

M5 Junction 10 Improvements Scheme

Change Applications Consultation Document TR010063 - APP 10.14

Nationally Significant Infrastructure Projects: Changes to an application after it has
been accepted for examination

Planning Act 2008

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1. Background to the proposed changes

1.1. Proposed Scheme

- 1.1.1. Gloucestershire County Council (“the Applicant”) submitted an application to the Secretary of State for a development consent order (DCO) under S.22 of the Planning Act 2008 on 20 December 2023, which was accepted for Examination by the Planning Inspectorate on 16 January 2024. The application includes works to M5 Junction 10, consisting of a new all-movements junction; the widening of the A4019 east of the M5 J10 to the Gallagher Retail Park Junction; and a new West Cheltenham Link Road (the Link Road from the A4019 to the B4634). To the west of Junction 10 the existing section of two-lane dual carriageway will be replaced with single lanes.
- 1.1.2. More particularly, the submitted Scheme includes the following:
- Construction of two new overbridges over the M5 to create a new roundabout junction over the M5. The existing overbridge will be demolished.
 - Realignment of the A4019 to provide an appropriate entry grade and angle to the new roundabout. A dedicated route for cyclists and pedestrians will be provided at grade through the junction.
 - Construction of a flood storage area south-east of the junction to provide flood compensation.
 - Construction of an underpass under the A4019 immediately to the east of Junction 10 to provide a traffic free route for bats to cross under the A4019, as well as pedestrians, cyclists and equestrians.
 - Construction of the West Cheltenham Link Road (“the Link Road”): a new single carriageway 1.4km in length, between the B4634 to the A4019 with segregated cycleway and footways. The design of the Link Road includes flood mitigation structures across the floodplain to the north of the River Chelt, and a single span bridge over the River Chelt.
 - Widening of the A4019 to a two-lane dual carriageway from Withybridge Lane, eastwards through to the Gallagher Retail Park, where the Scheme will tie into the existing dual carriageway. For residents and businesses whose current access is directly onto the A4019 short sections of new access roads will be created alongside the widened A4019 to facilitate ease of access both westbound and eastbound and will join the A4019 at signalised junctions.
- 1.1.3. The DCO application is currently being examined by independent Inspectors (the Examining Authority (ExA)) appointed by the Planning Inspectorate on behalf of the Secretary of State. The examination period runs for six months, beginning on 4 June 2024 and ending on 4 December 2024.
- 1.1.4. During the course of the examination, hearings have been held, written questions answered, written representations made, Local Impact Reports submitted, and site visits undertaken by the ExA. The Scheme has evolved to capture the results of stakeholder engagement and reassessment of the best way to deliver a more sustainable and affordable Scheme.
- 1.1.5. Notification of the intention to submit 8 non-material changes was made to the ExA on 12 August 2024 [AS-061] (“the Notification Letter”). A copy of this letter can be found on the Planning Inspectorate project webpage.
- 1.1.6. The ExA issued a Rule 9 letter in respect of the proposed changes on 21 August 2024 [PD-011] (“the Rule 9 letter”).

- 1.1.7. Since then, the Applicant has decided to split its proposed change application into two separate applications, to differentiate between those aspects of the proposed changes that relate exclusively to upgrades in the rights the Applicant is seeking and that engage the Infrastructure Planning (Compulsory Acquisition) Regulations 2010 ("CA Regulations") ("Change Application 1") [which includes Change 8 as set out in the Notification Letter] and those that relate to changes in the design of the Scheme ("Change Application 2") [which includes Changes 1 to 7 as set out in the Notification Letter]. This is to ensure the necessary Statutory Consultation and examination of change can be accommodated in the time remaining in this examination.
- 1.1.8. Change Application 1 was submitted to the Secretary of State c/o The Planning Inspectorate on the 5 September 2024 and the ExA issued a procedural letter, dated 17 September 2024, confirming the acceptance of Change Application 1.
- 1.1.9. This consultation sets out a summary of the changes proposed in Change Application 1 and Change Application 2, outlining the proposed changes to the preliminary design of the Scheme.

1.2. About this targeted statutory and non-statutory consultation

- 1.2.1. In parallel with the DCO process, the design has been evolving from preliminary to detailed design and the Applicant has identified opportunities to deliver a more efficient, sustainable and affordable Scheme. The detail of these opportunities is presented in this document as non-material changes to the DCO.

Change Application 1

- 1.2.2. In relation to Change Application 1, the proposed changes constitute an upgrade on the rights sought in relation to specific plots within the Order limits. Therefore, the Infrastructure Planning (Compulsory Acquisition) Regulations 2010 ("CA Regulations") are engaged, and the Applicant has submitted a proposed timetable to the examination setting out how this consultation would be accommodated.
- 1.2.3. The Applicant's proposal to carry out consultation with all those persons identified in the Planning Act 2008 under section 42 (a) to (d) who would be affected by the proposed changes was agreed by the ExA as stated in the Rule 9 letter dated 21 August 2024 [PD-011].

Change Application 2

- 1.2.4. The proposed changes, either individually or cumulatively, do not give rise to any new or different likely significant effects beyond those reported in the environmental statement ("the ES"). In addition, some of these changes are considered a betterment to the Scheme. For this reason, there is no statutory requirement to consult under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ("EIA Regulations").
- 1.2.5. However, the Applicant has decided to consult in a targeted manner, with statutory bodies, affected landowners and other interested parties, to provide consultees with the opportunity to comment on the proposed changes and in its Rule 9 letter the ExA agreed with this approach.
- 1.2.6. Seven design changes are proposed to the Scheme as part of Change Application 2 which aim to reduce the impacts on the environment, the local community and landowners, and enhance Scheme buildability and affordability. The Applicant would now like to hear your views on the proposed changes.

Consultation

- 1.2.7. This Consultation Document is provided to enable consultees to review the proposed changes. This document explains the background to the proposed changes, a description and justification for the change, and a summary of the effects on the Scheme.
- 1.2.8. This consultation relates to the changes proposed in Change Application 1 and Change Application 2, and runs from 27 September 2024 to 27 October 2024.

2. Change Application 1

- 2.1.1. The changes proposed by the Applicant in relation to Change Application 1 constitute an upgrade to land rights sought over several plots within the Order limits of the Scheme to enable dormice mitigation agreed with Natural England and to address the Applicant's engagement with National Highways. The Applicant has obtained written consent from National Highways as landowner of the National Highways Plots and continues to engage with the affected landowner of the Hedgerow Plots with the intention of acquiring the land (and therefore the necessary rights) by voluntary agreement.

Hedgerow Plots

- 2.1.2. A change is proposed to the Land Plans to align them with the extent of dormice hedgerow mitigation shown on the General Arrangement (GA) plans and Environmental Masterplan (EMP). This change is not a design change and relates to an upgrade in the rights sought from temporary possession to new rights which will enable the Applicant to undertake a more efficient maintenance of the hedgerow H48.
- 2.1.3. The Applicant seeks to upgrade the following plots from temporary possession (shown as green in the Land Plans) to temporary possession and acquisition of new rights (shown as blue in the Land Plans): 5/4d(v), 5/4d(vi), 5/31c(i), 5/4d(vii), 5/4d(viii), 5/31a(i) and 5/31b(i), which together encompass hedgerow H48 (the "Hedgerow Plots").

