APPENDIX B

River Condition Assessment Scenarios:
Interventions and Assumptions

Intervention	Assumption
RL02a	
Create scrapes or ponds in floodplain	• Wetland created within 10m of bank top to comprise short or tall vegetation (indicator B3)
RL02b	
Create scrapes or ponds in floodplain	• Wetland created within 10m of bank top to comprise short or tall vegetation (indicator B3)
Remove embankment	• Banks are reprofiled to gentle increasing extent and richness of natural profiles (indicator C3 and C4) and removes artificial profile indicator score (C7). • Reduced in height of bank increases river shape index to increase condition by one class
Find sustainable solution to failing sewer network	• Improved water quality sees a reduction in filamentous algae cover (indicator E12)
RL03	
Create a 10m riparian buffer strip along right bank	• Reduction in dominance of short herbs and increase in tall herbs and grasses with some scattered scrub and mosses to result in increase of vegetation complexity on bank top (indicator B1). • Removal of managed ground from one bank side, but no reduction in B5 indicator due to presence of transport infrastructure on left bank.
Find sustainable solution to failing sewer network	• Improved water quality sees a reduction in filamentous algae cover (indicator E12)
RL04	
Create a 10m riparian buffer strip along left bank through horse pasture	• Reduction in dominance of short herbs and increase in tall herbs and grasses with some scattered scrub and mosses to result in increase of vegetation complexity on bank top (indicator B1). • Removal of managed ground from one bank side (indicator B5)
Strim nettle and rake off arisings	• Increases abundance of short herbs and grasses but did not increase bank face vegetation structure (indicator C1)
Mitigate sources of pollution and sediment from tributary stream	• Reduction in bed siltation (indicator E7) and filamentous algae (indicator E12)
RL05	
Create scrapes or ponds in floodplain	• Wetland created within 10m of bank top to comprise short or tall vegetation (indicator B3)
Find sustainable solution to failing sewer network	• Improved water quality sees a reduction in filamentous algae cover (indicator E12)
RL06	
Create scrapes or ponds in floodplain (left bank)	• Pond created within 10m of bank top (indicator B3)
Create a 10m riparian buffer strip along right bank	• Removed managed ground from right bank top (indicator B5) • Increase extent of mosses and herbs (tall and short). No change in complexity (B1) as vegetation types already present at other modules
Mitigate sediment and pollution sources along tributary stream (cattle trough and poaching)	• Reduction in bed siltation (indicator E7) and filamentous algae (indicator E12)
Reduce extent of bramble where it is encroaching into the channel	• Increase in marginal macrophyte extent (D1 and richness (D2). No increase in channel bed macrophyte richness as groups already present in channel (indicator E1)

Intervention	Assumption
RL07	
Create scrapes or ponds in floodplain	• Wetland created within 10m of bank top to comprise short or tall vegetation (indicator B3)
Plant clusters of trees on alternating sides	• Trees and associated mosses added at two module locations on the bank top and bank face resulting in Increase in vegetation complexity (indicator B1 and C1). • Introduction of channel shading (indicator E2), organic materials (indicators C2, E2) and upwelling associated with coarser channel bed (indicator E3)
Use 'Dig and Dump' to create pools and marginal berms with faster flowing mid channel	• Introduced composite banks leading to increase in bank profile richness (C4) • Increased physical feature extent along the margins (indicator D3) through additional berms, and on the channel bed through additional 2 pools (indicator E4) • Increased extent of macrophytes along the water margin (indicator D1) • Increased diversity of flow types to include smooth and unbroken standing waves (Indicator E3) • Reduction in channel bed siltation due to faster flowing mid channel (indicator E7)
Remove remnant structure	• Reinforcements removed from bank face (indicators C8 & C9), deflectors from channel margin (indicator D5) and channel bed (indicators E8 & E9). • Loss of free fall flow type (indicator E3)
RL08	
Create a 10m riparian buffer strip along left bank pasture	• Loss of managed ground from bank top (indicator B5). Vegetation complexity increased but no change in indicator B1 as all groups already present.
Remove Japanese knotweed, Cherry laurel and Buddleia	• Loss of NNIP from bank top and bank face (indicators B4 & C10)
Selective thinning of bankside trees where overshading channel	• Increase in macrophytes along margins and in-channel (indicators D1 & E1)
Removal of downstream weir to be replaced by marginal bars and large wood to shore up banks	• Increase in marginal physical habitats (indicator D3 & D4) through creation of berms • Increase in woody features along bank face due to additional large wood (indicator C2) • Reduction in bed siltation and filamentous algae (indicators E7 & E12) due to increase in natural flow
River clean up	• Removed artificial features from channel bed (indicator E10)

