

Wye Valley Greenway



National Diving & Activity Centre
Greenways & Cyclerroutes Ltd

January 2019

Wye Valley Greenway: Dayhouse Quarry to Black Morgan's Wood

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Appendix 1 - Wessex Ecological Consultancy – Ecological Assessment January 2019

Appendix 2 - Clark Webb Ecology Limited with regard to bats

Note to scales: this document has been prepared at A4 size for ease of printing. Pages are double sided.

Maps 1 to 5 (pages 6 to 14) are scaled to be 1:2500 when printed at A3 (141%)

1 The Wye Valley Greenway

This application covers a 3.4km section of the former Wye Valley Greenway. It connects the National Diving and Activity Centre (NDAC) through to the Forestry Commission tracks north of Tintern Quarry. The proposed path will create a significant extension to the visitor experience based on NDAC and provide local resource for walking and cycling. The proposal marries with the Forest of Dean District Council resolution AP29 adopted June 2018 to safeguard the railway route for recreational use.

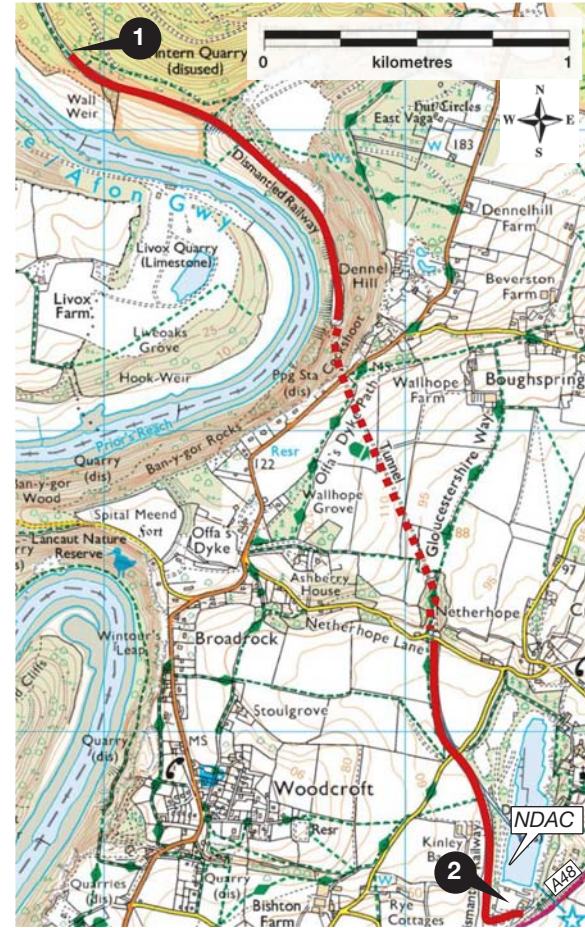
The works proposed will be low key in nature with a view to making a stone dust path similar to the existing trails in the Forest of Dean.



Railway path near Beechenhurst

The works will be carefully carried out under the supervision of the project’s ecologist and bat specialist so that the Wye Valley Greenway can become a valued component of the outstanding landscape and woodlands in this area.

Once completed NDAC will manage and maintain the works, including the section through the long Tidenham Tunnel, and will look to an eventual 2nd stage through to Sedbury and the centre of Chepstow.



Location Plan

- 1 The Greenway joins existing Forestry Track on Forestry Commission land at this point
- 2 The Greenway starts from the NDAC car park site and will be a considerable addition to the activities of the NDAC

2 The National Diving and Activity Centre (NDAC)

As well as providing some of the best inland scuba diving conditions in Europe, NDAC offer a range of outdoor activities including abseiling, the Wire Zip Slide, a Giant 3G Swing and drive in cinemas. NDAC is seeking to expand its provision of fit and active recreation by developing walking and cycling activities based upon the disused railway which runs past its Dayhouse Quarry Site. NDAC is the natural custodian of the old railway both on account of its proximity and of its experience in managing major works in the shape of the quarry, its rock faces and its water. NDAC is in the process of taking over all the section of railway route owned and leased by Railway Paths Limited in order to have a single consolidated project under its direction and management.

Greenways and Cyclerooutes Limited

NDAC is working with the support and technical advice of a local charity, Greenways and Cyclerooutes Limited. Their team has considerable experience of constructing paths of this type, including most recently the Waddesdon Greenway from Aylesbury Vale Parkway Station and the Brean Down Way from Weston-super-Mare.



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Waddesdon Greenway: constructed by Greenways, 2018



Brean Down Way: constructed by Greenways, 2017

3 Detailed plans and proposals

The following pages set out the arrangements and details of the proposed greenway with a series of maps, descriptive notes and sketches starting in the north and ending at NDAC

