	Poor form. 3 stems. 30 % crown reduction if compromised by excavations	2	5.4
843	Ash	M	450	18	10				Fair	B		3	-
844	Elm	M	450	8		5			Fair	B		3	-
845	Lime	M	300	13		10			Fair	B	4 stems - Will need leaning stem removed	2	3.6
846	Ash & Elm	M	450	18		9			Good	B	GROUP of 10 trees	2	5.4
847	Ash	SM	400	9		8			Good	C		2	4.8
848	Ash	SM	500	9		8			Good	C	Over culvert	2	6.0
849	Ash	SM	500	9		8			Poor	A	Poor form	2	6.0
850	Ash	SM	300	9		8			Poor	A	Cankered	2	6.0
851	Ash	SM	400	9		8			Fair	B	Forked	2	4.8
852	Ash	SM	580	12		10			Fair	B	Poor health	3	-
338	Norway Maple	IM	200	8		4			Good	C	Retain if possible	2	2.4
337	Norway Maple	IM	200	8		4			Good	C	Retain if possible	2	2.4
336	Birch	IM	150	5		4			Good	C	Retain if possible	2	1.8
335	Birch	IM	150	5		4			Good	C	Retain if possible	2	1.8
334	Birch	IM	150	5		4			Good	C	Retain if possible	2	1.8
333	Norway Maple	IM	250	9		4			Poor	A	Damaged	3	-
332	Norway Maple	IM	230	9		5			Poor	A	Damaged	3	-
331	Norway Maple	SM	300	10		6			Good	C	Retain if possible	2	3.6
352	Lime	IM	200	8		5			Good	C	Retain if possible	2	2.4
353	Lime	IM	200	8		5			Good	C	Retain if possible	2	2.4
354	Lime	IM	250	8		5			Good	C	Retain if possible	2	3.0
355	Lime	IM	300	8		5			Good	C	Retain if possible	2	3.6
356	Callery Pear	IM	200	8		4			Good	C	Retain if possible	2	2.4

Douglas FRS - Arborist Survey



Key Plan - Togher OSI



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Recommendations

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- Remove (3)

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Watercourse

Channel centre line & chainage

Drawing No.: C-000-009-TS (04/04/2017)-Tree Survey (Not to Scale)

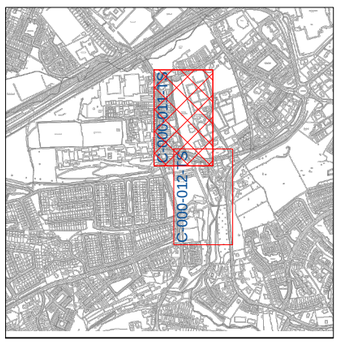
DIXON BROSNAN
ENVIRONMENTAL CONSULTANTS

Read in conjunction with drawing C_000_009_TS Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
839	Lime	SM	300	8			5			Good	C		1	3.6
840	Lime	SM	200	8			5			Fair	C	Suppressed and damaged at base	1	2.4
841	Beech	SM	360	10			10			Good	C		1	4.2
350	Silver Birch	IM	150	5			3			Good	C	Commemorative Tree (Priority Tree)	2	1.8
349	Cherry	SM	350	8			6			Good	C		2	4.2
348	Ash	IM	200	5			4			Poor	B	Poor Health - Cankered	3	-
347	Cherry	SM	300	6			4			Good	C		2	3.6
346	Rowan	M	350	9			4			Good	C		2	4.2
351	Silver Birch	SM	250	9			5			Good	C		2	3.0
345	Cherry	SM	300	8			5			Good	C		2	3.6
344	Ash	SM	350	9			8			Good	B		2	4.2
343	Oak	SM	250	9			6			Fair	C	Poor Form	2	3.0
342	Birch	SM	200	8			4			Good	C	Good form - Retain if at all possible	2	2.4
341	Birch	SM	200	8			4			Good	C	Retain if possible	2	2.4
340	Birch	SM	200	8			4			Good	C	Retain if possible	2	2.4
339	Norway Maple	IM	150	5			2			Good	C	Retain if possible	2	1.8
338	Norway Maple	IM	200	8			4			Good	C	Retain if possible	2	2.4
337	Norway Maple	IM	200	8			4			Good	C	Retain if possible	2	2.4
336	Birch	IM	150	5			4			Good	C	Retain if possible	2	1.8
335	Birch	IM	150	5			4			Good	C	Retain if possible	2	1.8
334	Birch	IM	150	5			4			Good	C	Retain if possible	2	1.8

