

Proposals to extend the Waddesdon Greenway to Haydon Hill so as to enhance access to Aylesbury Vale Parkway Station



View from the railway, December 2019

Greenways & Cyclerroutes Ltd

March 2020

Proposals to extend the Waddesdon Greenway to Haydon Hill so as to enhance access to Aylesbury Vale Parkway Station

Contents

1	Introduction.....	3
2	Details of the route	4
	Overview map of proposed crossing of River Thames.....	5
	Detailed maps and cross sections.....	6
	Additional bridge details	10
3	Wildlife, ecology and landscaping	11
4	Archaeology	12
5	Flood and run off issues - Thames crossing, flood plain considerations	13
	Flood Risk Assessment	14
6	Design and Access Statement.....	15
7	Construction and construction traffic	15
8	Maintenance	16

Separate appendices:

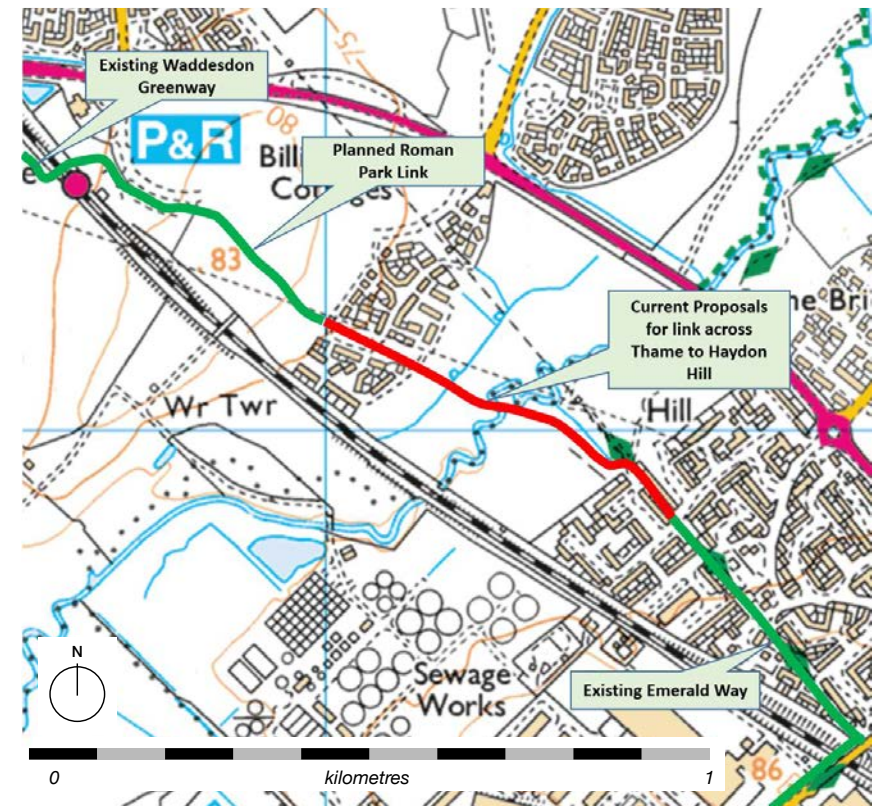
- Appendix 1 - Ecological Impact Assessment
- Appendix 2 - Archaeological Impact Assessment
- Appendix 3 - Hydraulic Modelling Report

1 Introduction

The opening of the Waddesdon Greenway has demonstrated the value of good quality traffic free paths which allow walking and cycling to flourish.

This proposal envisages extending this route from the station to Haydon Hill where it can link with the existing Emerald Way to the Town Centre.

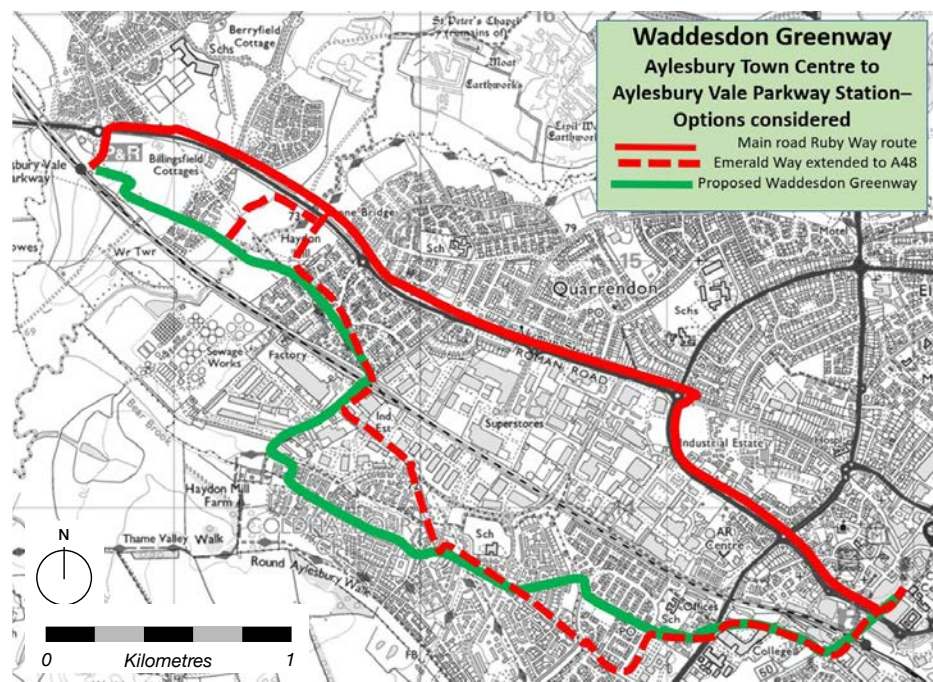
With the planned opening of a passenger railway service to Milton Keynes this route will extend the local catchment for walking and cycling to the Station as well as connecting Aylesbury to the Waddesdon Greenway and open countryside.



Location plan showing proposed route from Aylesbury Parkway Station to Haydon Hill via a new bridge over the River Thames

The alternative options are not particularly attractive and rely on following one side of the Bicester Road or the other to make a crossing of the Thames.

In order to reach the existing cycling route which runs on the north side of the Bicester Road, a new controlled crossing of this heavily trafficked road would be required, as well as the complete reconstruction of the existing paths in Haydon Hill Park.



Map showing options considered via the Bicester Road

2 Details of the route

Details of the route are shown on the plans and described by way of a series of photographs and sketches. The proposed route will be constructed to the same standard as the Waddesdon Greenway and will look very similar.