National Highways Plots

- 2.1.4. Prompted by engagement with National Highways a set of principles were agreed to deal with how land and rights would be acquired in relation to either land in National Highways' ownership or within the Strategic Road Network.
- 2.1.5. As a consequence, the Applicant included the upgrade of rights sought in respect of the following plots within National Highways' ownership from temporary possession (shown green in the Land Plans) to temporary possession and acquisition of rights (shown blue in the Land Plans): 3/2b, 5/2h(i), 5/2j, 5/2k, 5/2l and 5/2y (the "National Highways Plots") as part of Change Application 1.
- 2.1.6. More information in relation to Change Application 1 can be found at the Planning Inspectorate's website dedicated to the Scheme.

3. Change Application 2

3.1.1. The seven changes listed below will form part of the Change Application 2 and are proposed following engagement and feedback from key stakeholders – including National Highways, Joint Councils, statutory environmental bodies and affected landowners – and as a result of ongoing design refinement.

Change 1	Link Road replacement of swales with filter drain
Change 2	Link Road replacement of culverts with bridges
Change 3	Link Road River Chelt bridge structural form
Change 4	Link Road alignment
Change 5	Relocation of existing NRTS transmission station
Change 6	Flood storage area reconfiguration
Change 7	Infill of existing northbound on-slip loop

3.1.2. Please see Figure 3-1 for the location of these proposed changes.

3.1.3. Please see the below glossary of definition for these changes:

Swales	A shallow ditch to collect surface water from the road
Filter drain	A gravel trench with a pipe to collect surface water from the road
Vertical alignment	The design of the road along the vertical axis
Horizontal alignment	The design of the road along the horizontal axis
NRTS transmission station	The National Roads Telecommunications Services (NRTS) provides services across National Highway's roadside telecommunications network. The network connects roadside devices, such as emergency telephones or traffic cameras, to regional control centres. Each roadside device is physically connected via cables to a transmission station, which is a square building usually located by the side of the motorway.
On-slip loop	The M5 northbound on-slip road connects the A4019 to the M5 for traffic wanting to travel northbound. The existing on-slip is in a loop formation.
Sheet piling	Steel sheets with interlocking edges, installed deep into the ground, to retain soil and create additional space for construction activities.

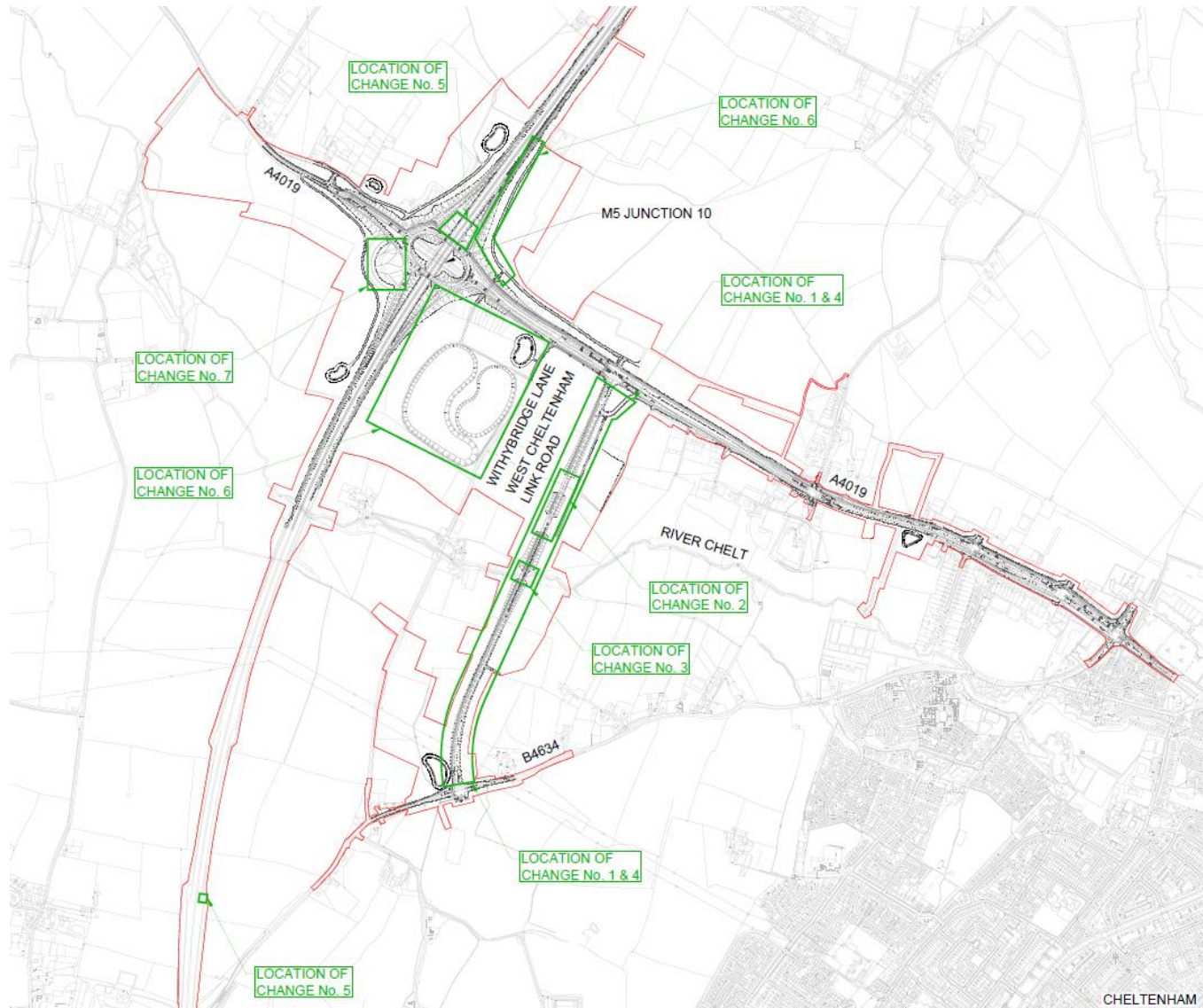


Figure 3-1 Location of proposed changes for Change Application 2

3.2. Change 1 – Link Road replacement of swales with filter drain

- 3.2.1. The Scheme currently proposes three runs of swales as the surface water collection method on the Link Road [see Figure 3-2].
- 3.2.2. The Applicant proposes to replace the swales with filter drains. Filter drains provide the following improvements:
- Are narrower than swales, which would allow the width of the Link Road to be reduced. This would decrease the quantity of fill material to be imported, and the footprint of the Link Road in the flood plain.
 - Can connect to bridge deck drainage solutions for the River Chelt bridge, and the flood alleviation bridges.
- 3.2.3. Furthermore, altering the cross-section of the Link Road means that the number of filter drain runs can be reduced from three to two [see Figure 3-3].
- 3.2.4. In combination with the optimisation of the two-way footway cycleway in Change 4, these changes result in a 4m reduction in the width of the Link Road.
- 3.2.5. The environmental effects of this change are outlined in table 3.2.1.