Douglas FRS - Arborist Survey

Key Plan - Douglas OSI



Key to Plan

Recommendations

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- Retain if possible (2)
- Remove (3)

171 — Location of groups of trees (Colour reflects category unless otherwise stated)

Watercourse

Channel centre line & chainage

Drawing No.: C-000-011 TS (04/04/2017)-Tree Survey (Not to Scale)

DIXON BROSNAN
ENVIRONMENTAL CONSULTANTS

Read in conjunction with drawing C_000_011_TS Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
681	Sycamore	SM	300	8			7			Good	C		1	3.6
682	Ash	SM	400	9			8			Good	C		1	4.8
683	Norway Maple	SM	350	8			8			Good	C		1	4.2
684	Norway Maple	SM	260	7			7			Good	C		2	4.2
685	Ash	SM	300	7			7			Good	C		2	3.6
686	Norway Maple	SM	300	7			6			Good	C		2	3.6
687	Birch	IM	150	6			3			Good	C		2	1.8
688	Birch	IM	200	6			4			Good	C		2	2.4
689	Birch	IM	190	6			4			Good	C		2	2.4
690	Norway Maple	SM	400	8			9			Poor	B	Poor form	3	-
691	Norway Maple	SM	300	9			8			Good	C		2	3.6
692	Norway Maple	SM	320	8			7			Good	C		2	3.9
693	Norway Maple	SM	300	8			7			Good	C	Could remove or thin	3	3.6
694	Norway Maple	SM	290	9			9			Good	C		2	3.6
695	Norway Maple	SM	400	8			7			Poor	B	Poor form	2	4.8
696	Norway Maple	SM	280	8			7			Poor	B	Poor form/fork	3	-
697	Norway Maple	SM	290	7			6			Good	C		1	3.3
698	Norway Maple	IM	280	7			6			Good	C		2	3.3
699	Field Maple	M	320	8			6			Good	C	Good tree	2	3.9
700	Field Maple	M	300	8			6			Good	C	Good tree	2	3.6
701	Norway Maple	SM	280	7			7			Good	C	Could thin	2	3.3
702	Norway Maple	SM	300	7			7			Poor	B	Poor form	3	-
703	Norway Maple	SM	250	7			7			Good	C		2	3.0
704	Norway Maple	SM	260	8			7			Good	B	Good form. Could thin	2	3.3
705	Norway Maple	SM	250	8			6			Good	C		2	3.0
706	Lime	SM	350	10			8			Good	C		2	4.2
707	Birch	SM	250	8			3			Good	C		2	3.0
708	Lime	SM	350	8			7			Fair	B	Close to bank. Leaning	3	-
709	Lime	SM	320	8			7			Good	C	Good form	2	3.9
710	Lime	SM	320	8			7			Good	C		2	3.9
711	Lime	SM	300	8			7			Fair	C	Forked	3	-