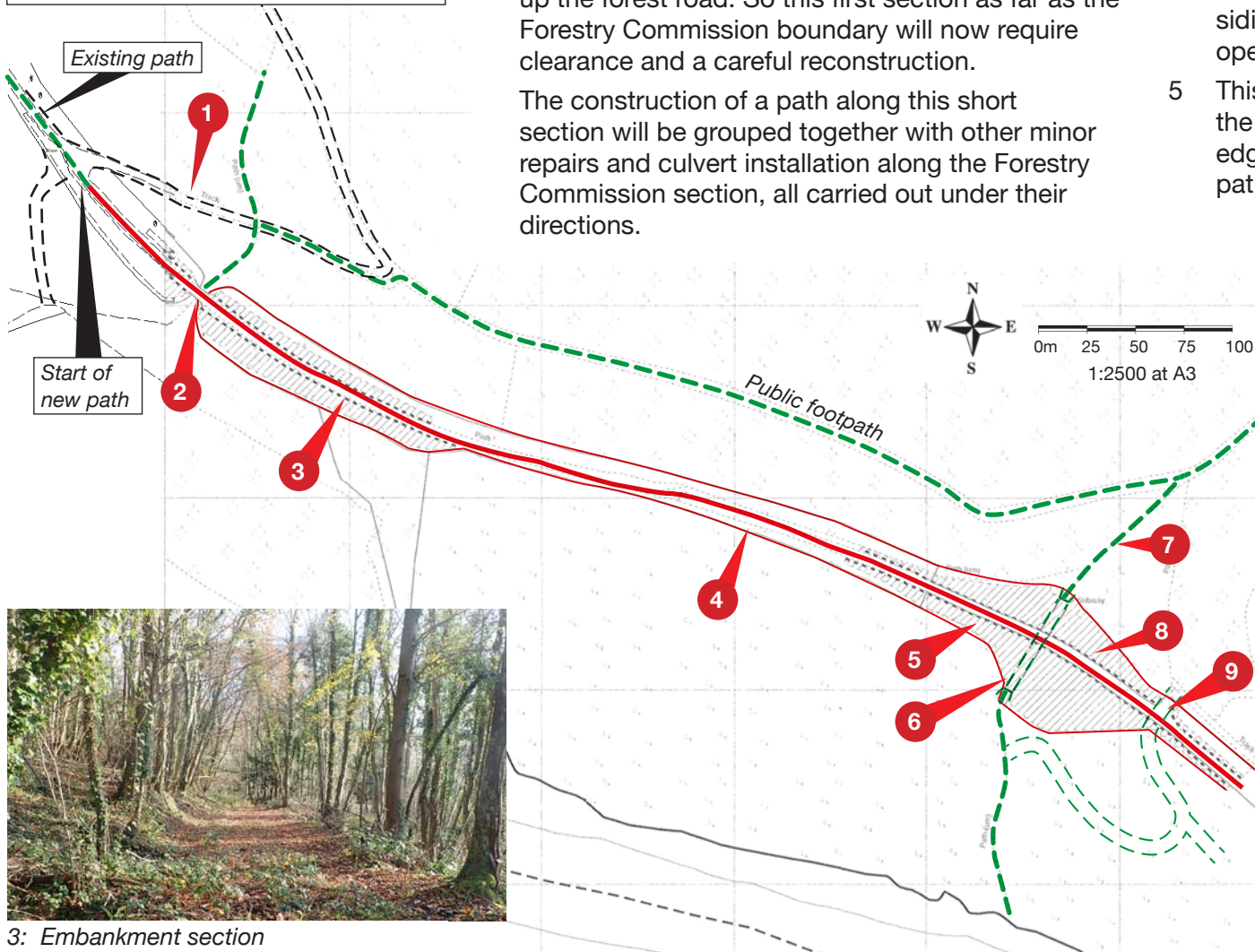
Wye Valley Greenway: Map 1

This covers the open woodland section from the end of the existing path on Forestry Commission Land to the Quarry Road.

- 1 The existing well defined path along the trackbed comes to an end at this forest road crossing. The next 120 metres are designated a public footpath but has been all but abandoned as the public walk up the forest road. So this first section as far as the Forestry Commission boundary will now require clearance and a careful reconstruction.

The construction of a path along this short section will be grouped together with other minor repairs and culvert installation along the Forestry Commission section, all carried out under their directions.

- 2 This accommodation bridge is now demolished. The public footpath leaves the railway formation here and climbs up the hillside. We will grade out the slopes and install a 600mm culvert here so as to make the route suitable for disabled access.
- 3 This is a delightful section with the railway running on a low embankment through open woodlands.
- 4 Allow for one seat on this stretch. This could usefully be located at the end of the Tintern Quarry siding and used to mark this phase of the railway's operations.
- 5 This high embankment affords good views out over the Wye. Maintain the trees along the embankment edge to provide a degree of security and run the path centrally along the crest of the embankment.

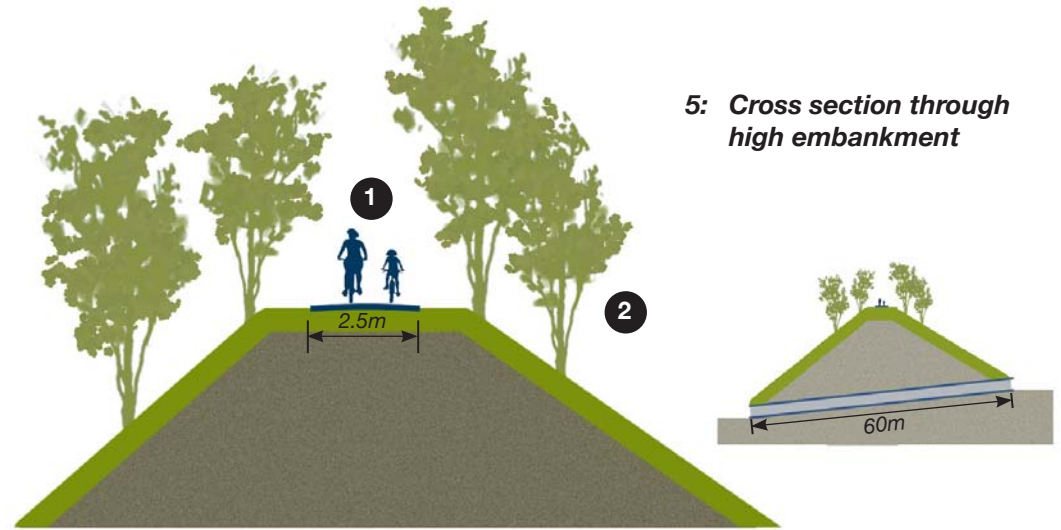
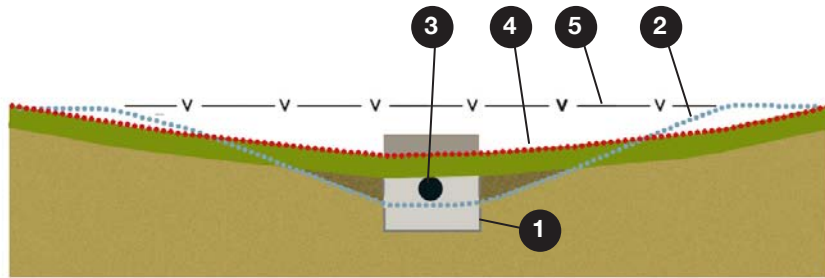


- 6 This 60 metre long subway carries both the public footpath and storm-water which runs over the coursed masonry invert. Small areas of the sidewalls need repairing at either portal (less than 1 sq. metre) and it would be useful to stone pitch the apron areas to prevent erosion.
- 7 This last 80m of footpath is a bit rough and could usefully be repaired up to the standard higher up the valley.
- 8 From here to the National Diving and Activity Centre the rail tracks remain. These will be removed, along with their sleepers prior to the path creation works starting.
- 9 Works access to Tintern Quarry could be used for the construction of this northern section of the path.



3: Embankment section

2: Missing Bridge



5: Cross section through high embankment

As well as carrying storm water this bridge probably gave access to Wall Weir below. The bridge was demolished some time after the railway closure and is now just a steep down and up. These slopes need to be eased to allow for wider use.

- 1 Approximate profile of original bridge.
- 2 Current steep ramps coming back to formation level.
- 3 600mm diameter culvert 6 metres long, finished with masonry headwalls.
- 4 New profile set to a 1:20 gradient, using material graded down from the railway embankment either side.
- 5 The finished path will be approximately 0.75 metre below the overall railway formation level.

- 1 Clear all trees along line of route and remove rail track and then position path centrally across embankment.
- 2 Maintain trees on the sides of the embankment and if necessary, or where there are inadequate trees, install fences.

Above: Thumbnail sketch showing the relationship between the path and the subway where the public footpath passes some 15m below the railway formation



View looking through 60m subway

Wye Valley Greenway: Map 2

This section runs past the former Tintern Quarry through to the Tunnel Portal.