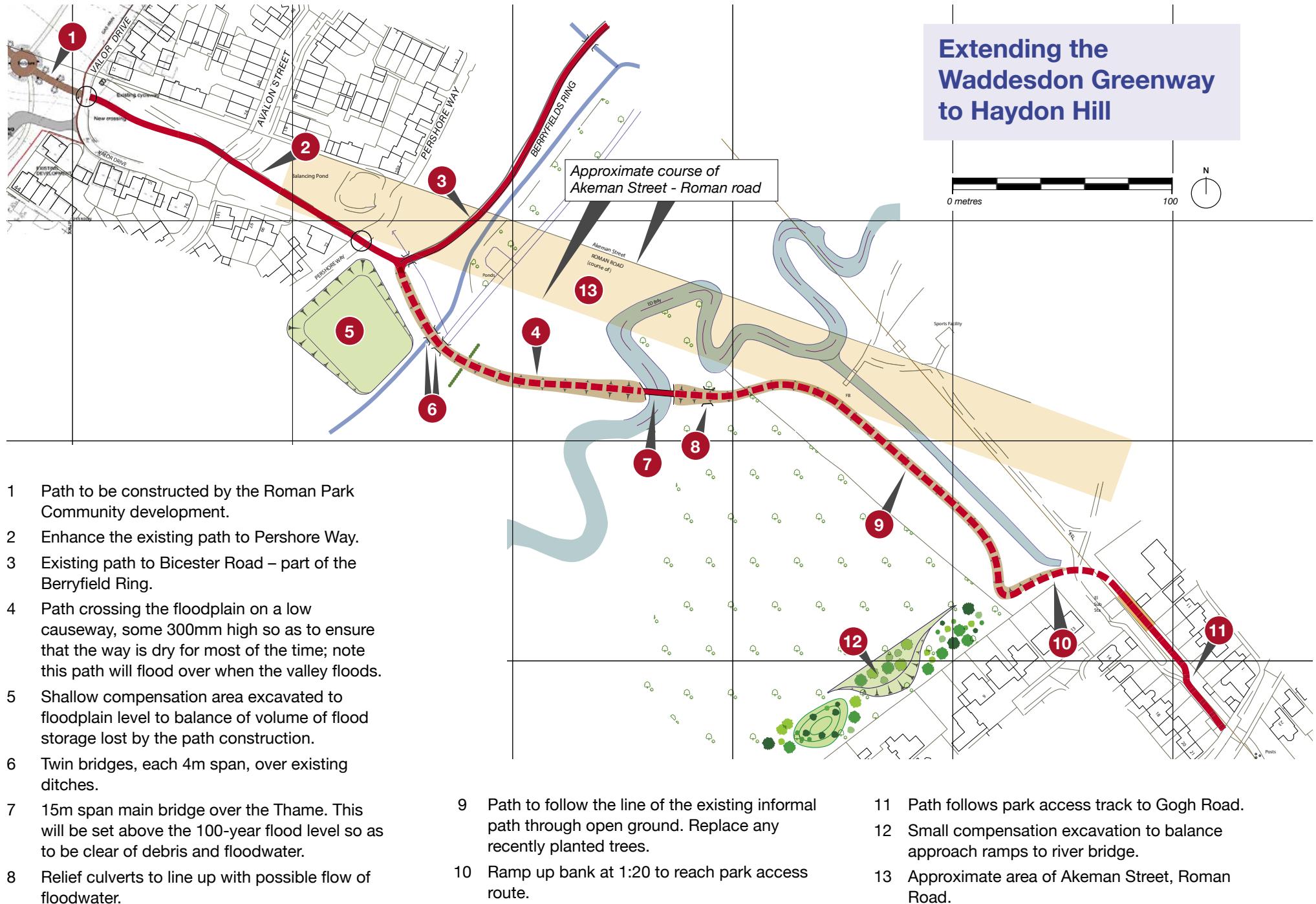


View of Waddesdon Greenway and Fleet Marston Bridge at the time of the opening September 2018

Note that the layout of this document is designed to be read as a double page spread with notes and sketches set opposite plans.

Appendix One covers the ecological report prepared by David Kent for this project.

Appendix Two records the Archaeological Statement prepared by the team which has been undertaking extensive work on the adjacent Berryfields and Roman Road Park area.



Plan of proposed route from Valor Drive at Roman Park to Gogh Road, with descriptive notes

- 1 A cycling route is being provided in the Roman Road Park Community Centre development.
- 2 Make a raised crossing of Valor Drive similar to the existing one on Avalon Street.

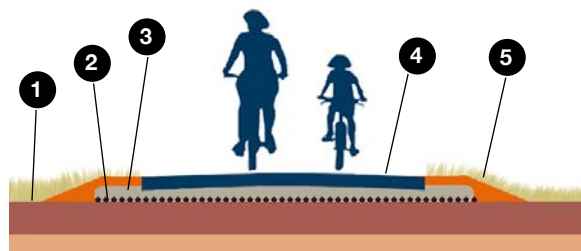


View of existing Avalon Street raised road crossing

- 3 Reconstruct the top end of this existing path so as to line up opposite the planned Roman Hill link, and to shift the public a little further from the adjacent house.
- 4 Use this path as the haul road for materials, so as not to use the Estate roads and reconstruct it to its existing standard at the end of the construction contract.
- 5 Construct raised pavement crossing of Pershore Way similar to that at Avalon Street.
- 6 Join existing path to Bicester Road. This is part of the Berryfields Loop Path.
- 7 Peel off on new route a little before the existing culvert.
- 8 The path drops down to a level of 71.3m AOD shortly after this junction, and then remains at this level the whole way across the flood plain. This will result in the path being approximately 300mm above the existing ground level, and will give a dry path which will only flood occasionally. For the flood and catchment impact see later chapter in this report.

S1 - cross section over flood plain with the path set at 71.30m AOD

- 1 Ground mown but not excavated.
- 2 4m wide "Netlon" or similar ground reinforcement mesh over polypropylene.
- 3 250mm thick compacted sub base of good quality recycled materials or similar, 4m wide.
- 4 Machine laid bitmac, 3m wide with central camber – 60mm thick.
- 5 Shoulder brought up to surface level and surface slope seeded with wild grass and flower mixes.

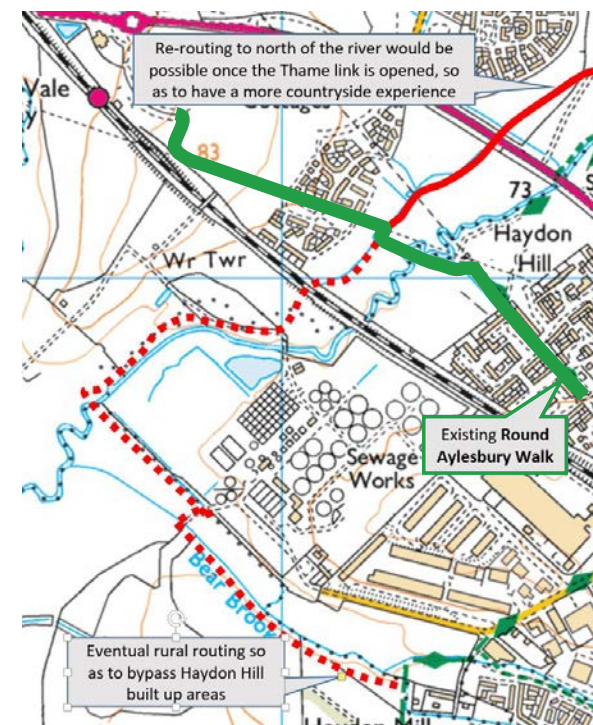


- 9 Path crosses two ditches (recently constructed and abandoned ditch in hedge) by a pair of new bridges, each 4m span, so as to give good connectivity down the flood plain. Their balustrades will be 2 rails, similar to those used on the nearby culverts, so as to minimise obstruction in the times of flood.