Read in conjunction with drawing C_000_011_TS Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
712	Lime	SM	450	9			7			Poor	A	Rot at base	3	-
713	Lime	SM	150	5			3			Poor	B	Suppressed	2	1.8
714	Aspen	M	400	11			8			Good	C	Good tree	1	4.8
715	Ash	SM	250	6			4				B	Suppressed	2	3.0
716	Lime	SM	280	9			5			Good	C		2	3.3
717	Lime	SM	350	10			6			Good	C		2	4.2
718	Lime	SM	250	7			5			Fair	B	Suppressed	3	-
719	Aspen	IM	440	11			8			Good	C		2	5.4
720	Aspen	M	400	12			8			Good	C		2	4.8
721	Norway Maple	SM	400	10			8			Good	C		2	4.8
722	Lime	M	450	11			9			Good	C		2	5.4
723	Lime	SM	400	10			8			Fair	B	Forked	2	4.8
724	Rowan	M	250	7			6			Good	C		1	3.0
725	Rowan	M	250	7			6			Good	C		1	3.0
726	Maple	SM	350	9			7			Poor	B	Damaged base	3	-
727	Maple	SM	360	9			7			Poor	B	Damaged base	3	-
728	Lime	M	680	12			10			Good	C		1	8.1
729	Norway Maple	SM	360	9			8			Good	C		1	4.2
730	Rowan	M	240	7			6			Good	C		1	2.7
731	Norway Maple	SM	380	11			8			Good	C		1	4.5
732	Norway Maple	SM	400	10			8			Fair	B		3	-
733	Ash	SM	400	11			9			Good	C		1	4.8
734	Norway Maple	SM	380	11			9			Fair	B	Forked. Poor form	3	-
735	Field Maple	SM	420	11			9			Fair	B	Damaged stem	3	-
736	Oak	SM	320	9			5			Fair	B	Poor form	2	3.9
737	Horse Chestnut	SM	280	9			4			Good	B	Thin out	3	-
738	Horse Chestnut	SM	330	9			6			Fair	B	Thin out/Damaged stems	3	-
739	Norway Maple	SM	250	9			6			Good	C		2	3.0
740	Norway Maple	SM	340	10			8			Good	C		2	4.2
741	Field Maple	SM	300	9			5			Good	C		2	3.6
742	Norway Maple	SM	280	8			5			Good	C		2	3.3

Read in conjunction with drawing C_000_011_TS

Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
743	Norway Maple	SM	200	9			6			Good	C		2	2.4
744	Norway Maple	M	500	11			10			Poor	B	Poor form	3	-
745	Norway Maple	SM	240	10			5			Good	C		2	3.0
746	Norway Maple	SM	230	10			5			Good	C		2	2.7
747	Horse Chestnut	SM	350	11			8			Poor	B	Poor form	3	-
748	Field Maple	M	320	11			8			Good	C		2	3.9
749	Norway Maple	SM	380	10			8			Poor	B	Poor form	3	-
750	Lime	SM	280	10			9			Good	C		2	3.3
751	Norway Maple	SM	480	12			10			Poor	B	Poor form	3	-
752	Field Maple	M	320	10			7			Good	C		2	3.9
753	Field Maple	M	480	11			8			Good	C		1	5.4
754	Horse Chestnut	SM	360	9			9			Good	C		2	4.2
755	Field Maple	M	440	10			8				C		1	5.4
756	Field Maple	M	400	10			9			Good	C		1	4.8
757	Norway Maple	SM	400	12			10			Good	C		2	4.8
758	Norway Maple	SM	400	12			10			Poor	B		3	-
759	Norway Maple	SM	400	12			10				C		1	4.8
760	Norway Maple	SM	430	11			8			Fair	B	Poor form	3	-
761	Norway Maple	SM	380	10			6			Fair	C	Close to facilities	3	-
762	Norway Maple	SM	380	10			8			Good	C		1	4.5
763	Norway Maple	SM	350	10			6			Good	C		1	4.2
764	Lime	SM	400	9			8			Good	C		1	4.8
765	Norway Maple	SM	360	10			8			Fair	B	Poor form	2	4.2
766	Norway Maple	SM	300	10			6			Fair	B	Close to river	2	3.6
767	Norway Maple	SM	250	10			8			Fair	B	Damaged. NO TAG	2	3.0
768	Alder	M	400	10			10			Good	C	3 stems (1 sycamore). NO TAG	2	4.8
769	Sycamore	SM	280	10			3			Poor	B	Poor form	3	-
770	Ash	M	450	5			3			Fair	C	Pollarded	2	5.4
771	Ash	IM	300	10			4			Good	B	Can't reach potential	3	-
772	Ash	IM	200	9			4			Good	B	Can't reach potential	3	-
773	Ash	IM	350	10			8			Fair	B	Won't reach potential	3	-