- 1 Works access point from Tintern Quarry.
- 2 This section is wholly overgrown with saplings and should be cleared full width to show the extent of the railway sidings.
- 3 Location of ramp up to quarry and start of area where the Quarry loaded into wagons. The path should be set well to the riverside here and an interpretation panel showing historical photographs would be useful.
- 4 Select area for seat and information panel. Depending on the plans for the quarry area this would be a useful information point.
- 5 The construction of this rough access road has displaced a number of rocks which tumbled down the steep hillside to land on the railway track below. The area between the rough track and the top of the railway cutting will need to be carefully checked and any unstable rocks still lying on the slope dislodged or secured. The inspection will need to cover all the area hatched in green.
- 6 The railway now enters a 200m long ledge hewn out of the limestone cliffs. This very attractive section is part of the Lower Wye Gorge SSSI. The loose rocks lying on the floor of the formation will be cleared away and used to build up a replacement retaining wall across the landslip area. Suitable shaped ones will be retained as seats or sculpture. The path will be set on a line somewhat away from the cliff face provided there is an easy slope to the side of the formation.
Where there is a small retaining wall then the path will veer inwards.
- 7 The landslip area – 20m long. A narrow band of boulder clay breaks the cliff face here and the construction of the rough track higher up the hillside disturbed the drainage and caused a slip of surface material which has ended up as a pile of dead trees and soil on the railway track below. These will be carefully removed and a solid retaining wall constructed from the large blocks of stone available on site.
The original retaining wall here was probably similar to the walls found along the railway further to the north.
- 8 The path now picks up the second of the limestone rock terraces which runs all the way to Tidenham Tunnel, a distance of 160m. Here there are more rocks spilled from above and these will again be used to make the retaining structure at the slip area, and will be arranged as seats along the back of the path where they can also arrest any future debris.
This section also has two substantial retaining walls each constructed



7: Existing retaining walls



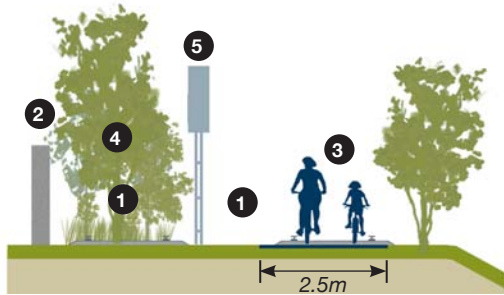
3: Quarry loading gantry next to railway

of masonry 2.5m thick. The fences along the top of these walls are in poor condition and need to be replaced with heavy duty sheep netting, 2 lines of heavy smooth fence wire all on new steel posts.

- Just to the north of the tunnel portal one gets the first view of the River Wye (after coming through the tunnel). This would be an excellent location for a seat.

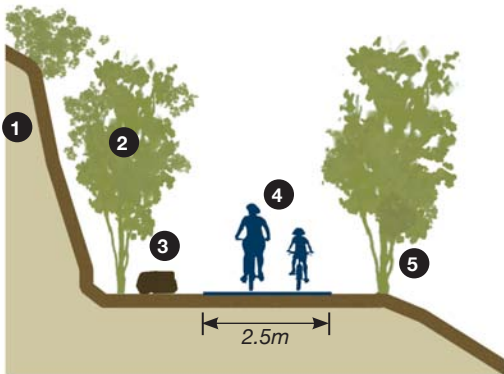
- The Tunnel Portal is in a generally good condition. The existing gates will be removed and replaced with works gates which can be locked at night. The details of these gates and other works to the tunnel are described in the section on Tidenham Tunnel. This runs for a distance of 1080m and emerges just to the north of Netherhope Lane Bridge.

Wye Valley Greenway: details on Map 2



3: Cross section opposite Tintern Quarry Loading area – looking south

- Position of loading siding and through line now removed.
- Remaining concrete retaining wall.
- Locate path 4-5 metres away from retaining wall.
- Leave 2.5m width of saplings and scrub to mask the quarry remains.
- Commission sculpture or quarry piece to call to mind the loading gantries in the area.

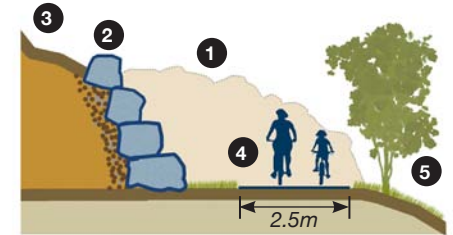


6: Cross section along the rock ledge sections looking southwards

- Check the hillside above the rock face for any loose rocks and make safe.
- Generally, clear the whole width of the ledge but keep some specimen trees provided that this does not obstruct the view of an open space with an interesting rock wall to one side.
- Clear fallen rocks away or use them to make seats and features.
- Make up path 2.5m wide generally on the line of the railway where this is convenient.
- Maintain all trees on this side towards the river for stability, and to provide a degree of security to the edge of the embankment.

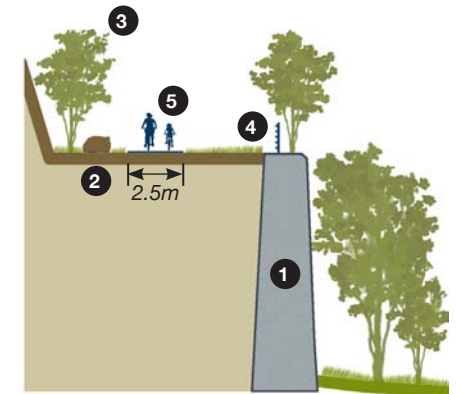
7: View through landslip area looking south

- Mass of fallen trees, soil and small rock blocking path for 15-20m.
- Excavate the fallen material in stages and support hillside with retaining wall of large rocks built up from those on site. Back these rocks with free draining material to enhance the stability of the slope behind.
- Trim up the slope and plant with alder and other well rooted trees.
- Make 2.5m path, generally running on line of the railway.
- Retain all trees on the verge and the downhill slope so as to enhance stability and provide security for path users.



8: View at retaining wall looking south

- Masonry retaining walls up to 10m high and 2.5m thick at base.
- Clear away any rocks on the ledge or use as seats or sculpture.
- Retain specimen trees provided that the trees do not obstruct a clear view along the rock ledge to the tunnel beyond.
- Erect new boundary fence set 1m in from face of wall. Fence to be steel posts 1.4m high strung with heavy duty sheep mesh and two lines of smooth wire with screwed tensioners.
- Leave trees on edge unless they are precarious or likely to do damage to the retaining wall, in which case fell and poison stumps

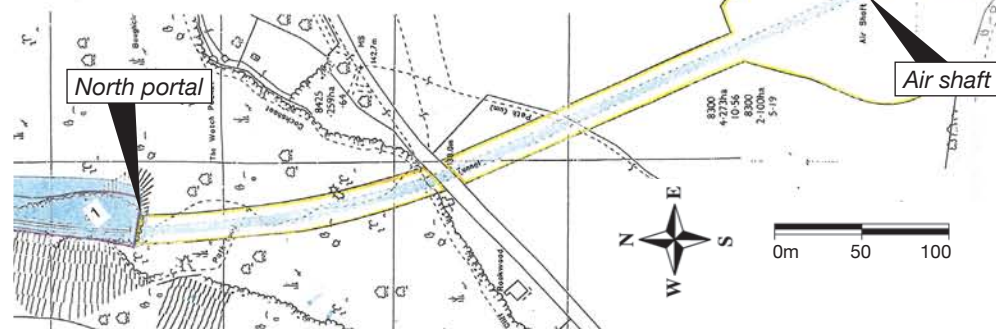


Wye Valley Greenway: Map 3 - Tidenham Tunnel 1080 metres long

Tidenham Tunnel is the centrepiece of the Wye Valley Greenway. It provides for a direct, almost level and traffic free route in an otherwise very hilly and daunting area.