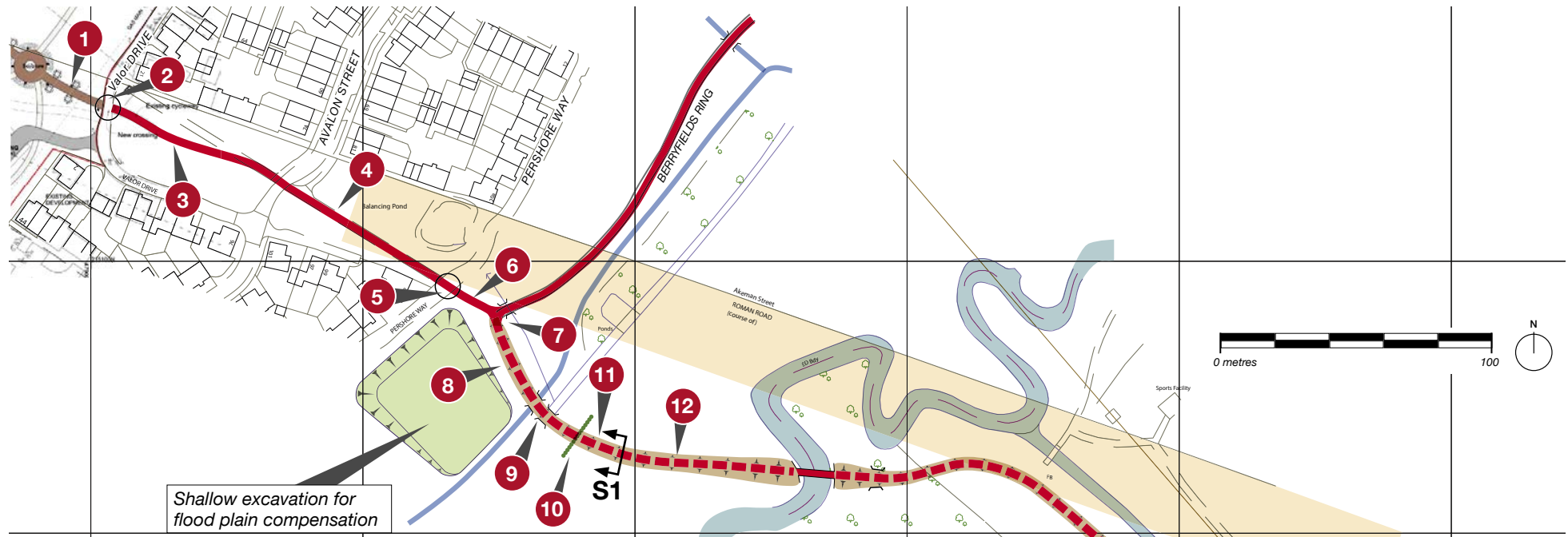
View of existing culverts and brick head walls in the flood plain

- 10 Cut through hedge. See Appendix 1 for Ecological Assessment, where the impact of this proposed path is considered small and acceptable.
- 11 Provide short linking ramps to pick up the existing popular field footpath. Note that the one on the west side should be designed in anticipation of a possible feature round Aylesbury Greenway Loop coming through at this point.

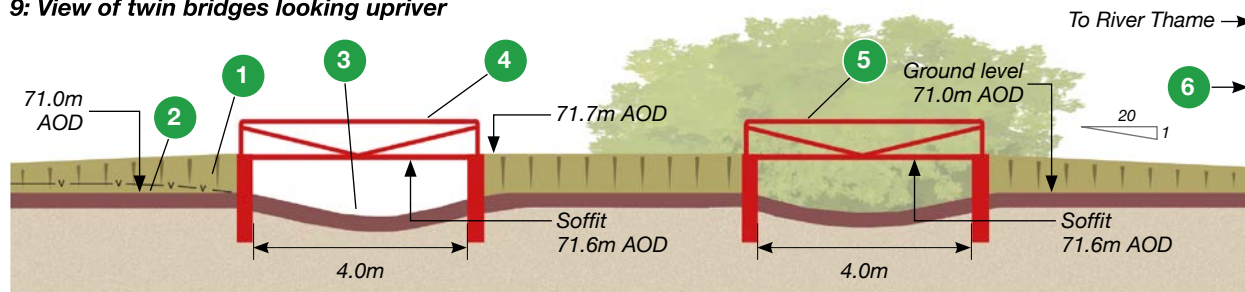


Plan showing existing Aylesbury Walk, and how this might possibly be extended further along the Thame at some date in the future

- 12 Path starts to climb at gradient of 1:20 to reach bridge deck level of 73.0m AOD required by the Environment Agency.



9: View of twin bridges looking upriver



- 1 Proposed path from Pershore Way drops down the slope and then levels out at 71.3m AOD, or some 300mm above the general ground level.
- 2 The flood compensation area excavated away from the side of the ditch. Its base is excavated to 71.0m AOD, and then sown with wildflowers and grasses as shown in the ecological report.
- 3 Modern ditch excavated by developer.
- 4 Short bridge with 4.0m clear span, set on mass concrete abutments. The balustrade rail details match those of the nearby existing culvert crossings

and are intended to minimise trapping debris at the time of floods. The deck level is 71.7m AOD so as to allow 600mm clearance above bank.

- 5 A second 4m span bridge crosses the old ditch now buried in the dense hawthorn hedge. Its width varies and it is partly silted up. Cut back the vegetation to take the path through.
- 6 The planned path drops back down to 71.3m AOD and continues to the river crossing, all at approximately 300mm above the flood plain.



Plan of proposed route from Valor Drive at Roman Park to Gogh Road, with descriptive notes (continued)

- 13 Warren Truss type bridge (similar to the existing one beside Bicester Road), 15 metre span on simple mass concrete abutments, similar to those installed at Fleet Marston on the Waddesdon Greenway. Bollard bridge at each end to prevent vehicular use.



View of similar truss bridge adjacent to Bicester Road. The planned bridge will be 2.5m wide.

- 14 The informal field edge walk crosses the path at the foot of the ramp.
- 15 Three seats are planned for this project, 15a by Pershore Way overlooking the path, 15b in the bend of the River Thames overlooking the river and the bridge and 15c at the end of the straight to Gogh Road. Whilst the chief function of these seats is to provide a resting place, a place to stop, chat, they have the additional function of popularising the route with a degree of informal surveillance.

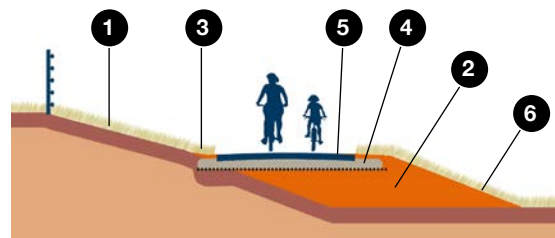


Waddesdon seating

- 16 Route continues on a line set 10m back from the bank top as far as possible.
- 17 Link to existing path to park
- 18 Meander through open ground
- 19 Ramp up side of bank at gradient of 1:20.

S3 - Typical cross section as path rises to cross flood bank

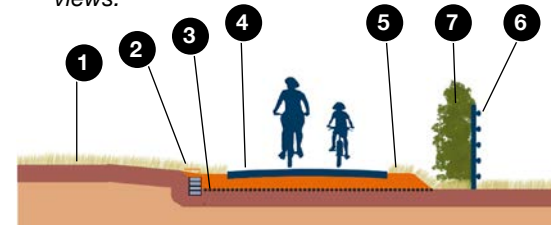
- 1 Existing bank.
- 2 Compact fill from compensation area.
- 3 Notch path into bank and lay layer of polypropylene filter fabric, Netlon ground mesh reinforcement.
- 4 Subbase – 250mm thick compacted stone or reused material.
- 5 Machine laid bitmac 3m wide, 60mm thick.
- 6 Grass and seed slope with wild flower mix.



- 20 Cross over existing tarmac path. It is not practical to widen this where it runs down the narrow gap at the back of Monet Place. The option of joining Monet Place was declined in favour of maintaining a traffic free corridor.
- 21 Drop down at 1:20 here as shown in the cross sections. Note that this section of the route needs to be constructed to a higher standard to carry Council maintenance vehicles to Haydon Park.