Table 3.2.1 Environmental effects of Change 1

Topic	Effect
Biodiversity	Less grassland seeding would be provided adjacent to the carriageway. However, this can be offset with planting and seeding at the bottom of the embankments. Overall, there would be no change to biodiversity as considered in ES Chapter 7.
Road Drainage and Water Environment	It is considered that there would be no change to the risk to surface water as a result of a spillage reported in ES Chapter 8, as filter drains provide the same spillage risk reduction factor as swales. It is acknowledged that filter drains are less efficient at removing suspended solids and dissolved copper. The Highways England Water Risk Assessment Tool (HEWRAT) and the Metal Bioavailability Assessment Tool (M-BAT) are used to assess the impact of the Scheme on water quality. The routine runoff assessment within the HEWRAT and the M-BAT confirmed that providing filter drains would result in no changes to the magnitude of impact and significance of effect from road runoff assigned in the ES. The reduction in width of the embankment would reduce the footprint and volume of the embankment within the flood plain. This change is not considered to be significant against the conclusions of ES Chapter 8.
Landscape and Visual	Although there would be a narrower grassland seeding area adjacent to the carriageway, the filter drains are proposed to be topsoiled and grass seeded. It is considered that the proposed change would not alter the landscape conclusions in ES Chapter 9.
Materials and Waste	There would be a change in the type of materials required to create filter drains rather than swales. Filter drains would require the installation of carrier pipes and filter media. The proposed change would require less imported fill to construct the embankment due to the reduction in embankment width, resulting in an overall reduction in material requirements when compared to ES Chapter 12.

Topic	Effect
Climate	It is considered that the proposed change would have a slight beneficial impact on the construction phase emissions. Overall, the change would not alter the conclusions reported in ES Chapter 14.

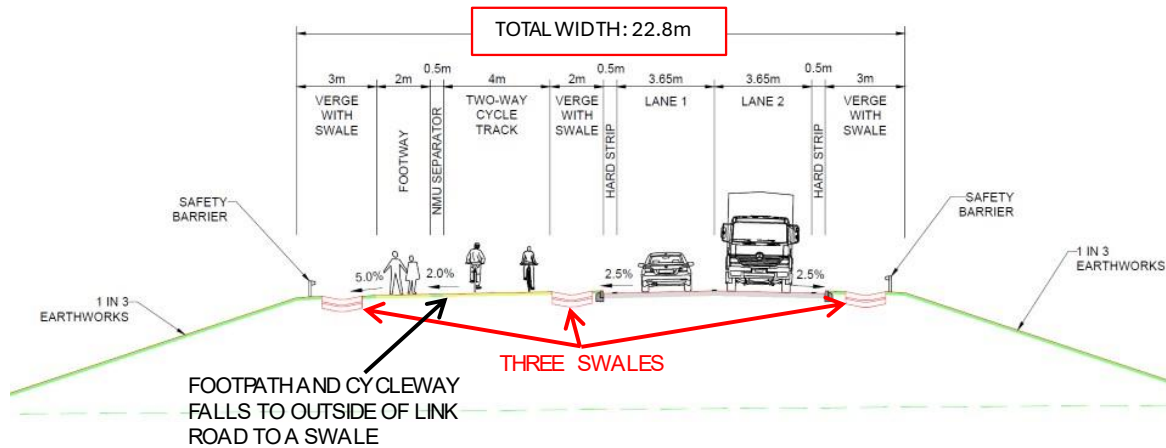


Figure 3-2 Link Road Scheme design cross-section

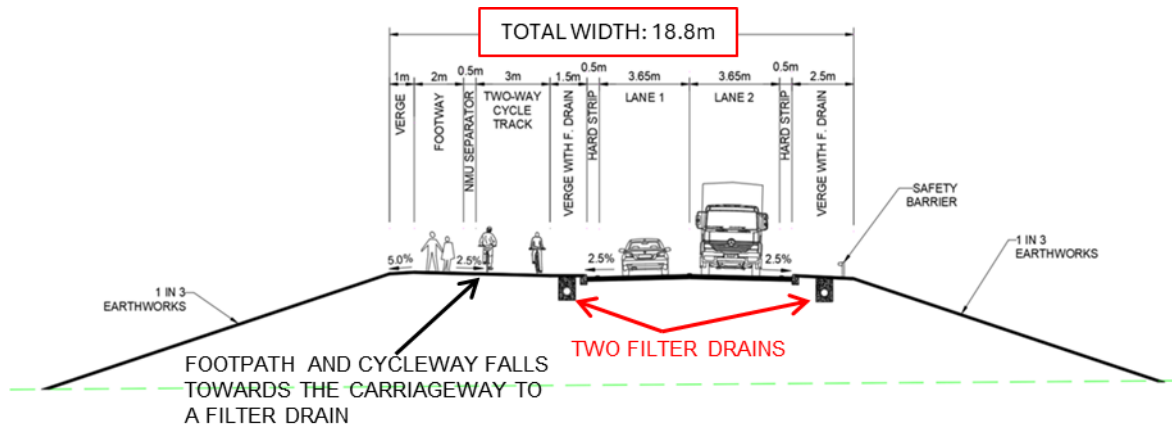


Figure 3-3 Link Road cross-section with proposed changes

3.3. Change 2 – Link Road replacement of culverts with bridges

- 3.3.1. The Scheme design proposes two flood alleviation structures on the Link Road, to allow flood water to pass under the Link Road [see Figure 3-4]. These structures were to be constructed from rectangular, precast concrete units, to create a series of culverts.
- 3.3.2. Through a buildability review, several key risks were identified for the proposed culverts:
- As the culverts would be constructed from individual units, there is a risk that the units could settle by variable amounts. This would affect the rideability of the road and could damage the road surface.

- Ground improvement works (dig and replace) would be required.
- The import and storage of the units will be logistically complicated and add risk to the duration of the construction programme.
- Some culverts are over 30m long, so may not be used by local wildlife.
- The internal dimensions of the units would create a confined space for maintenance.
- The ground improvements, material storage and placement of the units would all take place within the flood plain over a prolonged period. If flooding was to occur, the construction programme would be lengthened. Also, flood compensation would need to be created to manage flood risk during the works, which would add space constraints to construction activities.

3.3.3. The Applicant proposes to change the flood alleviation structures from culverts to bridges [see Figure 3-5]. These bridges would provide the following betterment:

- Mitigate the risk of settlement, thereby improving the rideability of the road and reducing the risk of damage to the road surface.
- Have piled foundations, so the ground improvements would no longer be required.
- Reduce the working time and space requirements within the floodplain.
- Remove the confined space hazard for inspection and maintenance.
- The bridges would have a larger opening than the culverts, which reduces the risk of blockages in a flood event, but also encourages the movement of wildlife.

3.3.4. The environmental effects of this change are outlined in Table 3.3.1.

Table 3.3.1 Environmental effects of Change 2

Topic	Effect
Noise	<p>The flood alleviation bridges are proposed to be bore piled. The noise level generated by bore piling is comparable to the noise levels for the excavation of the culvert foundations.</p> <p>The flood alleviation bridges are proposed to be in the same location as the flood culverts in the DCO design. As such, this change would not alter the noise receptors considered for these structures. Overall, it is considered that this proposal would not alter the conclusions of ES Chapter 6.</p>
Biodiversity	<p>The proposed change will provide a better ecological design in the longer term than culverts. Overall, there would be no change to biodiversity as considered in ES Chapter 7.</p>
Road Drainage and Water Environment	<p>The proposed change would reduce the risk of blockages which could create flood hazards.</p> <p>The proposed change would allow Drain 12 to be retained as the bridge structure would be clear span over the feature whereas the culvert would cause a loss of open channel.</p> <p>Piles would be in rows parallel to groundwater flow, and would not be contiguous, so would not impede flow. A piling risk assessment will be completed at detailed design to ensure the piling method is appropriate for the geology and groundwater parameters.</p> <p>Hydraulic modelling shows that the flood alleviation bridges would not alter the assessment outcomes reported in ES Chapter 8.</p> <p>Overall, it is considered that the proposed change would not alter the conclusions of ES Chapter 8 for surface water quality, hydromorphology, ground water or flood risk.</p>