The tunnel was last used by trains in 1981. Since then it has remained in generally a very good condition. It is lined for the majority of its distance through hard limestone rocks.

The rails and sleepers will be lifted in June/July 2019, and the track levelled and rolled, all at a time determined by bats' requirements. Some 10 of the side alcoves will be bricked up to near the top to make protected habitats for bats. Hydrock Consultants Limited have carried out a geophysical and engineering assessment of the whole tunnel. A summary of the works the project will carry out to repair and make the tunnel safe for public use is set out in section 5.

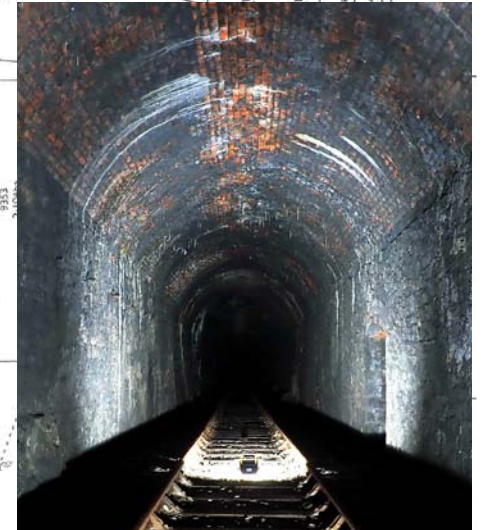
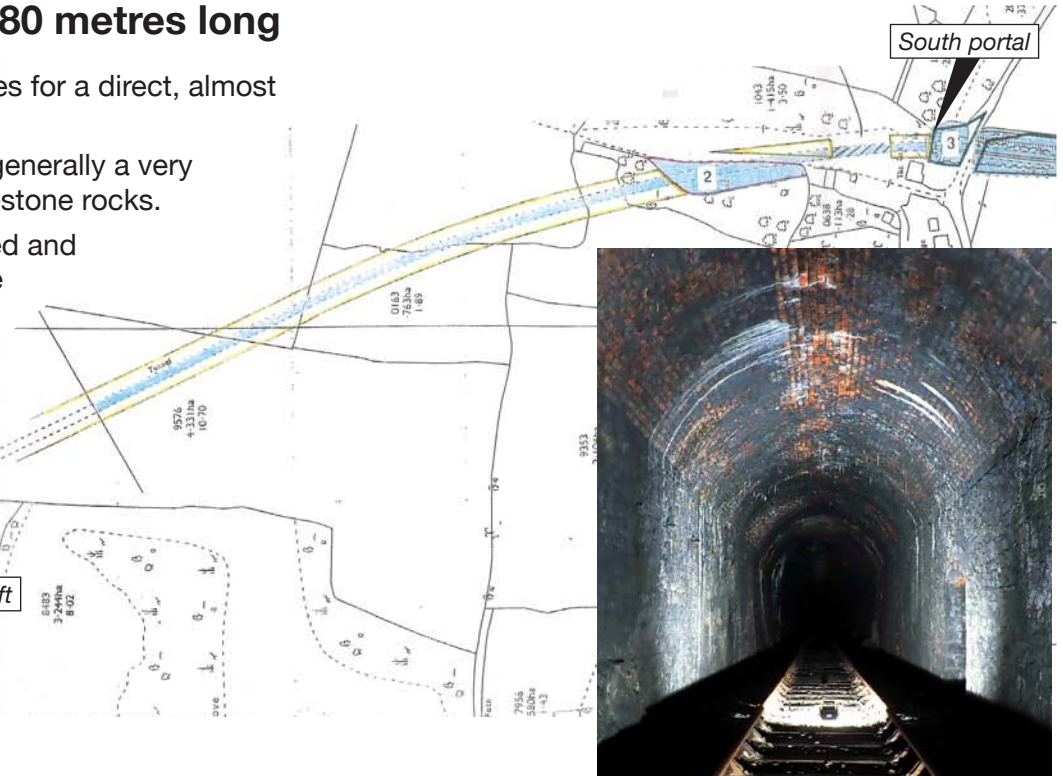


Considerations of the tunnel habitat for bats are set out in Appendix 2 and the project will adopt the recommendations in this Appendix.

Minor repairs will be carried out to the tunnel in September 2019 and at that time the first of regular annual inspection will be carried out by specialist engineers.

The tunnel will be gated with full works access gates set 15 metres in from each portal, and it is intended that these gates will be locked at dusk and reopened at dawn each day, with the exception of peak summer weekends. This will ensure that the tunnel is properly managed and its usage controlled.

Lighting will be white LED lights at 10 metre centres fixed to brackets 1.0m high down the east side of the tunnel. Power will be provided from the adjacent property at the south end, or in the longer run by solar panels above the air shaft. The lighting will be switched off from dusk to dawn.



View of lined section of tunnel with the track still in place

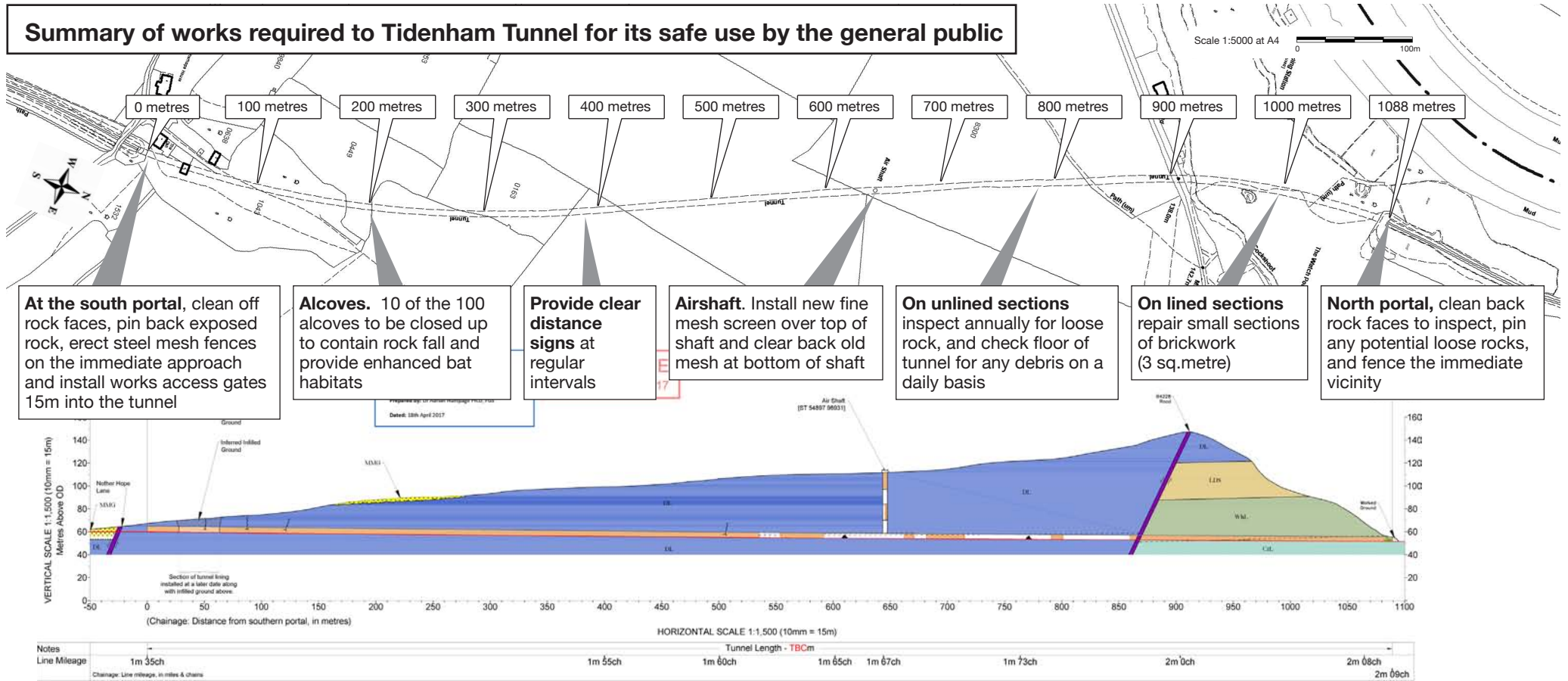
The only other significant feature of the tunnel is the air shaft. This 2.5m square shaft hewn through solid rock is finished off with a 3m high masonry tower. The grid on the top of this will be renewed in galvanised palisade type unit to support a fine mesh screen designed to stop stones and sticks being thrown down the shaft.