S4 - Cross section alongside sewer upstand

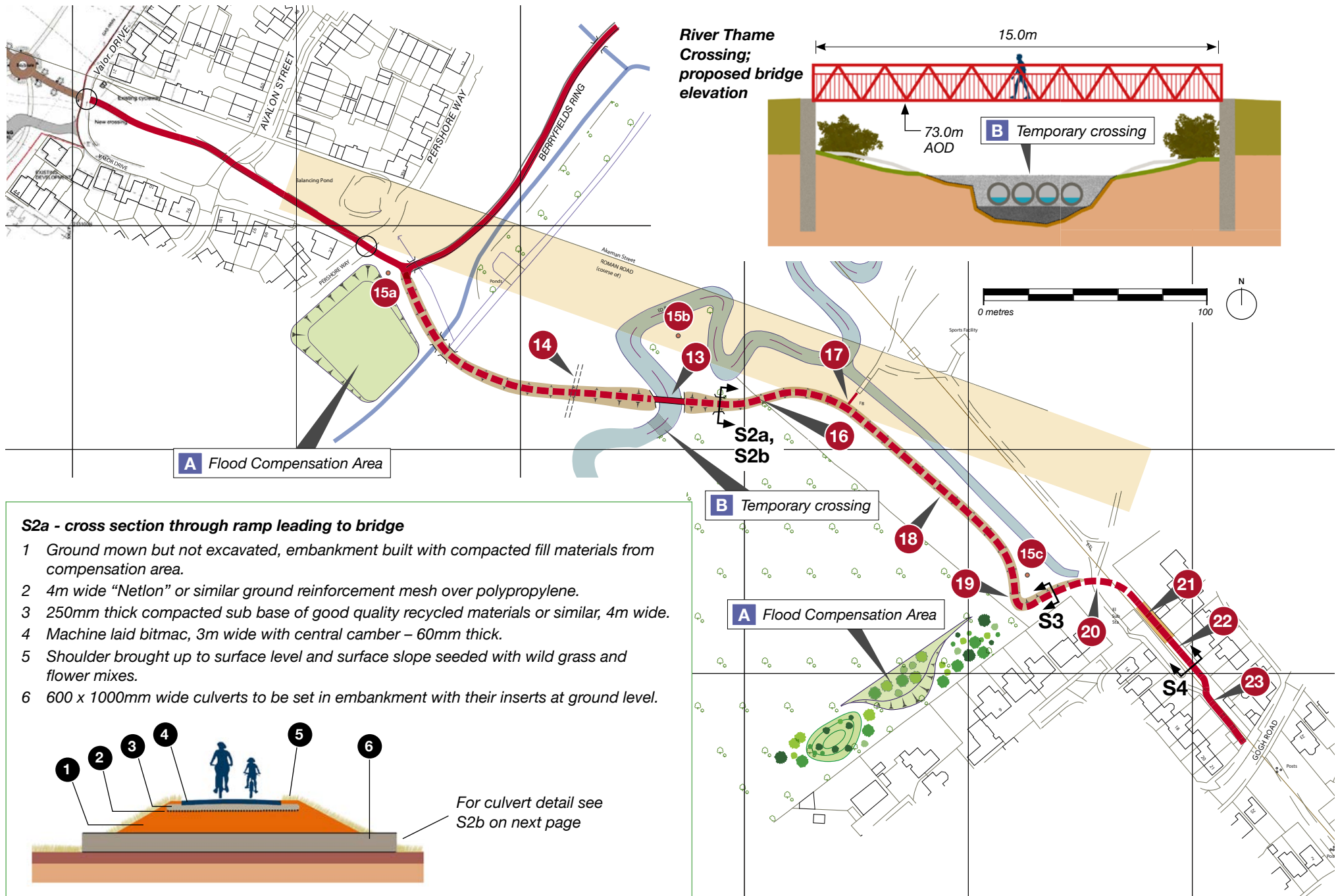
- 1 Raised grass mound over the sewer.
- 2 Top two crossing of bricks are displaced. Remove these and ease over a layer of polypropylene.
- 3 250mm thick sub-base of compacted stone or recycled materials.
- 4 60mm thick machine laid bitmac 3m wide.
- 5 Bring across soil and grass shoulders.
- 6 Existing boundary fences.
- 7 Plant hedges to reinforce boundary and soften views.



- 22 The existing brickwork has deteriorated and it is proposed to modify the landscaping as shown in the cross section.
- 23 Widen the existing path to 3m to join the Emerald Way at Gogh Road. Reposition the existing works access gate so as to leave a 1.2m wide passage for path users.

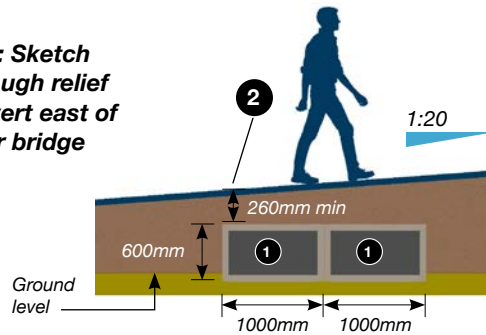
A Archaeology: this area is close to Roman settlements built alongside Akeman Street. Extensive studies have been carried out in the area and this proposal refers to them. The whole of this path will be based on a “no-dig” approach. The one exception is the flood compensation areas where a shallow scrape will be required to provide flood water compensation volumes for that which has been “lost” by constructing the path on a low causeway. The proposed arrangements are discussed in the next chapter.

B Temporary “Irish” Bridge crossing of River for construction vehicles. Temporary ramps to be removed and the banks restored at the end of the works.



Additional bridge details

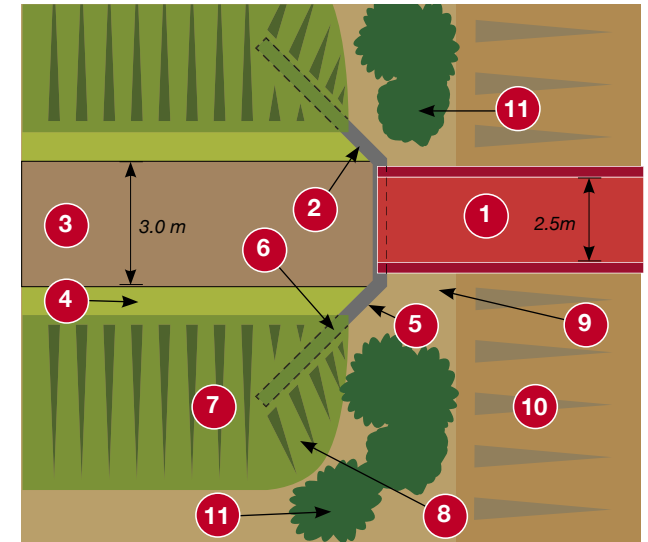
S2b: Sketch through relief culvert east of river bridge



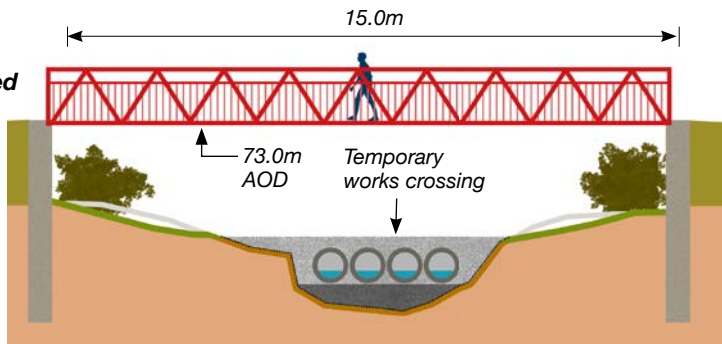
- 1 Pair of concrete culverts each 600mm high and 1000mm wide set with invert at ground level on foundation as recommended by manufacturer. Culverts to be 6 metres long.
- 2 Run path over with minimum of 200mm of stone base and 60mm of bitmac.