Intervention	Assumption
RL09	
Create a 10m riparian buffer strip along left bank of river and reduce mowing along right bank. Includes removal of wet fence	• Loss of managed ground from left bank top and reduction in extent of managed ground on right bank (indicator B5). Increase vegetation complexity along both banks (indicator B1). • Removal of artificial features (deflectors from fencing, indicator D5) • Reduction in bed siltation (indicator E7) • Increase in marginal macrophytes (indicators D1 & D2)
Use 'Dig and Dump' to create pools and marginal berms with faster flowing mid channel	• Introduced composite banks leading to increase in bank profile richness (C4) and loss of artificial bank profiles (indicator C7) • Increased physical feature extent along the margins (indicator D3) through additional berms, and on the channel bed through additional 2 pools (indicator E4) • Increased extent of macrophytes along the water margin (indicator D1) • Increased diversity of flow types to include smooth and unbroken standing waves (Indicator E3) • Reduction in channel bed siltation due to faster flowing mid channel (indicator E7) • Overall increase in one condition class due to increase in river shape index (no longer overdeep)
Plant clusters of trees on alternating sides	• Trees and associated mosses on the bank top and bank face resulting in Increase in vegetation complexity (indicator B1 and C1). • Introduction of channel shading (indicator E2). Increase in organic materials already present (indicator s C2 & E2). • Upwelling associated with coarser channel bed added to flow (indicator E3)
RL10a	
Reduce mowing along bank tops upstream of weir to leave a 10m wide marginal fringe	• Removed managed ground from left bank. Reduced managed ground present on right (indicator B5) • Increased extent of tall herbs and grasses with a patch of scrub along bank top and face (indicators B1 & C1)

Intervention	Assumption
Remove upstream weir and reinforcements and replace with marginal berms	• Reinforcements to bank face and channel bed removed (indicator s C8, C9, E8, E9) and marginal artificial features (indicator D5) • Free fall flow type removed and no perceptive flow type decreased in abundance and replaced with chute and unbroken standing waves (indicator E3) • In channel and marginal macrophyte growth increased due to increase in diversity of habitats (indicators D1 & E1) • Reduction in channel bed siltation (indicator E7) • Added riffles to in channel features (indicator E4) and berms to marginal physical features (indicator D3) • Added composite bank profiles and removed artificial (reshaped) bank profile from modules upstream of weir (indicators C3, C4 and C7)
RL10b	
Eradicate Mimulus from riverbank	• Removed NNIPS from bank top (indicator B4)
Use 'Dig and Dump' to create pools and marginal berms with faster flowing mid channel	• Introduced composite banks leading to increase in bank profile richness (C4) • Increased physical feature extent along the margins (indicator D3) through additional berms, and on the channel bed through additional pools (indicators E4 & E5) • Increased extent of macrophytes along the water margin (indicator D1) • Increased flow types (no change in Indicator E3) • Reduction in channel bed siltation due to faster flowing mid channel (indicator E7)
RL11	
Increase width of riparian buffer strip (to 5m) on left bank through horse pasture	• Reduced extent of managed ground on left bank (indicator B5) • Increased vegetation complexity on left bank to include mosses, tall herbs and 1 x scrub (no change in indicator B1) due to limitations on right bank (track) • Reduced extent of channel bed siltation due to filtration of overland flow (indicator E7)
Remove remnant structure	• Removed reinforcement from right bank top (indicator C8 & C9)
Reduce scrub encroachment and some selective thinning of overhanging branches to reduce overshading	• Increased richness of marginal macrophytes (indicator D2) due to increase light into channel

Intervention	Assumption
R12	
Replace ford with clear span bridge and reprofile to steep bank to reduce risk of overland flow through arable field	• Increase in natural bank profile richness (indicator C4) • Removed side channel from bank top wetland feature (B3) • Reduction in siltation of riverbed (indicator E7)
Create wetland feature on left bank to capture any overland surface flow	• Added extensive wetland to left bank to replace side channel (indicator B3)
Remove fence present at ford that has fallen into channel	• Removal of artificial feature from margin (indicator D5)
RL13a	
Create a 10m riparian buffer strip along right bank by setting back fencing	• Loss of managed ground from bank top (indicator B5. Increase vegetation on left bank (indicator B1).
Use 'Dig and Dump' to create a more sinuous channel form with berms and bars	• Introduced composite banks leading to increase in bank profile richness (C4) and loss of artificial bank profiles (indicator C7) • Increased physical feature extent along the margins (indicator D4) through additional berms and bar, and on the channel bed through additional pools and riffles (indicator E4 and E5). • Increased extent of macrophytes along the water margin (no change in indicator D1 or D2) • Increased diversity of flow types to include smooth and unbroken standing waves (Indicator E3) • Reduction in channel bed siltation due to faster flowing mid channel (indicator E7)
Correction of upstream breach (RL12)	• Reduction in channel bed siltation due to absence of overland surface flow through arable field (E7)
Thin scrub along right bank	• Reduced abundance of scrub and increased extent of emergent linear and amphibious along margins (no change in indicator D1 & D2)
Plant clusters of trees on left bank	• Increase vegetation structure on left bank top (indicator B1) and bank face (indicator C1). • Increase in organic abundance and channel shading (indicator E2)
Create pond within 10m of left bank	• Increase in water related features (indicator B3)
R13b	
Create a 10m riparian buffer strip along river by erecting temporary or stock fencing.	Loss of managed ground from bank top (indicator B5. Increase vegetation complexity due to extensive tall herbs along both banks (indicator B1). Reduction in bed siltation (indicator E7) Increase in marginal macrophytes (no change in indicators D1 & D2)