Management of the Tunnel

The tunnel will be inspected on a regular basis by the gatekeeper who will lock and unlock the gates each day. Any fragment of rock found on the path or floor of the tunnel will immediately be reported to the NDAC manager who will inspect the location and authorise the tunnel to be used by the public, or otherwise. If necessary NDAC will call upon Hydrock engineers to come over to check the tunnel out and if necessary make it safe.

In addition, all users, whether pedestrians or cyclists will be encouraged to carry torches, and to report back any concerns they may find.

Summary of works required to Tidenham Tunnel for its safe use by the general public



- Binding Margin -



Northern portal of Tunnel



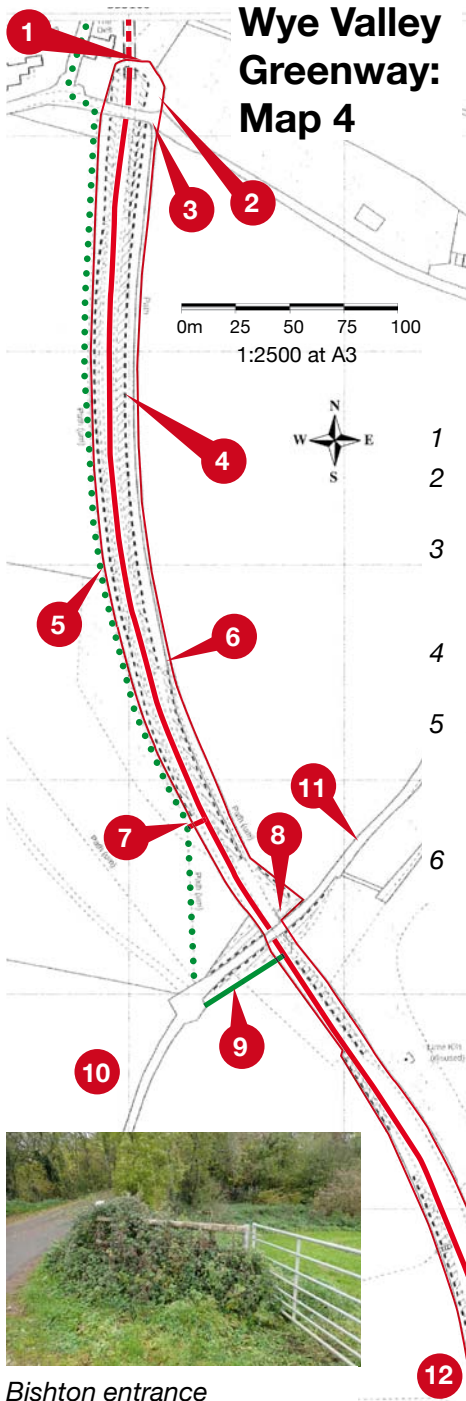
View of unlined section of tunnel



View of lined section of tunnel



Alcove in tunnel wall



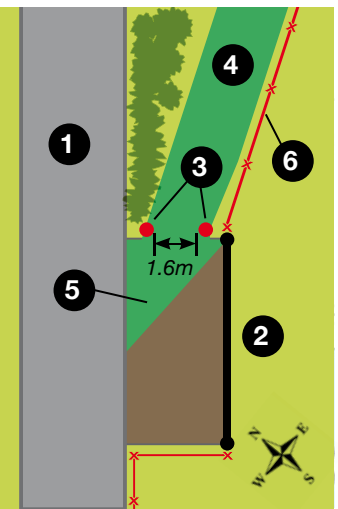
Wye Valley Greenway: Map 4



3: Netherhope Lane Bridge

Sketch of access plan to Bishton Lane (below)

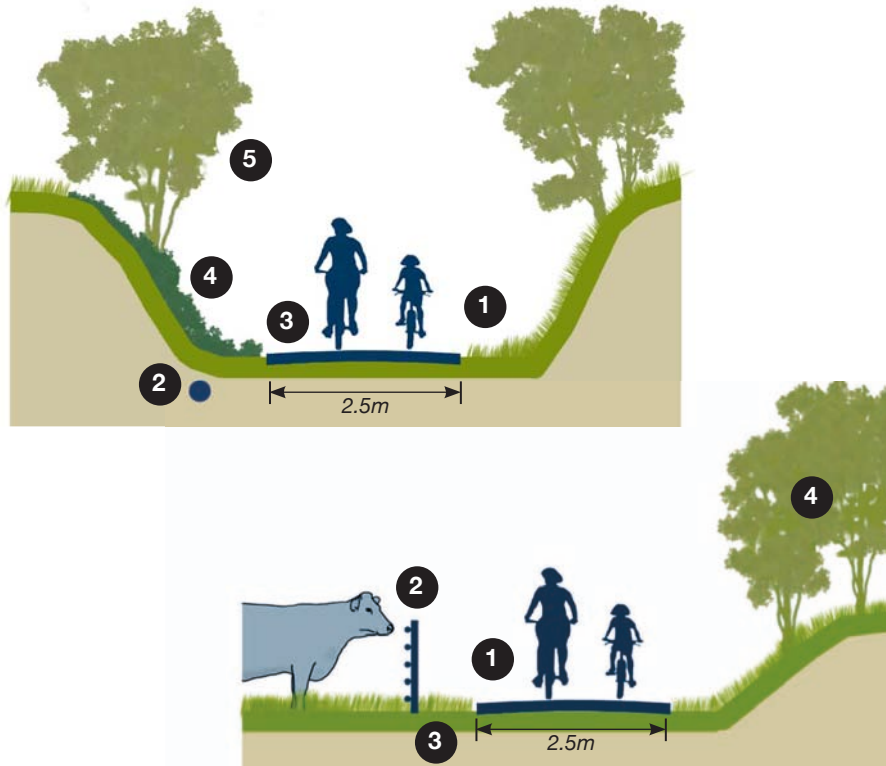
- 1 Bishton Lane
- 2 Existing field gate already set back from the road.
- 3 1.6m wide entry gap to start of link path. This width to be fixed by secure posts to prevent vehicular access.
- 4 Limestone dust finished path to the railway route 2m wide.
- 5 Area of tarmac to lead to the road surface. Do not tarmac whole farm gate entrance as this may encourage car parking.
- 6 New fencing.