Sketch plan of bridge abutments (right)

- 1 Steel bridge, 15m clear span, 2.5m clear between hand rails.
- 2 Mass concrete abutment 600mm thick with recessed seating for bridge deck.
- 3 Path 3m wide, rising up to bridge level of 73.1m AOD at gradient of 1:20.
- 4 0.5m wide grass verge level with path.
- 5 Wing walls run level at 73.1m AOD over this section and protected by seating at Fleet Marston.
- 6 Wing wall drops down at slope of embankment.
- 7 Earthworks at 1:2 slope grassed.
- 8 Earthworks wrap around to ground level.
- 9 Original bank top.
- 10 Side of bank to river.
- 11 Plant approaches to bridge to deter public access along riverbank.



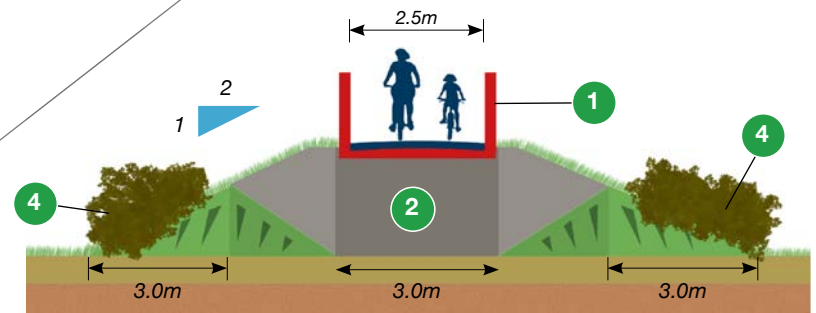
River Thame Crossing; proposed bridge elevation



The River Thame Bridge is located well clear of the line of the Roman Road. It will be a truss design so as to allow the underside of the bridge to be set to the required level without the path level itself being too much higher again, as this would require correspondingly larger approach causeways. The bridge will be supported on mass concrete abutments as shown in these sketches. The vicinity of the bridge will be densely planted so as to minimise the public access to the riverbank in this area.

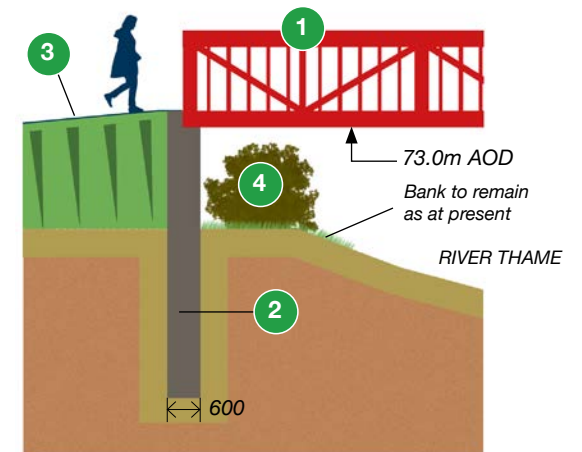
The approach causeways within 20m either side of the bridge will have fibre reinforced grassed banks so as to give protection should there be a flood during the critical period of vegetation establishment.

The informal field edge path cuts away from the riverbank at this point and the public will be able to walk over the new path which by this time will have dropped down from bridge level to just above the floodplain 71.3m AOD.



River Thame Crossing; elevation and section through bridge abutment

- 1 Through truss bridge, 15m clear span with soffit at 73.0m AOD.
- 2 Mass concrete abutment walls 600mm thick and 7m long overall.
- 3 Compacted earth fill lead in approach ramps to give a path gradient of 1:20.
- 4 Plant approaches to bridge to deter public access along riverbank.



3 Wildlife, ecology and landscaping

A detailed assessment has been carried out by David Kent of Two Wheels Ecology (Appendix 1). The project will follow his recommendations, a summary of which is as follows;

- 1.1 The Haydon Hill Cycle Route will provide a traffic free greenway for walkers and cyclists between Aylesbury town centre and Aylesbury Parkway train station to enhance access and recreation for the community; supporting the AVDC Local Plan Policy NE7 Local Green Spaces.
- 1.2 The greenway is being constructed above current ground level. The cycle path including the shoulders will be 6m across at its widest extent, providing a 3m wide usable greenway 300mm above current ground levels. The project will include vegetation clearance, a new 15m span bridge crossing the River Thames, two 4m span bridges crossing ditches additional flood relief culverts east of the River Thames and additional flood storage areas. The area of bank between the river and the bridge abutments will be planted to discourage public access and maintain its undisturbed use for otters and other wild animals. The extent of the Proposed Works is shown in Figure 3, Appendix A.
- 1.3 The cycle route provides a connection from Pershore Way to Gogh Road in Aylesbury, Buckinghamshire. The route will cross the River Thames on a new bridge at Hayden Hill Park.
- 1.4 A desk study was completed including a data search by BMERC for protected and notable species and habitats within 1km of the central point of the Site. A large proportion of the records provided are plant and bird records related to flood meadows. No records for great crested newts or other European Protected Species have been recorded on the Site. An old record of badger activity on site, was located 100m from the Zone of Influence.
- 1.5 Field surveys were carried out on 01/05/2019 and a requirement for an additional otter and water vole survey was noted and completed on 30/05/2019. Ecological features of interest within the site include



View of green gap between Monet Place and Rembrandt End showing the raised area over the main outfall sewer

the presence of a badger main sett within dense scrub 50m from the greenway, bird nesting activity, the River Thames and its corridor, broad leaved semi-natural woodland, species rich hedgerows, ditches and semi-improved grassland assemblages. The field surveys included an extended phase 1 survey for water vole and otter, but did not find evidence of either species 50m above or below the proposed location of the span bridge.

- 1.6 A flood risk assessment was completed using topographical surveys completed by Maltby Surveys. Sufficient bridge and culvert capacity has been provided to ensure that the area of the floodplain immediately downstream of the greenway receives the same levels of flood flow and is inundated with the same frequency as at present. It follows that the current plant and animal communities will not be affected by changes in the hydrology.
- 1.7 A sequential process was applied to avoid, mitigate, compensate and enhance levels of biodiversity to reduce any negative ecological impacts and effects of the Proposed Works. Potential negative impacts arise from the conversion of areas of semi-improved grassland, dense scrub and amenity grassland to a hard-standing greenway, installation of bridge structures across the River Thames, culverts and crossing points across two site ditches, and potential disturbance to birds and badgers.
- 1.8 Negative impacts have been reduced by the location of the greenway on existing pathway and heavily used grass pathways, identification of areas for planting



