



**Haweswater Aqueduct Resilience Programme – Proposed Bowland
Section**

Environmental Statement

Volume 4

Appendix 20.2: Planting Proposals

June 2021



Haweswater Aqueduct Resilience Programme – Proposed Bowland Section

Project No: B27070CT
Document Title: Proposed Bowland Section Environmental Statement
Volume 4 Appendix 20.2: Planting Proposals
Document Ref.: LCC_RVBC-BO-TA-020-002
Revision: 0
Date: June 2021
Client Name: United Utilities Water Ltd

Jacobs U.K. Limited

5 First Street
Manchester M15 4GU
United Kingdom
T +44 (0)161 235 6000
F +44 (0)161 235 6001
www.jacobs.com

© Copyright 2021 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright.

Limitation: This document has been prepared on behalf of, and for the exclusive use of Jacobs' client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this document by any third party.

Contents

1.	Planting Proposals	1
1.1	Background to the Document	1
1.2	Objectives	1
2.	Planting Schedules.....	3
3.	Specification and Maintenance	5

1. Planting Proposals

1.1 Background to the Document

- 1) The Proposed Bowland Section would result in vegetation removal, including hedgerows, and hedgerow trees and loss of other features such as dry-stone walls and fence lines. The document sets out the approach for reinstatement for individual trees, woodland and hedgerows. The Environmental Masterplan (EMP) shows reinstatement locations (refer to Figure 20.1).
- 2) A series of planting schedules have been developed for the areas of mitigation vegetation by landscape architects in conjunction with Ecologists and Arboriculturalists. The schedules have been developed to ensure proposed mitigation vegetation is of a similar character to that found within Lancashire and to ensure the mitigation vegetation meets its objectives such as providing screening or creating habitats. Ash species are not specified due to Ash dieback.
- 3) Seeding mixes have not been included in this document as consultation should be carried out with landowners to confirm seeding requirements. Seeding mixes would, therefore, be developed as part of detailed design.

1.2 Objectives

- 4) The following is a list of objectives for each planting type shown on the EMP:

1.2.1 Proposed Trees

- 5) Trees appropriate to the specific location, identifiable as individual trees separate from other woody vegetation, planted to replace individual trees lost as part of the scheme and to aid landscape integration.

1.2.2 Proposed Native Woodland Planting

- 6) Planting dominated by tree species appropriate to the location, to replace woodland lost as part of the Proposed Bowland Section, create habitat and provide a screening function. Evergreen and coniferous species have been included to aid visual screening.

1.2.3 Proposed Reinstatement of Native Hedgerow

- 7) Shrub planting species appropriate to the location, used to create linear features along boundaries in keeping with local landscape character, to enhance biodiversity and help with landscape integration. The suggested mix identified in Table 20.4 represents the "average" mix and that individual hedge mixes should be adjusted nominally on site according to location and composition of retained hedge sections.

1.2.4 Proposed Reinstatement of Important Hedgerows (Hedgerow Regulations 1997) and Species Rich Hedgerows

- 8) Important Hedgerows (Hedgerow Regulations 1997) and Species Rich Hedgerows are to be reinstated as they occur in the landscape so local distinctiveness and variation of species can be recreated. The composition of both tree/shrub species and the hedgerow ground flora should mimic the species mix found naturally, according to locality. Table 20.3 below identifies the required specification of larger plants to achieve quicker re-establishment. However, the precise species mixes specific to individual locations would be provided at detailed design stage.

1.2.5 Proposed Reinstatement of Grassland and Species Rich Grassland (Seeding)

- 9) The EMP identifies areas for reseeding although detailed seed mixes have not been specified. Throughout the arable and pastoral areas agreement would be required with landowners to determine seed mixes to be reinstated.

- 10) The seed mix for areas of species rich grassland, species rich hedgerows (i.e. seeding to hedgerow bottoms) and riparian areas should fit the species mix found naturally, according to locality. Seed mixes would be developed using recorded data from the Phase 1 Habitat survey and details provided at detailed design stage.

2. Planting Schedules

- 11) Planting shall be in accordance with Figure 20.1, EMP.
- 12) The following tables provide details of the planting mixes for the areas of mitigation vegetation shown on the EMP. Final planting positions and numbers would be identified during detailed design and shall comply with United Utilities' guidelines for planting near pipeline routes, Standard Conditions for Works Adjacent to Pipelines, 2015¹.