This map covers the section from the south portal of Tidenham Tunnel to the Netherhope Lane bridge, including the planned link to the lane just south of the bridge. This section of the Greenway is paralleled by a good footpath running along the field edge on the west side of the line. It is proposed to connect this to the Greenway at a point well south of the Tunnel so as not to suggest any purpose in parking a car on the road near Netherhope House.

- 1 The south portal will be gated as described in the section on Tidenham Tunnel.
- 2 The approach cutting is compact and will be checked for any loose rock or dead wood before the path is opened to the public.
- 3 Netherhope Lane passes over the Greenway on a high arch.
- 4 Here the path runs in a shallow cutting. Most of the vegetation on the floor of the cutting needs removing in order to recover the rails and sleepers. This will let more light in. We will mark the location of the original Netherhope Halt, but will not reinstate the steps to that halt because we do not want to encourage access from Netherhope Lane on the account of the nuisance of car parking. If however local residents wanted it then we would work with them.
- 5 Field edge footpath runs into spoil heap from the cutting excavation.
- 6 The end of the former quarry siding came to here in the wider double track width.
- 7 Make a link for public path at the point where the path is level with the track. Provide information board showing alternative walking route if a person does not wish to use the tunnel. Divert the remaining section of the footpath onto the railway to rejoin the lane south of the bridge if this would assist the landowner. This access will also take works vehicles during path restoration, delivering stone dust and other materials.
- 8 Bishton Lane Bridge. The props on this bridge are scheduled for refurbishment and painting to a scheme shown in the sketch. The path will pass through on the west side.
- 9 An almost level access link can be made as shown. This link will be fenced off from the adjacent field and joins the highway at the existing set back gate entrance. At the Greenway end of the path a notice will map out the alternative route for cyclists should they not wish to use the tunnel.
- 10 Road link to Chepstow in this place.
- 11 Option for on road route avoiding Tidenham Tunnel in case of its closure.
- 12 Path continues along railway.

Wye Valley Greenway: Details from Map 4



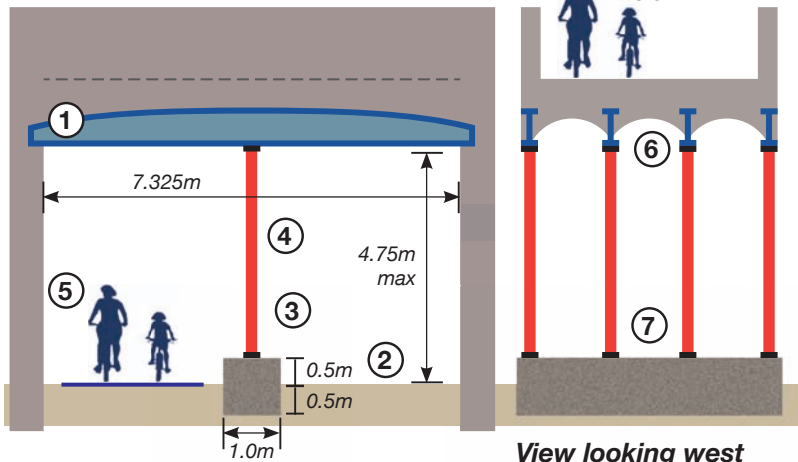
4: View of cutting south of tunnel, looking south

- 1 Clear the floor of the tunnel from side to side in order that the drainage can be repaired and the path built.
- 2 Investigate drainage. Clean out and repair so as to ensure that the path remains dry at all time
- 3 Clear 2.5m width of ballast of all vegetation once the railway sleepers are removed. Grade through the ballast and reshape with a central camber, and thoroughly compact with a vibrating roller. Add 50mm of stone if necessary to even off ballast and then finish off with 20mm thick layer of 3mm-dust limestone, and compact.
- 4 Leave ivy ground cover or sow with woodland mix seed.
- 5 Maintain trees by checking annually for specimens in poor condition and trim or fell as necessary.

9: Bishton Lane access link

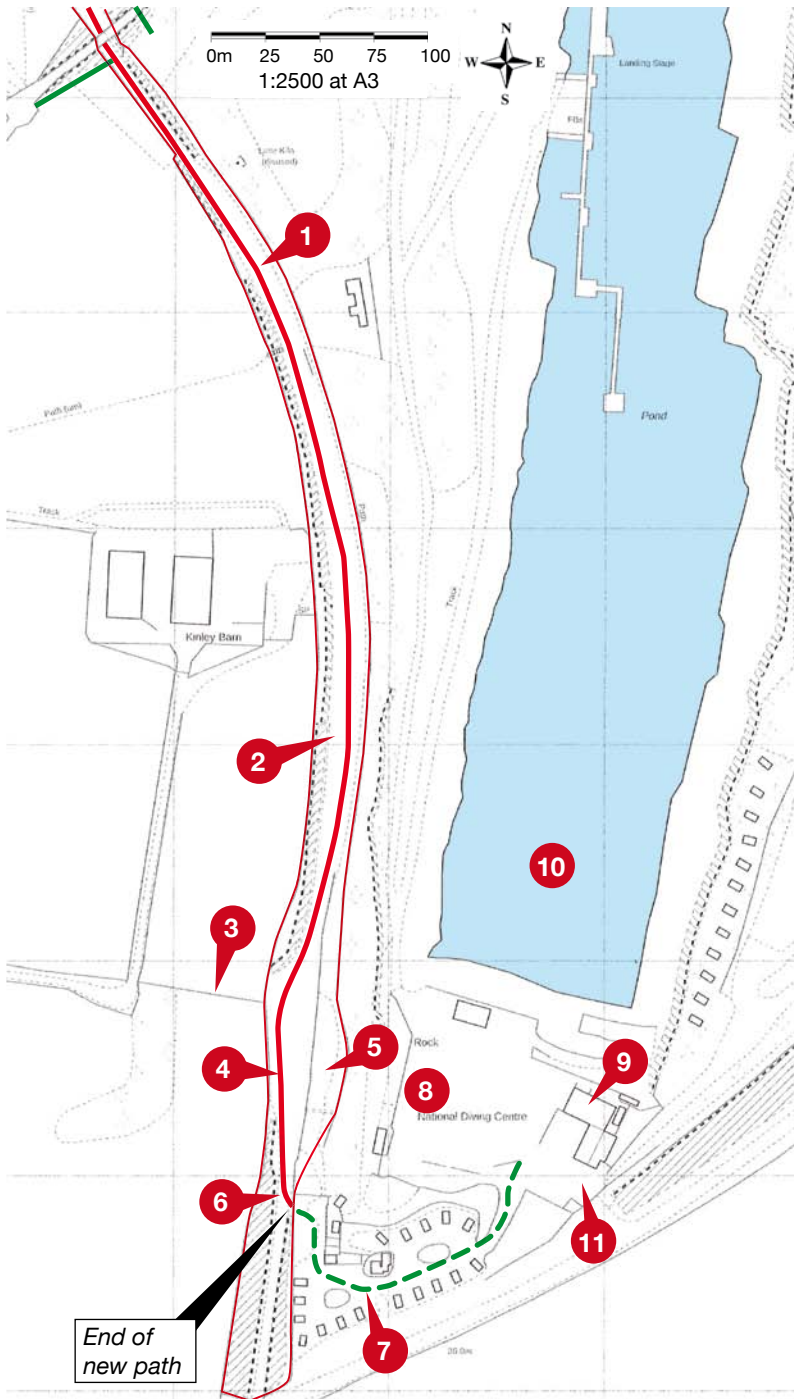
- 1 Even out the ground which slopes slightly down towards the railway. Aim to achieve an even gradient from the road to the main greenway route. Clean away vegetation, layer polypropylene filter fabric and top with 200mm thick layer of used ballast from the line. Compact and finish with limestone dust.
- 2 Erect new field fence, 1m off the edge of the path, Use 7 strand sheep netting topped with barbed wire as necessary.
- 3 Build shoulder up to support edge of path and create smooth verge and sow with wild grass seeds.
- 4 Maintain bank of trees along the bank of the lane for strength and stability.