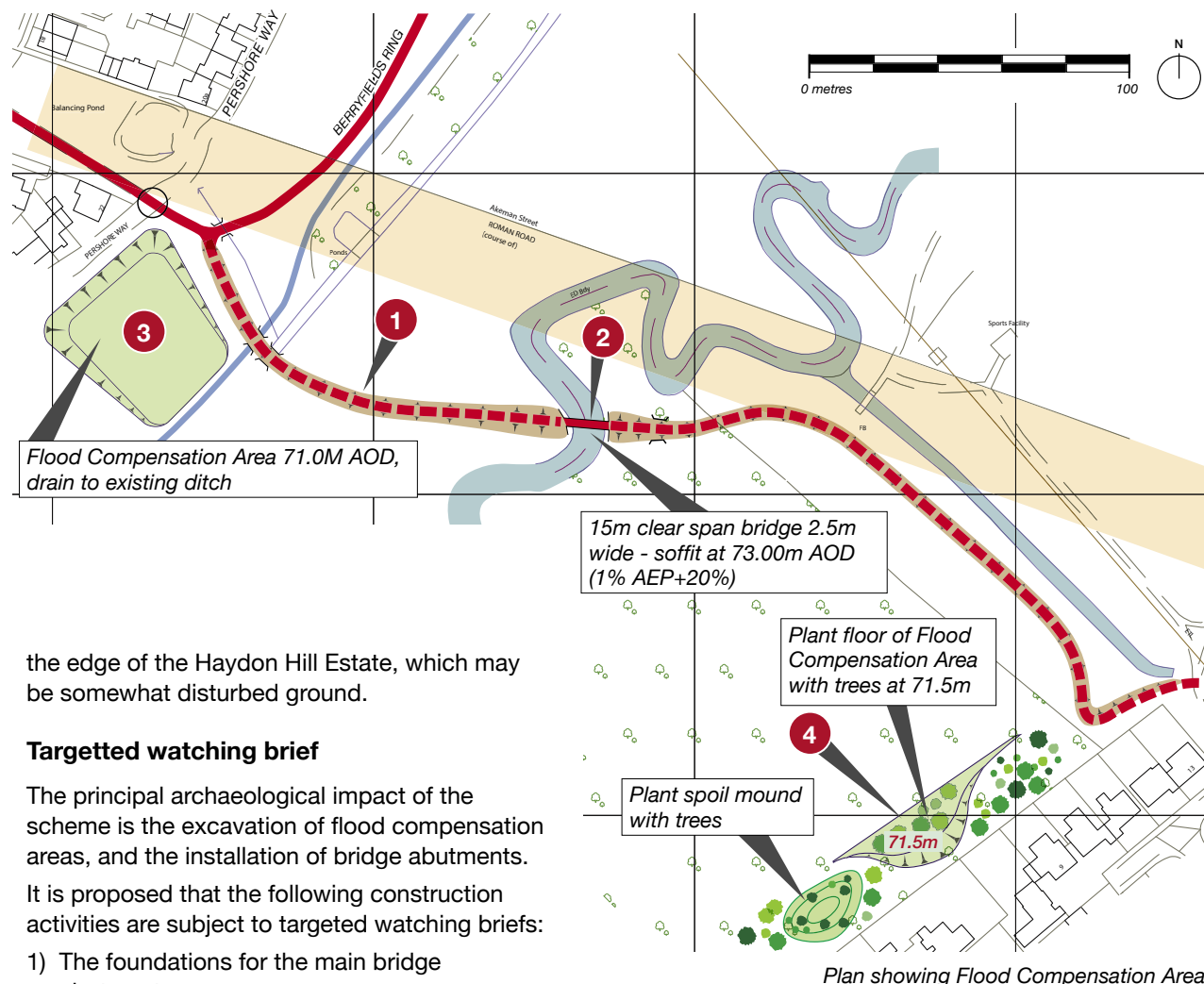
General view along line of path towards the river from the Haydon Hill end

of additional scrub, creation of swales within the additional flood storage areas and improvements to the status of two dry ponds located on site. The impacts during construction to birds, badgers and potentially individual reptiles will be mitigated by working under method statements, pre-construction site surveys and onsite ecological oversight as vegetation clearance is completed in areas of scrub, semi improved grassland and during the installation of the culverts and bridges.

- 1.9 The enhancements provided to the ecological features of the site include: Planting of 0.03ha of dense scrub to replace 0.01ha removed to install the greenway along Pershore Way and on the mound created for the additional flood storage area (planted with species which could include species such as hawthorn, blackthorn, hazel, dog rose and elder and will be seeded with a seed mix agreed with the Local Planning Authority); Selective habitat manipulation using hand tools to remove overgrown and over shading at the two dry Site ponds; planting the 0.25 ha of additional flood storage with a seed mix agreed the Local Planning Authority; and Creation of swales for pooling of shallow water within the flood storage area to enhance the habitat for birds, amphibians, reptiles and invertebrates
- 1.10 The negative impact of the area of semi-improved and amenity grassland will be outweighed by the Projects Site based enhancements. The Proposed Works of the Project including the enhancements support the AVDC Local Plan Policy NE7 Local Green Spaces.

4 Archaeological Assessment of the Proposed Scheme

- 1 The greenway path is to be built on an embankment using a no-dig method, and thus should have little or no significant impact on buried archaeology.
- 2 The main bridge over the River Thames involves the installation of two piled concrete bridge abutments, which will create deep but localised impacts to the Holocene alluvium infilling the floodplain. The proposed greenway bridge over the Thames lies approximately 30m south of the line of Akeman Street and 40m south-west of the probable Roman bridge timbers. The greenway bridge is off the known line of the Roman road and thus has a somewhat reduced likelihood of encountering significant Roman or later features.
- 3 The western flood compensation area, the most substantial excavation into existing ground levels, is c.1200m² in area and lies on the south-east side of Pershore Way. It lies on the north-western edge of the Thames floodplain, c.10m south of the Roman Road and c.80m east of the nearest known Roman settlement features in the Berryfields development. The nearest features included a Roman pond which produced a remarkable assemblage of waterlogged organic artefacts, coins and pottery, probably ritually deposited in the later 3rd century AD. The flood compensation areas are to be excavated to a maximum depth of 500mm, which may be sufficient to expose Roman archaeology, particularly on the fringe of the floodplain where the buildup of alluvium sealing Roman archaeology is likely to be very thin.
- 4 The eastern flood compensation area is also located on the edge of the Thames floodplain, but on the south-east side of the river, and not in such close proximity to known important archaeological features. The proposed site is about 100m south of Akeman Street. It is of smaller size and located on



*From Archaeological Impact Assessment -
Oxford Archaeology, November 2019 (Appendix 2)*

5 Flood and run off issues - Thame crossing, flood plain considerations

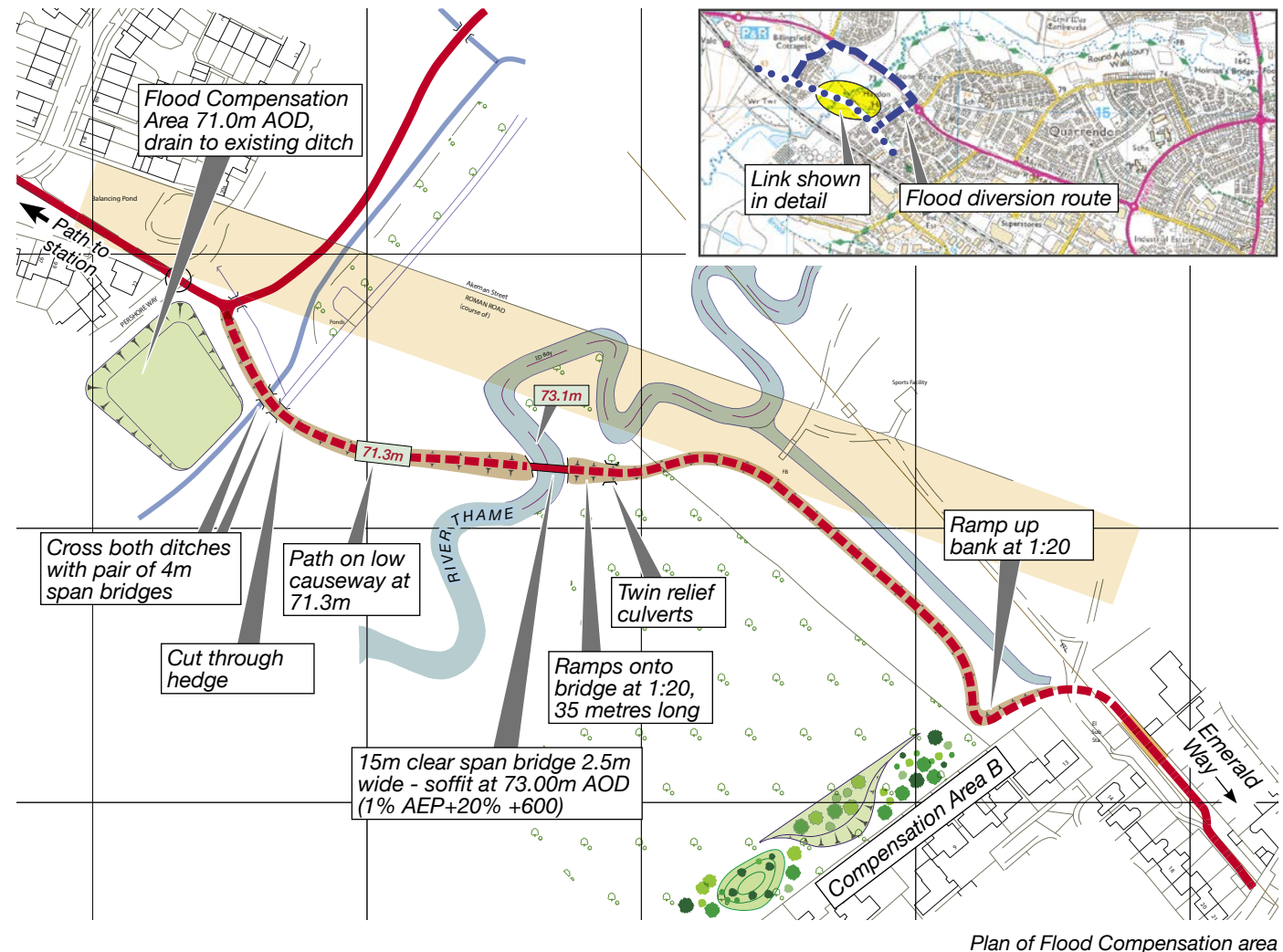
The proposed path crosses the River Thame and adjacent floodplain with a total length of 330 metres. The proposed path level will be at 71.3m, 0.3 metre above the generally level ground.