Topic	Effect
Landscape and Visual	<p>The proposed change will remove the need for a solid embankment at the location of the structures on the Link Road. This will result in a reduction in grassland seeding adjacent to the carriageway.</p> <p>The flood relief bridges will be open structures and will therefore be less intrusive on the landscape.</p> <p>The Scheme design does not propose planting along the length of these structures, so there will be no change in screening.</p> <p>Overall, it is considered that the proposed change would have no impact on the conclusions of ES Chapter 9.</p>
Materials and Waste	<p>Flood alleviation bridges would reduce the requirement for imported fill material and remove the requirement for precast concrete units. Although materials would be needed for the structures, it is considered that the change for materials and waste would be negligible and not significant when compared to the conclusions of ES Chapter 12.</p>
Climate	<p>As the precast units have high embedded concrete, it is considered that the proposed change would have a slight beneficial impact on the construction phase emissions. Overall, the change would not alter the conclusions reported in ES Chapter 14.</p>

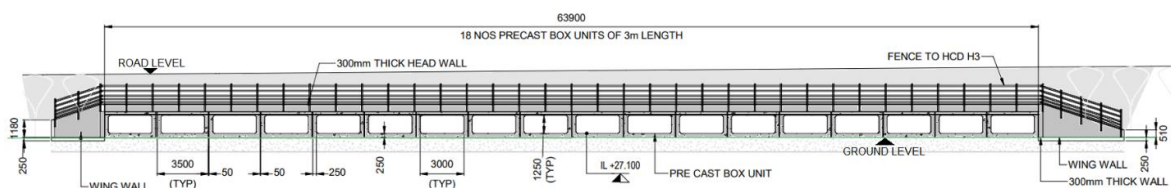


Figure 3-4 Elevation of the flood alleviation culverts in the Scheme design

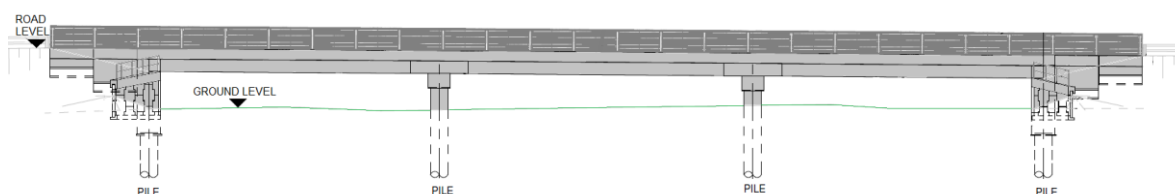


Figure 3-5 Elevation of the flood alleviation bridge

3.4. Change 3 – Link Road River Chelt bridge structural form

- 3.4.1. The bridge over the River Chelt proposed in the current Scheme is a skewed structure [see Figure 3-7], i.e. the bridge abutments are not perpendicular to the Link Road. The Scheme design also includes some reprofiling of the existing riverbank to reduce the risk of erosion and create more natural channel profiles [see Figure 3-6].
- 3.4.2. Skewed bridges are more difficult to design and construct and they introduce risk to the construction programme. Also, bridges with abutments that are perpendicular to the road generally perform better in the long-term, reducing the maintenance requirements.

- 3.4.3. The Applicant proposes to optimise the riverbank reprofiling works to straighten the River Chelt over a short length, so that it runs perpendicular to the Link Road [see Figure 3-8]. This would remove the skew in the bridge, mitigate risk to the construction programme, and improve long term structure performance.
- 3.4.4. To mitigate for the section of straightened channel, the River Chelt will be reprofiled to exaggerate the natural meandering downstream of the River Chelt bridge and include pools and riffles between meanders. The Scheme mitigation, including enhancements to riparian vegetation, bank reprofiling to create more natural profiles and installation of in channel enhancements, will also be further developed within the Order limits which are extended 160m upstream and 100m downstream of the River Chelt Link Road bridge.
- 3.4.5. The bridge would have a shorter span, which means that smaller beams can be used. As a result, the height of the Link Road can be reduced, in turn reducing the requirement for imported fill material.
- 3.4.6. The environmental effects of this change are outlined in Table 3.4.1.

Table 3.4.1 Environmental effects of Change 3

Topic	Effect
Biodiversity	<p>This change does not alter the proposed extent of works within the River Chelt.</p> <p>The reprofiling of the River Chelt channel and the presence of construction activities will cause some additional temporary habitat loss and disturbance during the construction phase. However, additional construction phase mitigation measures will be incorporated to minimise impacts. Furthermore, the additional habitat enhancements on the River Chelt included as part of the proposed design change would provide increased long-term localised habitat improvements.</p> <p>The proposed design change is not anticipated to result in a change to the assessment outcomes, as reported in ES Chapter 7 Biodiversity.</p>
Road Drainage and Water Environment	<p>The proposed change would straighten the River Chelt under the River Chelt Bridge and introduce increased meandering downstream of the bridge.</p> <p>A constructability review by the Contractor identified the requirement for a temporary river diversion to allow for the construction of the River Chelt reprofiling and mitigation associated with the Link Road River Chelt Crossing. The requirement for the temporary diversion was not assessed as a construction activity within the ES. A temporary diversion would also be required for the proposed change but would be no worse than the diversion identified from the constructability review for the ES Scheme design. With the mitigation measures (as included in the REAC (WE1, WE3 and B23) [TR010063 – APP 7.4]) there would be no change to the outcomes of the assessment as reported in ES Chapter 8.</p> <p>The change in cross-section at this structure would retain the two-stage bank profile proposed in the Scheme design.</p> <p>The hydraulic modelling concludes there would be no change to the flood risk assessment outcomes as reported in ES Chapter 8.</p> <p>Overall, it is considered that the proposed change would have no impact on the conclusions of ES Chapter 8.</p>
Landscape and Visual	<p>The location and structural form of the River Chelt bridge would be maintained from the Scheme design.</p> <p>It is therefore considered that the proposed change would not result in any change in visual impact and would not alter the assessment outcomes in ES Chapter 9.</p>

Topic	Effect
Materials and Waste	The proposed change would reduce the amount of reinforcement materials required in the bridge deck, reduce the beam depth and reduce the height of the Link Road, thereby reducing the requirement for imported fill material. The proposed change would slightly improve the impact associated with materials and waste as documented in ES Chapter 12. The proposed change is not considered to be significant.
Climate	It is considered that the proposed change would have a slight beneficial impact on the construction phase emissions. Overall, the change would not alter the conclusions reported in ES Chapter 14.