Table 20.1: Proposed trees

Species	Girth (cm)	Root Condition	Specification
<i>Acer campestre</i>	8-10	Bare-root	Standard: 2x: 250-300cm height
<i>Alnus glutinosa</i>	8-10	Bare-root	Standard: 2x: 250-300cm height
<i>Betula pendula</i>	8-10	Bare-root	Standard: 2x: 250-300cm height
<i>Prunus avium</i>	8-10	Bare-root	Standard: 2x: 250-300cm height
<i>Prunus padus</i>	8-10	Bare-root	Standard: 2x: 250-300cm height
<i>Quercus robur</i>	8-10	Bare-root	Standard: 2x: 250-300cm height
<i>Sorbus aucuparia</i>	8-10	Bare-root	Standard: 2x: 250-300cm height

Table 20.2: Proposed Native Woodland Planting

Species	Height (cm)	Root Condition	Specification	%
<i>Betula pendula</i>	175-200	Bare-root	Feathered: 2x: 5 breaks	15
<i>Corylus avellana</i>	40-60	Bare-root	1+1: Transplant	10
<i>Crataegus monogyna</i>	40-60	Bare-root	1+1: Transplant	15
<i>Ilex aquifolium</i>	40-60	2L Container	Leader with laterals	10
<i>Quercus robur</i>	40-60	Bare-root	1+1: Transplant	15
<i>Pinus sylvestris</i>	40-60	3L Container	Leader with laterals	5
<i>Prunus avium</i>	40-60	Bare-root	1+1: Transplant	10
<i>Prunus spinosa</i>	40-60	Bare-root	1+1: Transplant	10
<i>Sorbus aucuparia</i>	175-200	Bare-root	Feathered: 2x: 5 breaks	10

Table 20.3: Proposed Native Hedgerows

Species	Height (cm)	Root Condition	Specification	%
<i>Corylus avellana</i>	60-80	Bare-root	1+2: Transplant	20
<i>Crataegus monogyna</i>	40-60	Bare-root	1+1: Transplant	50
<i>Ilex aquifolium</i>	40-60	2L Container	Leader with laterals	15
<i>Prunus spinosa</i>	40-60	Bare-root	1+1: Transplant	15

¹ United Utilities Standard Conditions for Works Adjacent to Pipelines Document Ref. 90048 Issue 3.1 July 2015
<http://programmeofficers.co.uk/Preston/CoreDocuments/LCC144.pdf>

Table 20.4: Proposed Important Hedgerows (Hedgerow Regulations 1997) and Species Rich Hedgerows

Species	Height (cm)	Root Condition	Specification	%
<i>Acer campestre</i>	80-100	Bare-root	1+2: Transplant	10
<i>Corylus avellana</i>	90-120	Bare-root	1+2: Transplant	15
<i>Crataegus monogyna</i>	100-125	Bare-root	1+1: Transplant	40
<i>Ilex aquifolium</i>	40-60	2L Container	Leader with laterals	10
<i>Prunus spinosa</i>	80-100	Bare-root	1+2: Transplant	15
<i>Rosa canina</i>	40-50	Bare-root	1+0: Branched	5
<i>Ulex europaeus</i>	30-40	3L Container	Bushy	5

3. Specification and Maintenance

- 13) Planting works would be undertaken in accordance with BS3936, BS5837 and BS4428 and a specification for planting would be developed fully at the detailed design stage. Below is a summary of operations:
- Soil preparation including subsoil decompaction and topsoil cultivation
 - Supply of slow release fertiliser
 - Hedgerow planting at 5 no. plants per linear metre in a double staggered row with plants at 330 mm centres with 450 mm between the rows
 - Tree and shrub planting in woodland at 1.5-2 m centres in single species groups of 5-7 no.
 - Transplants notch planted in a T or H shaped notch and evergreen species in a pit 400 mm deep x 450 mm diameter
 - Standard and feathered trees planted within pits 600 mm deep x 1000 mm diameter with sides thoroughly broken up to 250 mm. Backfill mix to include compost at a rate of 1 part topsoil to 1 part compost. Trees to be supplied with stakes and ties
 - Transplants and shrubs supplied with tree and shrub guards
 - Evergreen species supplied with anti-desiccant before and immediately after planting

3.1.1 Maintenance

- 14) Habitats, trees, shrubs, grasslands would be planted, seeded and established by appropriate aftercare including replacement of dead/dying individual plants in line with requirements set out and agreed with Lancaster City Council and Ribble Valley Borough Council.