The bridge crossing corresponds with EA Node Label TH044 where the 20% AEP is 71.56. This means that the raised path will flood over on a regular basis. The 1% AEP plus 20% is 72.36m. The soffit of the proposed bridge is set 600mm above this level, which is 2.0m above bank top. The clear span of the proposed bridge is 15m. This is approximately twice the span of the existing railway bridge just downstream from this site.

The topographical survey, levels and profiles were undertaken by Maltby Surveys, January 2019, and hydraulic modelling by Edenvale Young, February 2020.

Flood compensation within the flood plain will be provided by a shallow excavation adjacent to Pershore Way where the ground rises slightly. This will fill from and drain away into the adjacent ditch. A small compensation area will be excavated to the south of the flood plain, to provide compensation for the slightly higher level of path as it makes its approach to the bridge over the Thame.

The compensation excavated material will be removed off site to the nearby Roman Park development area where soil is needed to cover Roman artefacts. The compensation area and volumes adequately replace volumes, level by level and volume by volume, lost to the causeway. To anticipate flood conditions, marker points will be placed at 50m intervals showing the depth of water, and an alternative route via the main Bicester Road will be available.



Plan of Flood Compensation area

The path will be finished in machine laid dense bitmac with grass verges to withstand the occasional flooding over. Water velocities will be very low as the floodplain will back up evenly on

both sides of the causeway from the constriction of the existing railway bridge downstream and via the existing ditches which connect from one side to the other of the proposed path.

Flood Risk Assessment

The Haydon Hill link path crosses the River Thames floodplain partway between the Bicester Road crossing upstream and the Chiltern Railway embankment downstream compared with these two major obstructions cutting across the floodplain, the planned new path will be insignificant.

The diagram shows the relative levels of modelled flood levels, the planned path level and general ground level. Due to the constriction of the railway bridge, hydraulic modelling shows that water levels back up from the railway embankment, and that the proposed path is located at the 'neutral' line where rising flood waters from the south meet rising waters from the north.

Flood compensation calculations: level by level

Level (metres) measured in 200mm increments AOD	Volume in the causeways level by level (m³)	Volume in the compensation area level by level (m³)
71.0-71.2	370	400
71.2-71.4	330	350
71.4-71.6 main path level	95	120
71.6-71.8	84	100
71.8-72.0	72	90
72.0-72.2	60	80
72.2-72.4	48	70
72.4-72.6	36	60
72.6-72.8	24	40
72.8-73.0 bridge soffit	12	30
73.0-73.1 bridge deck level	6	20
Total	1,137m³	1,360m³

As a consequence the causeway is shown to have no measurable effect on flooding in this area.

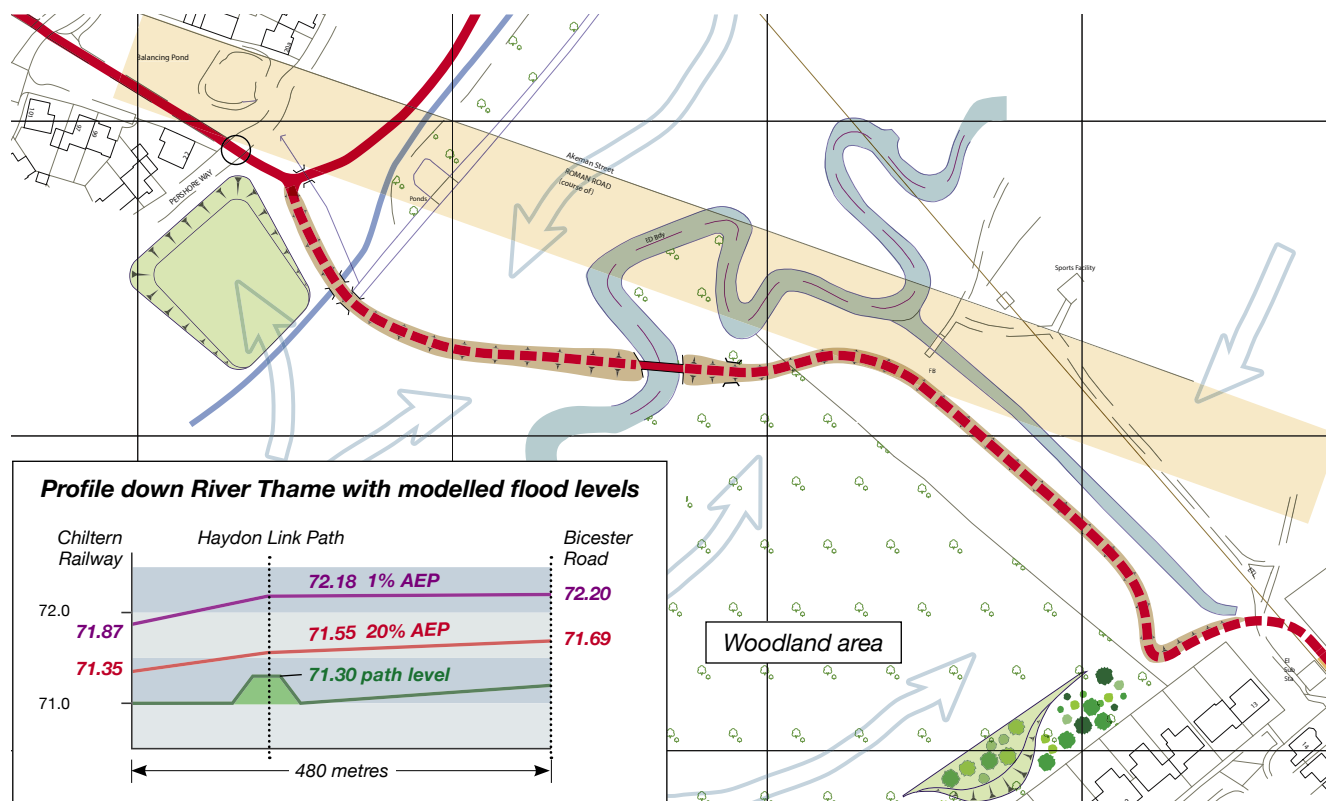
The planned path will not affect flood levels downstream, nor flood levels upstream at the Bicester Road.