View looking north



8: Bishton Lane Bridge showing proposed propping

- 1 Existing cast iron beams (4 no).
- 2 Close road to traffic whilst works in hand. Remove all existing lattice steel props and level site.
- 3 Cast concrete ground beam, 1m x 1m x 4.5m long.
- 4 Steel props, 200 x 200 RHS or similar RSJ. The exact length to be determined by the contractor's method of jacking into place.
- 5 Path to run through on west side.
- 6 Top of steel props be capped off with welded steel plate 300 x 300 and a 15mm elastomer bearing pad inserted between cast iron beam and top of column to spread the load.
- 7 The jacking system to allow for the columns to be positioned and then raised firmly up to make a tight fit, but not over jacked. Grout base when columns in place.



Wye Valley Greenway: Map 5

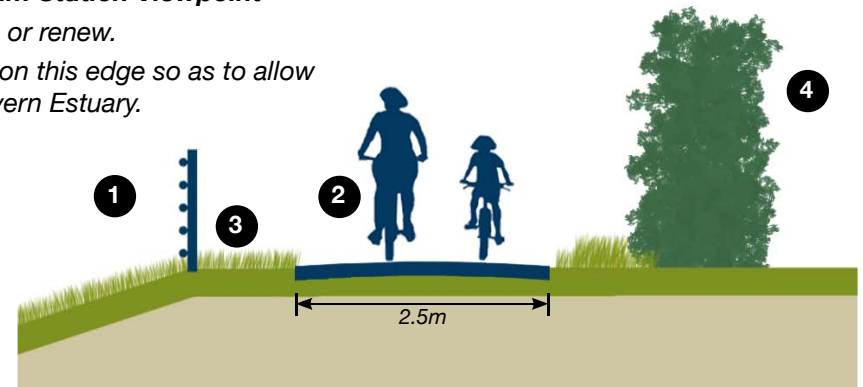
Dayhouse Quarry Sidings

This map covers the southern section of the Greenway through to the National Diving and Activity Centre, its car parks and access from the main road.

- 1 Path runs down the west side of this cutting where the ballast base is a little higher.
- 2 This wider area will be used for storing rails and sleepers prior to their being taken off site to the Forest of Dean Railway and elsewhere.
- 3 Connect with the existing public footpath.
- 4 The path is to move right across to the western boundary so as to get view across the adjacent fields. Then once the path moves onto the old railway embankment we get the first view of the Severn Estuary and here would be a good site for a seat.

4: Section at Tidenham Station Viewpoint

- 1 Repair boundary fence or renew.
- 2 Locate path right over on this edge so as to allow users a view of the Severn Estuary.
- 3 Build up smooth verge to support edge of path.
- 4 Plant dense hedge against station platform area to shield the path from the quarry area.



- 5 Station platform and loading area to be left clear.
- 6 Ramp down at 1:20 to the end of the existing play area and join the existing distribution road. This link avoids the current steep climb up to the station platform.
- 7 Follow existing road past the toilets which are available for the public and the existing camping huts.
- 8 NDAC car park will be available for path users.
- 9 Existing café and washrooms.
- 10 Dayhouse Quarry with public attractions such as the zip wire ride and outdoor cinemas.
- 11 Access to the main road for driving to Chepstow and destinations beyond, as well as Lydney and Gloucester.

4 Design and Access Statement

The Wye Valley Greenway proposes to make a recreational path for walkers and cyclists similar in standard to paths nearby in the Forest of Dean. The path will comprise the remaining railway ballast smoothed out, compacted and finished with limestone dust all laid to a good camber.

4.1 Detailed path sections

Particular care will be taken along the SSSI section between the north portal of the tunnel and the old sidings adjacent to Tintern Quarry. Here the railway sleepers will be left in place over selected lengths in order to cause the minimum of disturbance to existing plants, including particularly *Carex digitata* (fingered sedge). The sequence of work is shown in the cross sections here.

A Current position with track in place

- 1 Existing track and railway sleepers
- 2 Fingered sedge and other species seem to favour this side with its somewhat lighter shade.
- 3 Small saplings to be removed over the whole width of the railway formation from the hillside to the slope down to the river.