Read in conjunction with drawing C_000_011_TS

Plastic Tag Colour - Green

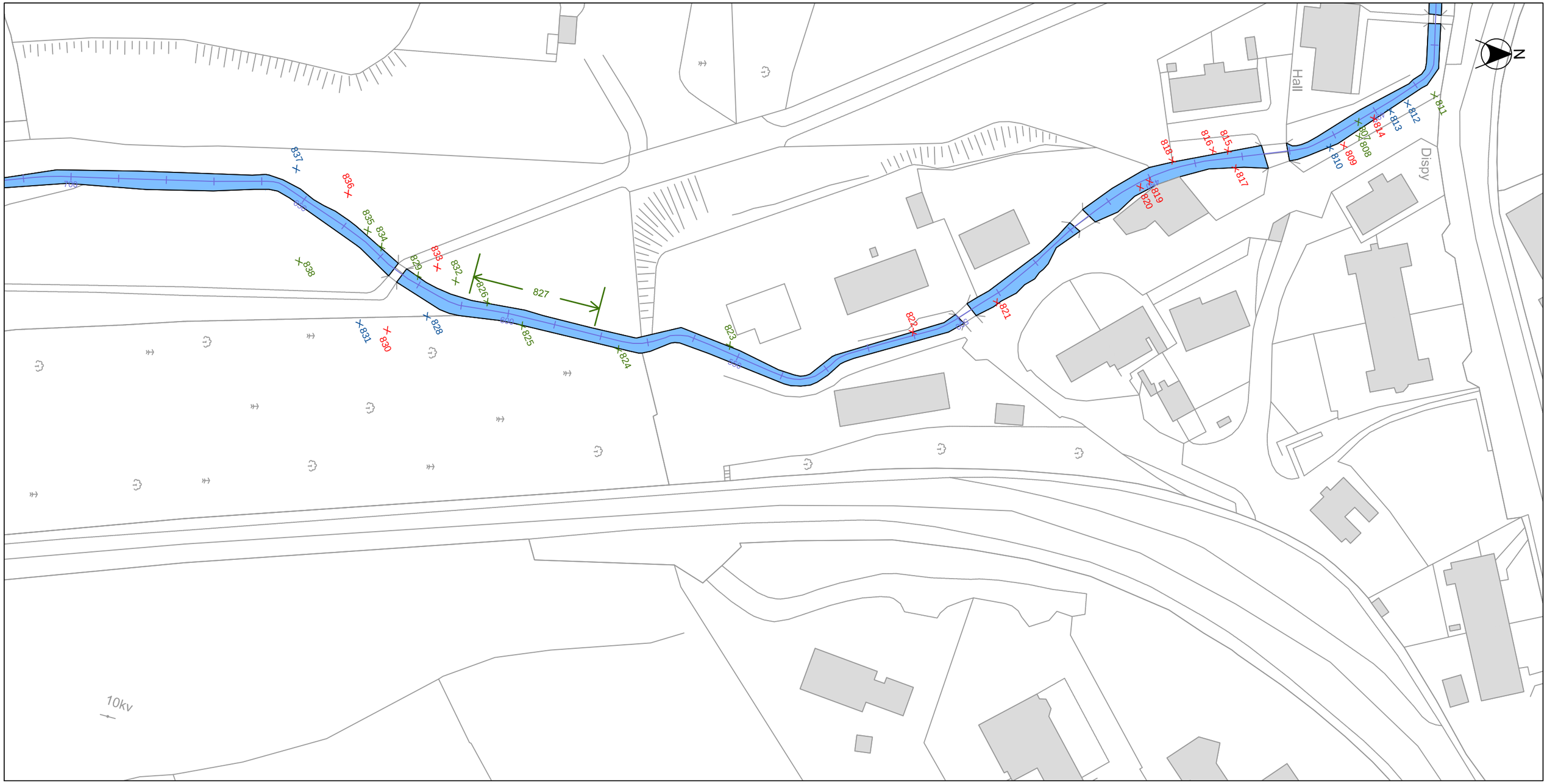
No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
774	Sycamore	IM	350	11			9			Fair	B	Won't reach potential	3	-
775	Sycamore	IM	150	7			3			Fair	B	Won't reach potential	3	-
776	Ash	IM	200	7			5			Fair	B	Won't reach potential	3	-
777	Ash	IM	200	8			5			Fair	B	Won't reach potential	3	-
778	Sycamore	M	400	15			10			Fair	B	4 stems	3	-
779	Alder	M	400	15			10			Fair	C	4 stems	1	4.8
780	Alder	M	800	15			15			Good	C	2 stems	1	9.6
781	Alder	M	500	15			10			Good	C		1	6.0
782	Alder Sycamore Elder	M SM M	300 300 150	15			10			Fair		Could be retained but not if RPA is compromised	2	3.6
783	Sycamore	SM	230	12			10			Fair		4 stems	2	2.7
784	Alder	M	320	10			8			Fair		2 stems	2	3.9
785	Red Oak	SM	320	10			10			Good	C		2	3.9
786	Rowan	M	250	8			6			Fair	B	End of lifespan	2	3.0
787	Lime	SM	350	10			10			Good	C	Poor form	2	4.2
788	Beech	SM	360	10			10			Good	C	Poor form	2	4.5
789	Horse Chestnut	SM	480	10			12			Poor	B	Poor health (Cankered)	3	-
790	Horse Chestnut	SM	300	6			10			Poor	C	Poor form	3	-
791	Western Red Cedar	M	900	20						Fair	B	Reduce crown SURGERY	1	10.8
792	Western Red Cedar	M	840	20			6			Fair	B	Reduce crown SURGERY	1	10.2
793	Ash	SM	280	9			5			Good	C		3	-
794	Elder	M	450	8			5			Good	C		3	-
795	Ash	SM	300	8			6			Poor	B	Cankered. Poor form	3	-
796	Birch	M	300	10			9			Good	C		2	3.6
797	Alder	SM	240	8			7			Good	C	3 stems	2	3.0
798	Alder		320							Fair	B		2	3.9
799	Black Poplar	M	600	25			8			Good	C	SURGERY Reduce crown 30 %	2	7.2
800	Black Poplar	M	500	25			10			Fair	B	GROUP of 3 trees (1 poor tree) SURGERY reduce 30 %	2	6.0
801	Alder	SM	200	8			5			Good	C	3 stems	2	2.4
802	Atlantic Cedar	SM	230	10			5			Fair	C		2	2.7