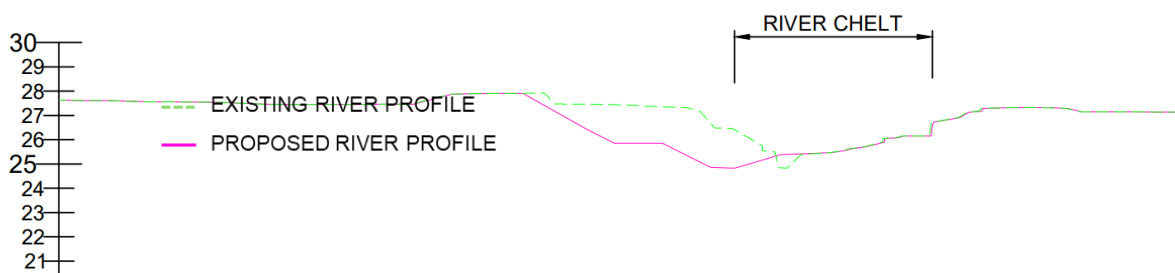


Figure 3-6 Cross-section of riverbank reprofiling proposed in Scheme design

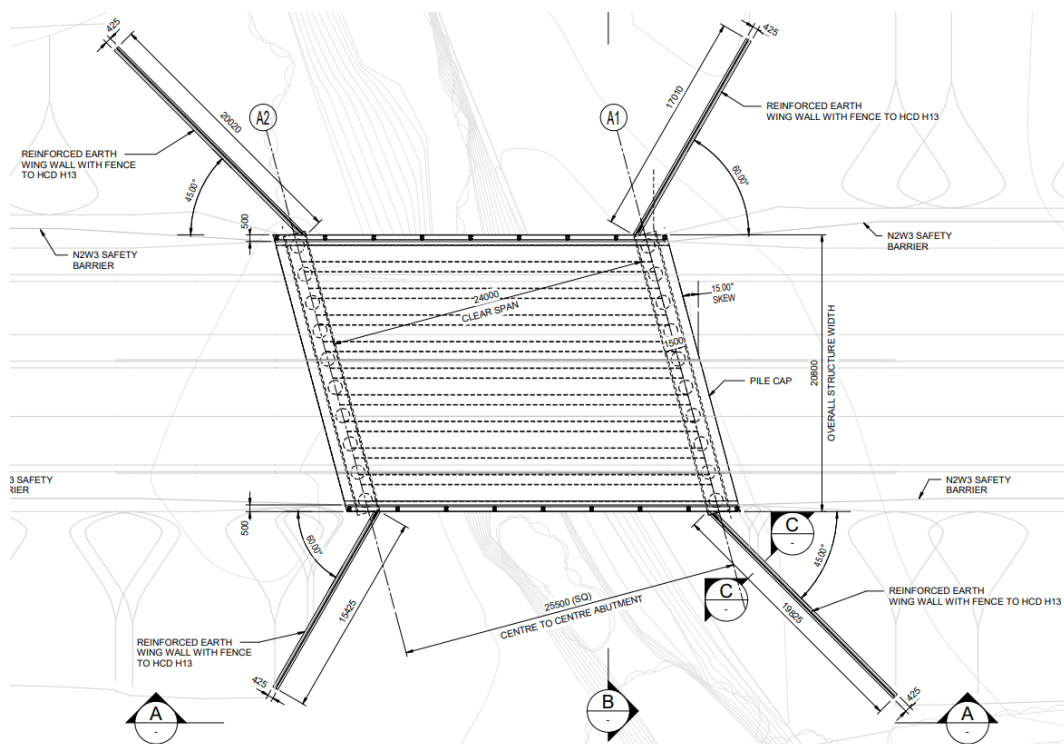


Figure 3-7 Plan of the skewed River Chelt bridge design in Scheme design

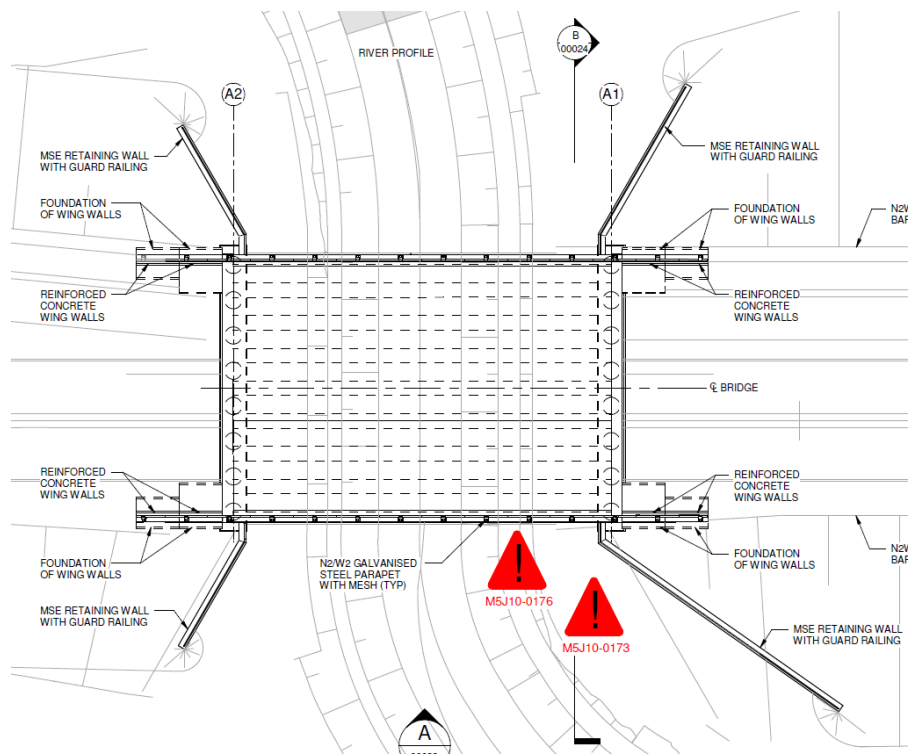


Figure 3-8 Plan of proposed square River Chelt bridge with straighter River Chelt

3.5. Change 4 – Link Road alignment

- 3.5.1. The Link Road is to be constructed on an embankment and will therefore be raised above the existing landscape. The embankment will be constructed from imported fill material. The vertical limit of deviation (LoD) set out in Article 8 of the draft DCO is a maximum of 0.5 metres upwards or 1.0 metre downwards. The Scheme design for the Link Road includes a 4m wide two-way footway cycleway.
- 3.5.2. The Applicant proposes to optimise the vertical alignment of the Link Road beyond the LoD, by reducing the height of the road by over 1m in localised areas [see Figure 3-10]. This would result in significant reductions in the requirement for imported fill.
- 3.5.3. In addition, the Applicant proposes to reduce the width of the two-way footway cycleway from 4m to 3m to optimise the width of the Link Road [see Figures 3-2 and 3-3]. A review of the potential number of future cyclists identified that a 3m wide cycleway would be more than sufficient for the number of users identified.
- 3.5.4. The environmental effects of this change are outlined in Table 3.5.1.