Intervention	Assumption
Use 'Dig and Dump' to create pools and marginal berms and bars with faster flowing mid channel	• Introduced composite banks leading to increase in bank profile richness (C4) and loss of artificial bank profiles (indicator C7) • Increased physical feature extent along the margins (indicator D3) through additional berms, and on the channel bed through additional 2 pools and riffles (indicator E4) • Increased extent of macrophytes along the water margin (D1 & D2) • Increased diversity of flow types to include smooth and unbroken standing waves (Indicator E3) • Reduction in channel bed siltation due to faster flowing mid channel (indicator E7)
Plant clusters of trees on alternating sides	• Trees and associated mosses on the bank top and bank face resulting in Increase in vegetation complexity (indicators B1 and C1). • Introduction of channel shading (indicator E2). Increase in organic materials already present (indicator s C2 & E2). • Upwelling associated with coarser channel bed added to flow (indicator E3)
Fix and increase height of drain cover to reduce pollution	• Reduction in filamentous algae (no change in indicator E12 as algae mostly present in floodplain channels)
RL14a	
Increase riparian buffer strip (10m) along both bank	• Removed managed ground from bank top (indicator B5) and increased vegetation complexity due to the introduction of tall herbs and grasses (indicator B1)
Plant riparian trees	• Increase in vegetation complexity along bank top (indicator B1 & C1) due to trees and mosses being present
Reduce upstream pollution sources (drain and overland flow in RL12 and RL13)	• Decrease in filamentous algae (indicator E12) and channel bed siltation (indicator E7)
RL14b	
Improve woodland through planting of understorey and removal of dead ash trees	• Increased extent of shrub on right bank (no change in indicator B1 as all habitat types already present but at lower abundance). • Reduced exposed sediment along bank top and face (indicator C6)
Reduce shading of river by hinging a few riparian trees into the channel to create large woody features and open the canopy	• Hinged trees and branches create marginal bars (indicator D2 and D3). • Flow types increase to include a chute, standing water upwelling due to organic material leading to an increase in hydraulic richness (indicator E3) • Pool added as in channel feature due to localised scour of the riverbed (indicator E5) • Increase in marginal and in-channel aquatics due to more variety of habitats and sunlight (no change in indicators D1, D2 or E1 as morphotypes already present)

Intervention	Assumption
Fencing present within the channel is removed	• Removed artificial feature from channel margin (indicator D5)
RL15	
Create a 10m riparian buffer strip along river by erecting temporary or stock fencing.	• Loss of managed ground from bank top (indicator B5. Increase vegetation complexity due to extensive tall herbs along both banks (indicator B1). • Reduction in bed siltation and filamentous algae (indicators E7 & E12) • Increase in marginal macrophytes (indicators D1 & D2)
Use 'Dig and Dump' to create pools and marginal berms and bars with faster flowing mid channel	• Replaced poached banks with composite and gentle profiles leading to increase in natural bank profile extent (C3) and loss of artificial bank profiles (indicator C7) • Increased physical feature extent along the margins (indicator D3 & D4) through additional berms and gravel bar, and on the channel bed through additional pools (indicator E4) • Increased extent of macrophytes along the water margin (indicator s D1 & D2) • Reduction in channel bed siltation due to faster flowing mid channel (indicator E7)
Plant clusters of trees on alternating sides	• Trees and associated mosses on the bank top and bank face resulting in Increase in vegetation complexity (indicators B1 and C1). • Introduction of channel shading (indicator E2). Increase in organic materials already present (indicator s C2 & E2).
Create scrape within 10m of left bank	• Increase in water related features on bank top (indicator B3)
RL17	
Reduce mowing on left bank and set back fencing on right to leave a 10m wide margin along riverbank.	• Managed ground is no longer present on bank top (indicator B5). • Increase of tall herbs and grasses along left bank (no change in indicator B1)
Add wetland feature in field on right bank to intercept and filter pollutants from tributary and provide increase in biodiversity	• Increase in water related features on bank top (indicator B3)
Reduce scrub along right bank to provide a more diverse margin	• Reduced extent of scrub and increase in short and tall herbs along water margin (no change in indicator D1)
Identify and mitigate sources of pollutants from tributary	• Reduction in riverbed siltation and filamentous algae (indicators E7 & E12)
Remove fallen gate from channel	• Artificial features removed from channel margin (indicator D5)
Reduce abstraction if found to be impacting flow	• Reduction in riverbed siltation and filamentous algae (indicators E7 & E12)

Intervention	Assumption
RL18	
Create 10m wide riparian buffer strip on right bank by setting back fencing	• Removed managed ground from bank top (indicator B5) and increase vegetation complexity to include mosses, tall and short herbs and grasses and scattered scrub (no change in indicator B1). • Reduction of filamentous algae due to increased protection from diffuse pollutants (indicator E12)
Remove reinforcements to bed and banks associated with old footbridge.	• Removal of negative indicators C8, C9, E8 and E9)
Identify and mitigate sources of pollutants from upstream tributary (RL17).	• Reduction of filamentous algae (indicator E12)