Read in conjunction with drawing C_000_011_TS

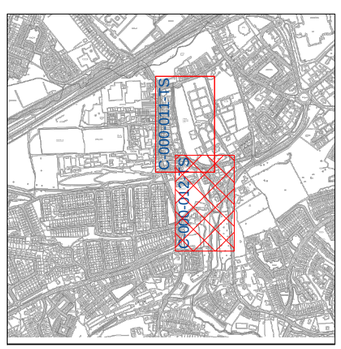
Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
803	Beech	M	850	20			15			Good	C	Damage to stem (Reduce crown 30 % - SURGERY)	1	10.2
804	Rowan	M	350	8			5			Good	C		2	4.2
805	Norway Maple	SM	300	10			9			Good	C		1	3.6
806	Horse Chestnut	SM	400	10			9			Good	C		2	4.8
811	Beech	M	700	22			10			Fair	B	Not tagged. On corner. Crown reduction 30 %	1	8.4

Douglas FRS - Arborist Survey



Key Plan - Douglas OSI



Key to Plan

Recommendations

- Retain (1)
- Retain if possible (2)
- Remove (3)

- 171 — Location of groups of trees (Colour reflects category unless otherwise stated)
- Watercourse
- Channel centre line & chainage

Drawing No.: C-000-012 TS (04/04/2017)-Tree Survey (Not to Scale)