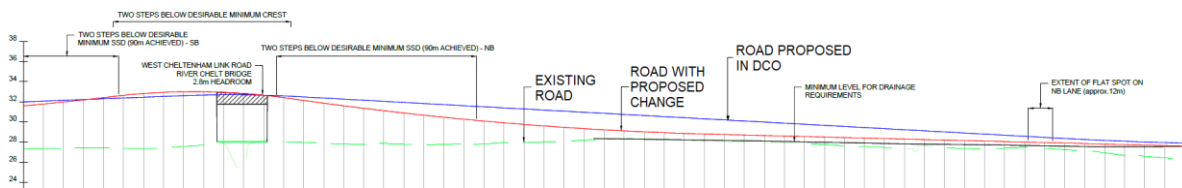


Figure 3-10 Link Road long-section showing Scheme design vs proposed change

3.6. Change 5 – Relocation of existing NRTS transmission station

- 3.6.1. The location of the existing Uckington NRTS transmission station (TS) is in close proximity (4.9m) to the construction works proposed for the Piffs Elm bridge north [See Figures 3-11, 3-12 and 3-13]
- 3.6.2. The construction works required around the TS include reinforced earth retaining walls and sheet piling, which pose a health and safety risk to the construction operatives working in close proximity to the structure.
- 3.6.3. The works would also pose a risk to the TS structure and the power and communication cables which run to the TS. The National Telecommunication Roadside Service (NRTS) provides a data link around National Highways' roadside telecommunications network. This link must be kept in operation at all times. During construction, an interrupter bypass cable will be required to divert the data link around the construction area and keep the network operational. The bypass cable would need to return to the TS to maintain the data link and would therefore run through the works area where it may be at risk of damage.
- 3.6.4. For these reasons, it has been determined that the TS needs to be relocated from its current location.
- 3.6.5. The new TS would be modular, similar to that shown in Figure 3-16, with approximate dimensions of 6.7m (L) x 4.8m (W) x 3m (H). The new TS will be located within the Scheme Order limits and highway boundary, approximately 2.6km south of the existing location [see Figures 3-14 and 3-15]. There is existing hardstanding in the verge of the southbound carriageway which would provide a suitable location.
- 3.6.6. Once the TS is relocated, the retaining walls will no longer be required for the Piffs Elm North bridge. As a result, the retaining walls on the north side of the east and west abutments would be replaced with planted embankments.
- 3.6.7. There is potential for the TS to be relocated by National Highways NRTS team prior to commencement of main works.
- 3.6.8. The environmental effects of this change are outlined in Table 3.6.1.

Table 3.6.1 Environmental effects for Change 6

Topic	Effect
Biodiversity	<p>The proposed location for the TS has existing hardstanding so would require minimal vegetation removal. Any vegetation removal would be compensated for by new planting elsewhere in the verges of the M5.</p> <p>Removing the retaining walls from the design and providing embankments in their place, will allow for more vegetation to be planted around the Piffs Elm north bridge. Overall, there would be no change to biodiversity as considered in ES Chapter 7.</p>

Topic	Effect
Road Drainage and Water Environment	<p>The TS would be relocated to an alternative drainage catchment on the southbound carriageway of the M5.</p> <p>It is considered that there would be no change to the water environment as considered in ES Chapter 8.</p>
Landscape and Visual	<p>The only views of the new TS would be from the M5. It is considered that there would be no adverse visual impact at the new location.</p> <p>The replacement of the retaining walls with embankments would bring Piffs Elm North bridge in keeping with all other bridge abutments on this stretch of M5. The embankments would also be planted.</p> <p>It is considered that there would be no change to the assessment outcomes in ES Chapter 9.</p>
Materials and Waste	<p>The proposed change would remove the requirement for a reinforced earth retaining wall and sheet piling. However, additional imported material would be required to construct embankments in place of retaining walls.</p> <p>New materials would be required to construct the TS, and waste would be generated through the demolition of the existing TS. The materials from the old TS would be recycled in the Scheme where feasible.</p> <p>Overall, the proposed change would not change the impact of the Scheme due to materials and waste, as considered in ES Chapter 12.</p>

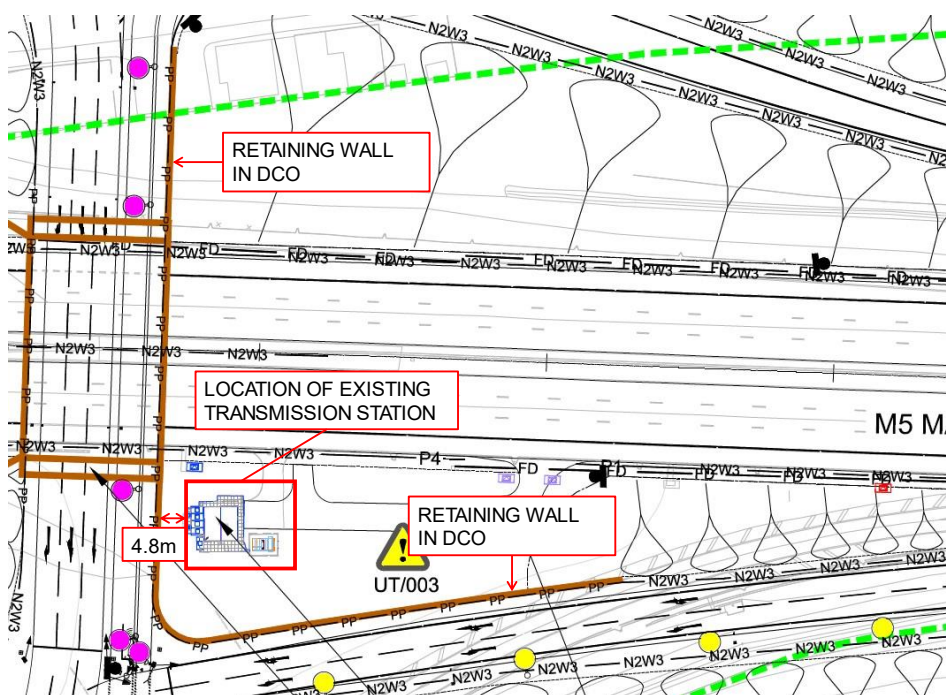


Figure 3-11 Existing TS location in Scheme design with dimensions for working room



Figure 3-12 Location of existing TS relative to existing M5 J10



Figure 3-13 Photo of existing TS



Figure 3-14 Proposed location for new TS, 2.6km south of M5 J10 Piffs Elm Interchange