In flood events the path will be immersed, and the floodplain will function as it does at present.

The plan shows how the rising flood water, as modelled in the study Appendix 3, approaches the line of the path from both directions. In particular note that the woodland area south of the path becomes flooded by backing up from the railway embankment. Because of this, the construction of the path will not affect the local wetland habitat.



View from the railway showing flood water backing up from the railway embankment and its constricted bridge towards the proposed new path crossing - December 2019

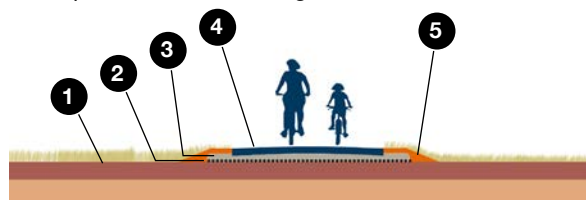


6 Design and Access Statement

The design of the proposed path will be the same as that used for the Waddesdon Greenway, 3m wide and finished with machine laid tarmac all as shown in the cross section. The route will be open to walkers and cyclists at all times, except in times of flood when a diversion will be signed.

Cross section over flood plain with the path set at 71.3m AOD

- 1 Ground mown but not excavated, compacted fill materials from compensation area.
- 2 4m wide "Netlon" or similar ground reinforcement mesh over polypropylene.
- 3 250mm thick compacted sub base of good quality recycled materials or similar, 4m wide.
- 4 Machine laid bitmac, 3m wide with central camber – 60mm thick.
- 5 Shoulder brought up to surface level and surface slope seeded with wild grass and flower mixes.



Example of recessed LED greenway lighting (Bristol)

The new path will connect with existing paths in Haydon Park, and with the public highway at Pershore Way and Gogh Road.

The path will not be lit with street lights, but will have central LED units recessed into the path surface over its whole length, again similar to those installed on the Waddesdon Greenway. This modest lighting will ensure that the path can be followed without destroying the "countryside" nature of the flood meadows and river crossing. Path users who prefer a street lit route will be able to follow the Bicester Road options.

7 Construction and construction traffic

The contractor will be based off site at the Roman Park project which is scheduled to be underway at the same time. All works traffic and materials will be taken along the line of the existing path across Avalon Street. It is estimated that some 50 lorry loads of soil from the flood compensation area will come out this way for use on the Roman Park site, and that some 15 lorry loads of materials, stone and tarmac will be brought in this way. The existing path will be reconstructed and resurfaced at the end of the project.

On the south side of the river, access will be from Gogh Road. No materials will be removed off site here, but some 40 lorry loads of materials will be brought onto site via Gogh Road. If any plant is left here overnight it will be parked at the top of the flood bank and secured with Heras fencing. Provision is made for an "Irish" Bridge crossing at the Thame if water levels are low, as was used at Fleet Marston.

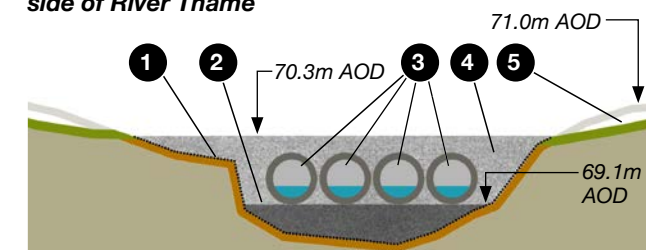
Here 3 pipes, 900mm diameter will be laid in washed gravel to provide a bed of materials to be left in the river for aiding fish and invertebrates. During the works the river banks to be cut back,

and at the end the banks to be restored to this existing profile. This arrangement will allow all vehicle access to come from the Roman Road Park area, and almost none from Gogh Road. This means that there would be additional lorry movements on the north side, some 40 extra.



View of temporary 'Irish' bridge works crossing used at Fleet Marston

Proposed temporary works crossing in order to construct permanent bridge and approach on south side of River Thame



- 1 Lay layer of polypropylene across the bed of the river.
- 2 Fill with washed gravel to 69.1m AOD.
- 3 Lay 4 no. 900mm diameter pipes, 6m long.
- 4 Backfill with washed gravel to a level of 70.3m AOD.
- 5 Slope back banks for access.

Note

- i This construction only to be used in summer June to August when river flows are at 69.7m AOD or lower at the time of construction.
- ii At the end of the work the pipes to be removed and the gravel left in the river at a level no higher than 69.1m AOD and the banks to be restored if damaged.

All maintenance of plant and equipment will be carried out away from the flood plain area.

It is hoped that the RAF will bring the Thame bridge in via the use of a Chinook helicopter. alternatively deliver the bridge to site and install with excavator.

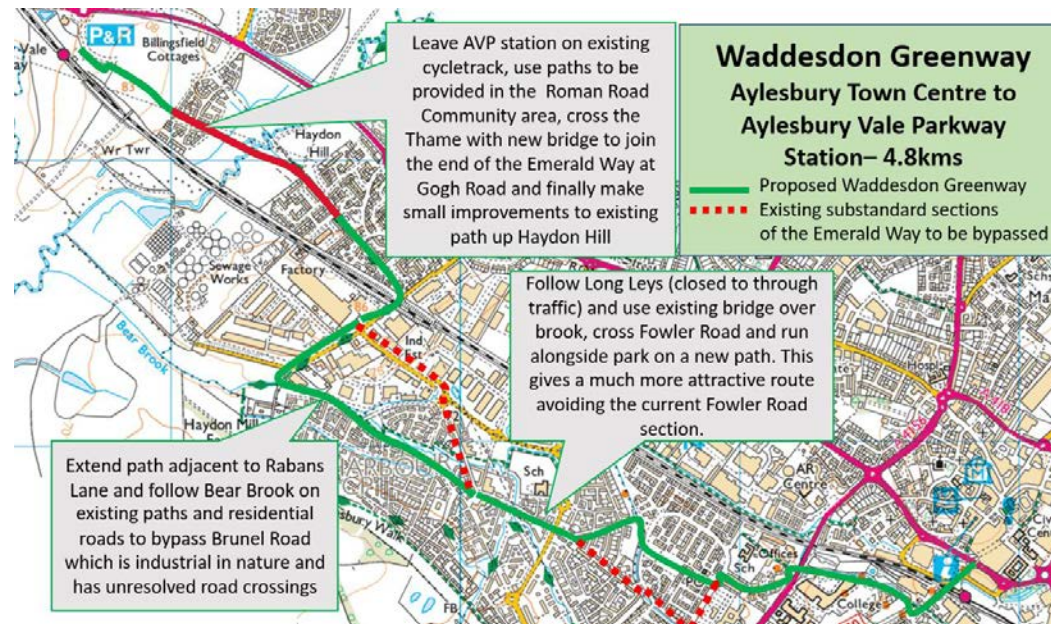
The overall construction time is expected to last 12 weeks.

8 Maintenance

This path will be part of the Aylesbury Loop planned for the Garden Town. The verges and landscaping will be maintained by the existing mowing regime.

9 Further considerations

The Haydon Hill Link is the first part of a programme to connect through to Aylesbury town centre via an enhanced Emerald Way.



Key location plan showing proposal including enhancements to the current Emerald Way