DIXON BROSNAN
ENVIRONMENTAL CONSULTANTS

Read in conjunction with drawing C_000_012_TS Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
807	Holly	M	200	8			4			Good	C	2 stems	1	2.4
808	Ash	SM	300	15			10			Fair	B	2 trees - Over stream and road	1	3.6
809	Holly	M	280	10			8			Fair	B	Undermined. 3 stems	3	-
810	Sycamore	IM	200	6			3			Fair	B		2	2.4
811	Beech	M	700	22			10			Fair	B	Not tagged. On corner. Crown reduction 30 %	1	8.4
812	Beech	M	750	22			10			Fair	B	Thin crown or fell.	2	9.0
813	Beech	M	400	18				8		Fair	B	Thin crown or fell	2	4.8
814	Elm	SM	300	15				8		Dead	A	Dead	3	-
815	Alder	M	430	12			8			Good	A	In retaining wall	3	-
816	Sycamore	SM	350	12		8				Fair	A	In retaining wall	3	-
817	Alder	IM	200	5			5			Por	A	Remove	3	-
818	Alder	IM	200	9			5			Fair	A	In retaining wall	3	-
819	Willow	SM	150	7			5			Fair	B		3	-
820	Sycamore	IM	200	7			5			Fair	B		3	-
821	Sycamore	SM	300	12			10			Fair	B	6 stems, In retaining	3	-
822	Alder	IM	150	6			4			Fair	B	4 stools	3	
823	Sycamore	M	400	6			4			Fair	B	3 stools (1 sycamore) Pollarded	1	6.6
824	Sycamore	M	550	18					10	Good	C	In bank	1	7.2
825	Beech	M	600	20			12			Good	C		1	4.8
826	Sycamore	M	400	20			12			Good	C		1	3.6
827	Alder	SM	300	15			10			Good	C	GROUP of 25 trees	1	9.0
828	Beech	M	750	25			12			Good	B	Reduce crown by 20% - SURGERY	2	7.2
829	Alder	M	600	20			10			Good	C		1	4.8
830	Oak	M	800	20	15					Poor	A	Leaning over river	3	
831	Sycamore	M	550	18					15	Good	C	2 stems	2	2.7
832	Plane	SM	220	12					8	Good	C		1	2.4
833	Plane	IM	190	10			5			Poor	C	Damaged stem	3	3.0
834	Alder	SM	250	15			10			Good	C	5 stems	1	3.6
835	Alder	M	300	18			10			Good	C	5 stems	1	3.8
836	Laurel	M	480	5				10		Poor	B	Fallen	3	
837	Lime		840	25		15				Fair	B	Remove trunk over river - SURGERY	2	3.6

Read in conjunction with drawing C_000_012_TS

Plastic Tag Colour - Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
838	Alder	M	300	15			12			Good	C	Bat boxes present	1	3.8
												GROUP of Alder and Willow		-

Douglas FRS - Arborist Survey

Key Plan - Donnybrook OSI

Key to Plan

Recommendations

- Retain (1)
- Retain if possible (2)
- Remove (3)

171 — Location of groups of trees (Colour reflects category unless otherwise stated)

Watercourse

Channel centre line & chainage

Drawing No.: C-000-0013-TS (04/04/2017)-Tree Survey (Not to Scale)

DIXON BROSNAN
ENVIRONMENTAL CONSULTANTS

Read in conjunction with drawing C_000_013_TS Plastic Tag Colour -Green

No.	Species	Age Class	Girth (mm)	Height (m)	Spread (m)					Condition	Risk Code	Comments	Rec	RPA (m)
					N	E		S	W					
521	Lime	M	400	15			8			Good	C	Muti-Stem 3 Minor	2	6.9
522	Alder	M	300	14			6			Good	C	2 Stems	2	5.1
523	Horse Chestnut	M	420	18			10			Good	C	2 Stems	2	5.1
524	Alder	M	300	15	6					Good	C	-	2	3.6
525	Lime	SM	180	16			4			Fair	C	-	2	2.1
526	Alder	M	420	16	8					Fair	B	Over River(1)	3	-
527	Horse Chestnut	SM	300	15			8			Fair	B	Multi-Stemmed- Cavity	3	-
528	Lime	SM	490	20			10			Good	C	Multi stemmed	2	8.5
529	Alder	M	400	19			9			Fair	B	2 stems	3	-
530	Horse Chestnut	M	420	20			10			Good	B	Multi-stemmed (5)	3	-
531	Alder	M	370	18			1			Poor	A	-	3	-
532	Alder	M	430	17	12					Fair	A	Over River	3	-
533	Lime	M	400		8					Good	B	2 Stems	3	-
534	Alder	M	460	16			10			Good	C	3 Stems	2	8.1
535	Alder	M	300	17			10			Good	C	-	2	3.6
536	Holly	M	1470	12	8					Fair	B	Over River	3	-
537	Alder	M	420	18			10			Good	C	-	2	5.1
538	Ash	M	200	17			8			Good	C	-	2	2.4
539	Ash	M	300	18			10			Good	C	2 Stems	2	4.2
540	Ash	M	370	18			12			Good	C	2 Stems	2	3.0
541	Alder	M	330	18			10			Fair	B	-	3	-
542	Alder	M	400	18			10			Poor	A	Multi-stemmed - Isolated	3	-
543	Alder	SM	250	15			5			Good	C	Surrounded by IM Alder	2	3.0