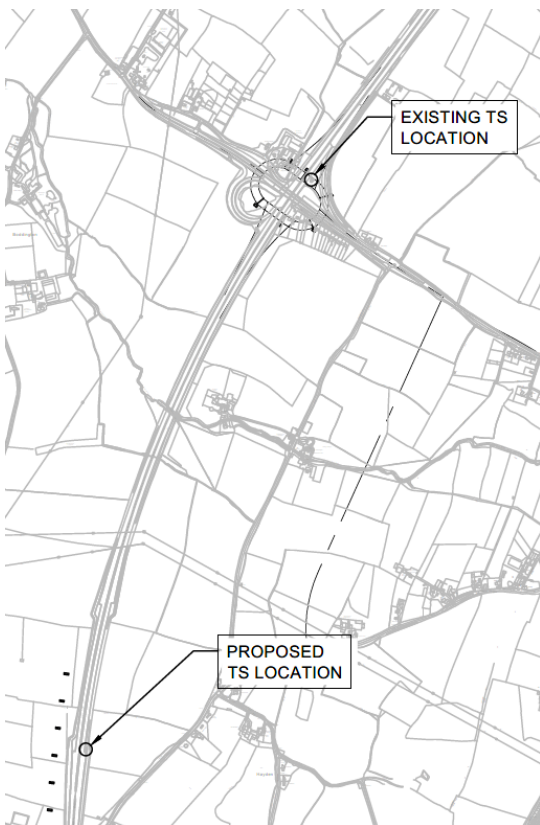


Figure 3-16 Location of existing and proposed TS



Figure 3-15 Example modular TS from M3

3.7. Change 6 – Flood storage area reconfiguration

- 3.7.1. The current Scheme design proposes a flood storage area, to store around 200,000m³ of flood waters from the River Chelt. The storage is located to the south-east of the Piffs Elm Interchange, between the M5 Corridor, the A4019 and the Link Road [see Figure 3-17]. The solution was developed based on the following principles:
- The A4019 needs to be raised to meet the height of the new Piffs Elm Interchange at the M5J10. This will prevent flood waters flowing north over the A4019.
 - The level of the new Withybridge underpass, which provides a route for bats and the bridleway to pass under the A4019, was set above the design flood event (1in100year + 53% for climate change) so would not carry flood waters under the A4019.
 - The existing 750mm diameter pipes that pass under the A4019 were both proposed to be stopped up.
- 3.7.2. This flood storage area would need to be registered as a large-raised reservoir under the Reservoirs Act 1975. In the design flood event, the M5 and A4019 embankments would act as impoundment structures under the Reservoirs Act 1975. This means that the M5 and A4019 embankments form the dam to the reservoir. This would place significant responsibilities on the maintaining parties. National Highways have raised their concerns in relation to the Scheme proposals for the design, operation and maintenance of the current flood storage area, which has led the Applicant to explore alternative solutions.
- 3.7.3. The Applicant proposes an alternative flood storage solution which would allow flood waters to flow north of the A4019 and reduce the volume of water that would be stored to the south-east of the Piffs Elm Interchange [see Figure 3-18].
- 3.7.4. The alternative solution is as follows:
- Two separate basins to store 23,500m³ and 61,000m³ entirely below the current ground level.
 - Creation of channels to carry floodwater from the basins to the River Chelt, to the existing Piffs Elm culvert underneath the M5, and through the Withybridge underpass.
 - New culverts will be created under the A4019, with a new ditch to carry flows to Leigh brook, which then passes under the M5 through the Barn Farm culvert. In order to create sufficient space for the new ditch to Leigh brook, the M5 southbound off-slip road has been shortened by 55m to 348m total length. Appendix F of the Transport Assessment [TR010063 - APP 7.5] shows that the maximum queue length on the southbound off-slip (M5 North approach SB) in the 2042 scenario is 56 PCU in the am peak. This is equivalent to 336m and therefore within the new slip road length.
 - Withybridge underpass lowered and existing 750mm pipes under A4019 replaced with twin culverts, to provide flood conveyance under the A4019.
- 3.7.5. This solution would not use either the M5 or the A4019 road embankments as impoundment structures for the reservoir. As a result, the solution minimises the maintenance responsibilities required under the Reservoirs Act 1975.
- 3.7.6. The environmental effects of this change are outlined in Table 3.7.1.

Table 3.7.1 Environmental effects of Change 7

Topic	Effect
Biodiversity	<p>Any new planting would be designed to create a mosaic of habitats, similar to that considered in ES Chapter 7.</p> <p>Overall, it is considered that the proposed change would not alter the biodiversity conclusions in ES Chapter 7.</p>

Topic	Effect
Road Drainage and Water Environment	<p>The proposal would remove the requirement to use either the M5 or the A4019 road embankments to impound the reservoir.</p> <p>The HEWRAT calculations confirmed that there would be no changes to the magnitude of impact and significance of effect assigned in the ES.</p> <p>The hydraulic modelling demonstrates that the proposed solution would not alter the flood risk conclusions presented in ES Chapter 8.</p> <p>No change to groundwater is anticipated against the conclusions of ES Chapter 8, as the invert level of the Scheme is comparable to the invert level of the alternative solution.</p> <p>The ES reviews hydromorphology however not in specific reference to the flood storage area. Hydromorphological impacts will be assessed through detailed design and additional mitigation may be required.</p> <p>The alternative solution would reduce the requirement for water management during excavation activities during construction.</p> <p>Overall, it is considered that the proposed change would not alter the conclusions of ES Chapter 8.</p>
Landscape and Visual	<p>Any new planting would be in accordance with Chapter 9 of the ES. It is considered that there would be no change on the landscape as considered in ES Chapter 9.</p>
Materials and Waste	<p>The excavation volumes for the proposed change are comparable to the Scheme design. It is considered that the proposed change would not alter the Scheme impact associated with materials and waste as documented in ES Chapter 12.</p>



Figure 3-17 200,000m³ reservoir in Scheme design

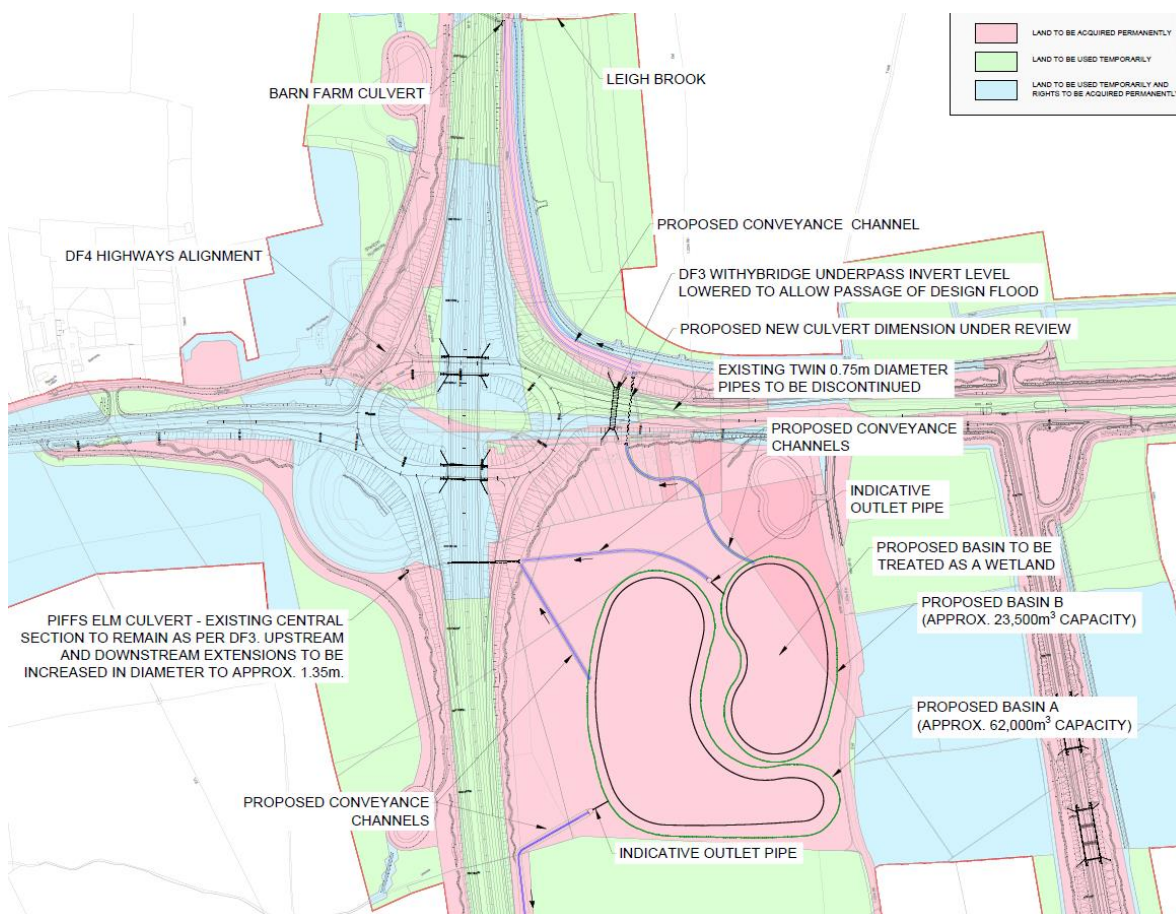


Figure 3-18 Plan of alternative flood storage area

3.8. Change 7 – Infill of existing northbound on-slip loop

- 3.8.1. The existing M5 J10 northbound on-slip loops onto the M5 carriageway. The current Scheme design proposes to retain the embankment loop in its current form.
- 3.8.2. The Applicant proposes to infill the loop with site won material [see Figures 3-19 and 3-20], which is not suitable to be reused elsewhere, in order to create a new slope for planting and provide improved screening of the Piiffs Elm Interchange.
- 3.8.3. This proposal would reduce the export of unsuitable material, thereby reducing the number of construction vehicle movements and the Scheme greenhouse gas emissions.
- 3.8.4. This change would ease the maintenance of the proposed planting as the gradient of the south-west embankment of the Piiffs Elm Interchange would be significantly reduced.
- 3.8.5. The environmental effects of this change are outlined below:

Table 3.8.1 Environmental effects of Change 8

Topic	Effect
Biodiversity	<p>The increased area of woodland planting would provide improved habitat for breeding birds.</p> <p>The increased planting on the embankment would offset the loss of existing vegetation in this area through construction.</p> <p>Overall, there would be no change to biodiversity as considered in ES Chapter 7.</p>

Topic	Effect
Road Drainage and Water Environment	<p>No impact on hydromorphology, surface water, flood risk or groundwater as considered in ES Chapter 8.</p> <p>No change to pollution risk to River Chelt and Leigh Brook as documented in ES Chapter 8.</p>
Landscape and Visual	<p>The infill would require clearance of additional scrub vegetation on the inside of the loop.</p> <p>The proposed solution would increase the footprint of the planting area, which would further soften the Piffs Elm Interchange within the landscape and provide a slight improvement to visual receptors on PROW AB014.</p> <p>When compared with the conclusions of ES Chapter 9, it is considered that there would be no change to visual receptors during construction and operation (Year 1). A slight beneficial impact is anticipated during operation (Year 15) due to increased area of planting screening views of the Piffs Elm Interchange.</p>
Materials and Waste	<p>This proposal would utilise unsuitable site-won material that would otherwise be exported offsite to landfill. The proposed change would slightly improve the impact associated with materials and waste as documented in chapter 12. The proposed change is not significant.</p>
Climate	<p>It is considered that the proposed change would have a slight beneficial impact on the construction phase emissions. Overall, the change would not alter the conclusions reported in ES Chapter 14.</p>

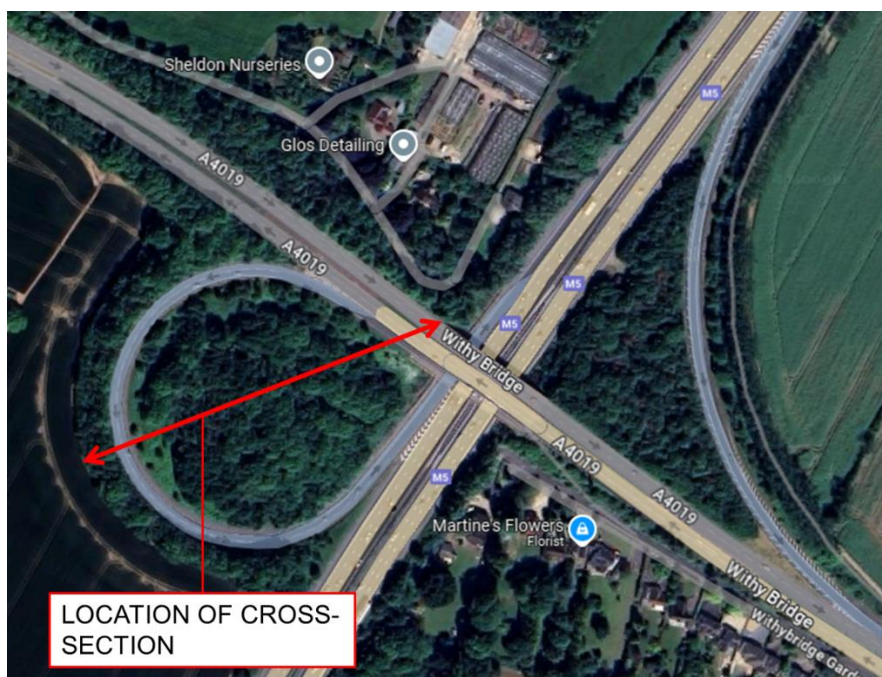


Figure 3-19 Location of the infill of the northbound on-slip loop

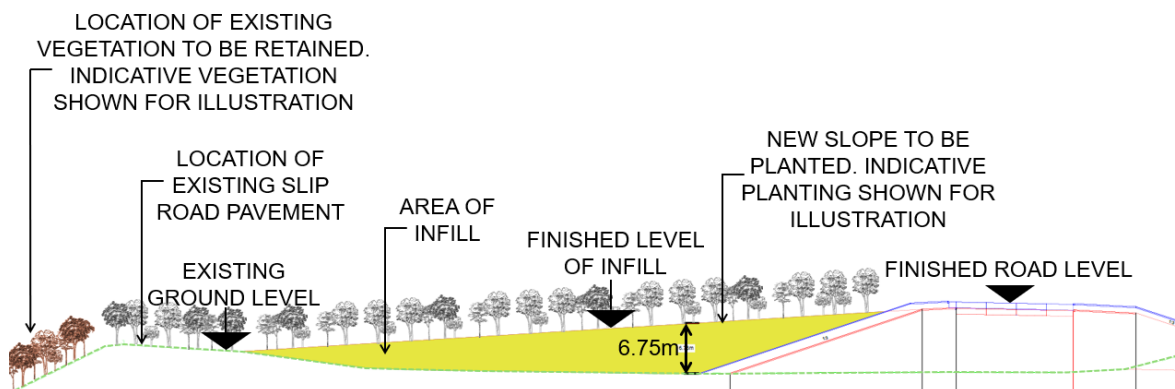


Figure 3-20 Cross-section, showing the yellow area to be infilled

3.9. Cumulative assessment

3.9.1. An assessment has been completed to determine the cumulative effect of all the proposed changes on the conclusions of ES Chapters. Overall, it is considered that the proposed changes will not alter the conclusions of the ES. As a result, these changes are non-material.

Table 3.9.1 Cumulative environmental effects

Topic	Effect
Cumulative Effects Assessment	<p>There are no changes to the Scheme Order Limits as a result of the seven proposed design changes. Therefore, there are no changes to the other developments the Scheme could interact with, as presented in ES Chapter 13.</p> <p>There are no new environmental receptors identified for the seven proposed design changes that are shared with other developments and therefore no potential for cumulative effects.</p> <p>There are no new or different significant effects for any other environmental topics as a result of the proposed design changes. There are therefore no changes to the cumulative effects as reported in ES Chapter 13.</p>

4. What happens next?

- 4.1.1. Our supplementary consultation closes at 11.59pm on 27 October 2024.
- 4.1.2. All responses will be analysed. We will produce a report of these responses and Applicant's position on them. This will be submitted as part of the request to the Examining Authority to accept, as part of the DCO application, those changes we still wish to proceed with. If those changes are accepted there will be opportunities for the detail of each proposed change to be considered, and for all interested parties to make representations about them, as part of the ongoing examination of the DCO application
- 4.1.3. We are currently in the examination period, which will run until 4 December 2024, following which the ExA has three months to make a recommendation to the Secretary of State, who then has a further three months to make their decision. It will be a matter for the ExA to decide whether to accept the proposed changes alongside the original application. If the ExA rejects the submitted changes, the ExA will continue in considering the original Scheme.
- 4.1.4. The Planning Inspectorate's website provides updates on the DCO process here: [M5 Junction 10 Improvements Scheme - Project information \(planninginspectorate.gov.uk\)](https://www.planninginspectorate.gov.uk/m5-junction-10-improvements-scheme).