B Arrangement during the works

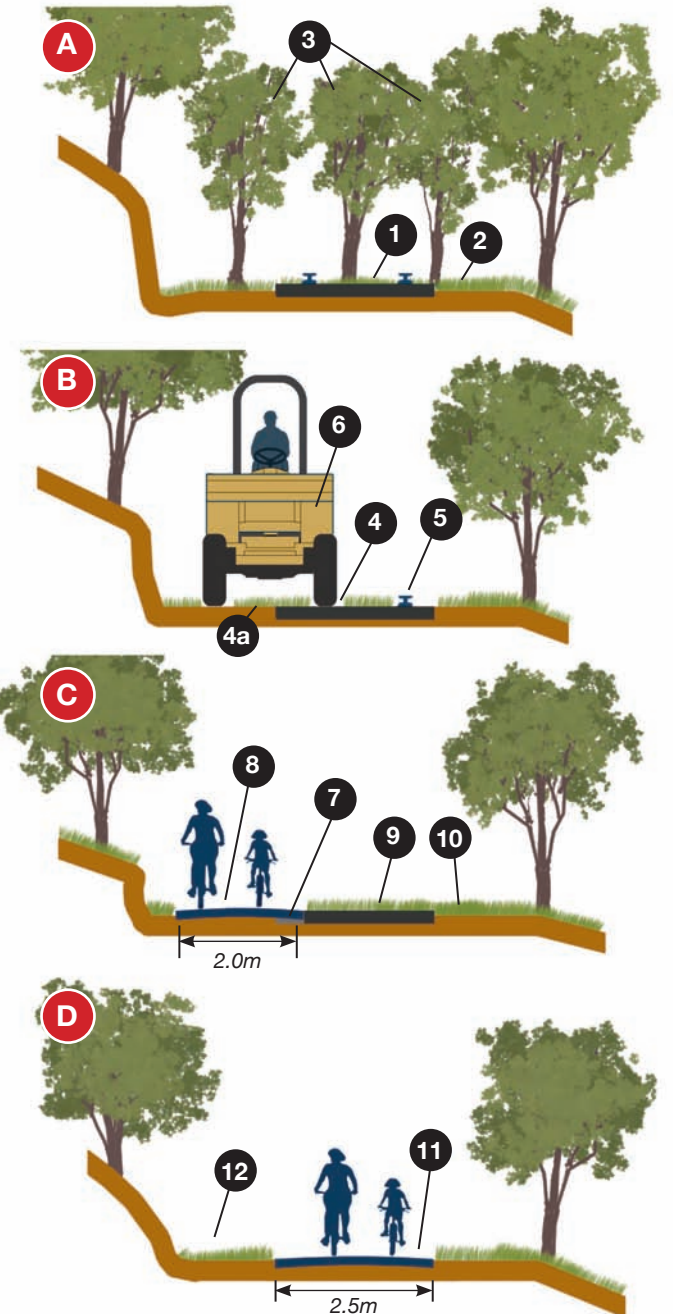
- 4 The nearside rail and cast-iron chair will be removed leaving the sleeper in place
- 4a Any plants identified by the project ecologist which would be damaged by the construction will be removed to a separate location at this stage.
- 5 The far side rail will be left to define the extent of the works area and to ensure that dumpers and other equipment cannot stray and damage plants.
- 6 Construction equipment will be moved along this corridor. Note that in a number of places there is a greater width and the plant will not be running over the ends of the railway sleepers at all.

C Finished path through SSSI

- 7 Cut off end of sleeper if rotten or damaged.
- 8 Clean off ground of vegetation, compact the railway stone, lay layer of clean stone 50mm thick, compact to camber and finished off with limestone dust 20mm thick.
- 9 Remainder of sleeper remains intact after removing the far side rail and chairs at the end of all construction work.
- 10 Maintain all vegetation undisturbed.

D Finished path outside sensitive areas

- 11 Remove timber sleepers, level railway stone, true up with 50mm thick stone, compact and finish with limestone dust 20mm thick laid to a camber.
- 12 Maintain the whole width of the formation free of trees and shrubs so as to allow grass flora to prosper. Through Tidenham Tunnel it may be found that the tunnel is too dry for these materials to wholly bind in which case a sealed surface could be added at a later date. The Wye Valley Greenway will not be open to equestrians as the Tidenham Tunnel makes shared use inadvisable.



Access

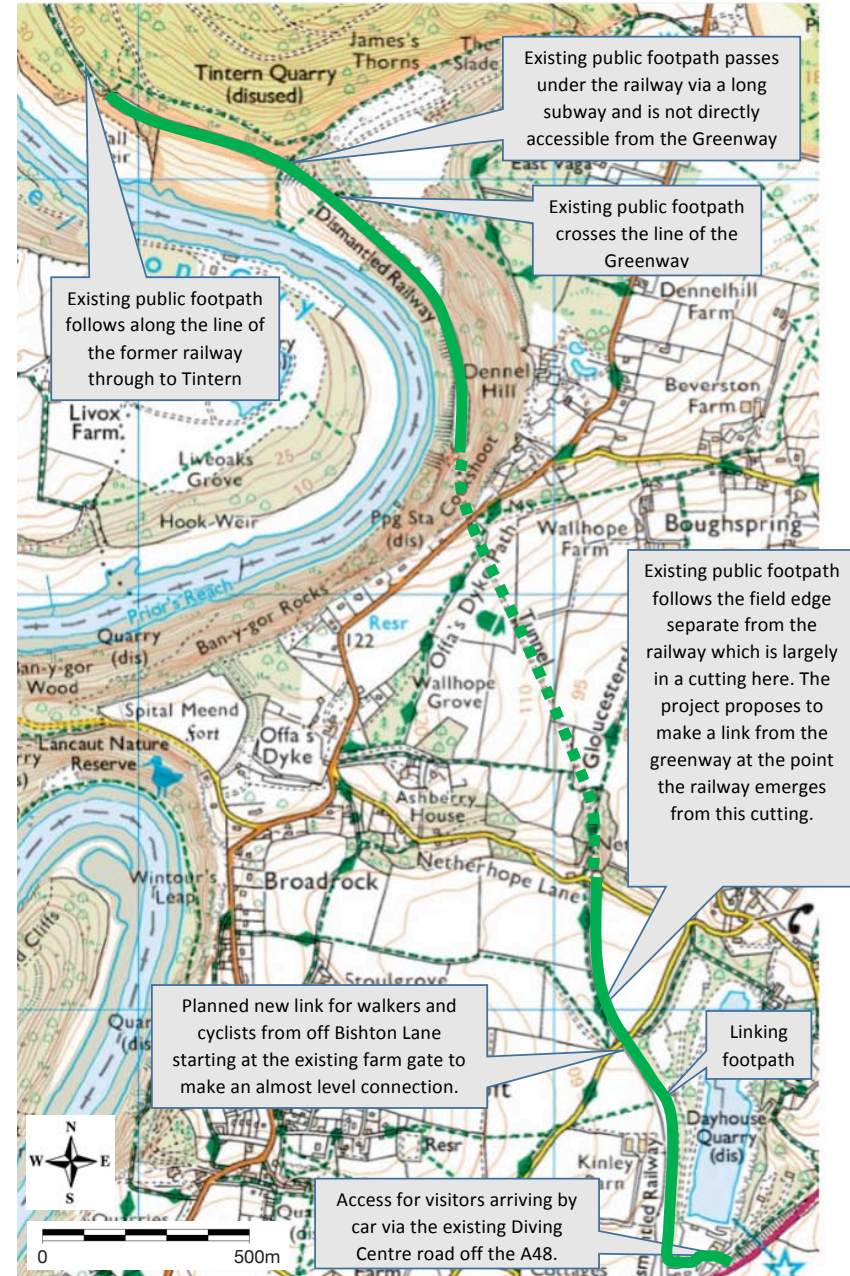
The map shows the relationship of the proposed Greenway and existing roads and public rights of way. The only advertised connection with the public highway will be at Dayhouse Quarry NDAC where the public may park. There is only one new link to the public road network – at Bishton Lane for walkers and cyclists only. The Greenway connects with a number of existing public footpaths, most significantly with the railway path owned by the Forestry Commission which leads through to Tintern Abbey.

Construction Access

This project requires little by way of plant and material. Most of this will travel along the line of the railway from NDAC (Dayhouse Quarry). A small proportion of the activity could be via the Tintern Quarry access road.

Other technical matters

The remaining details covering tunnel details, ecology, transport and landscape issues etc. are covered in the different chapters of this application.



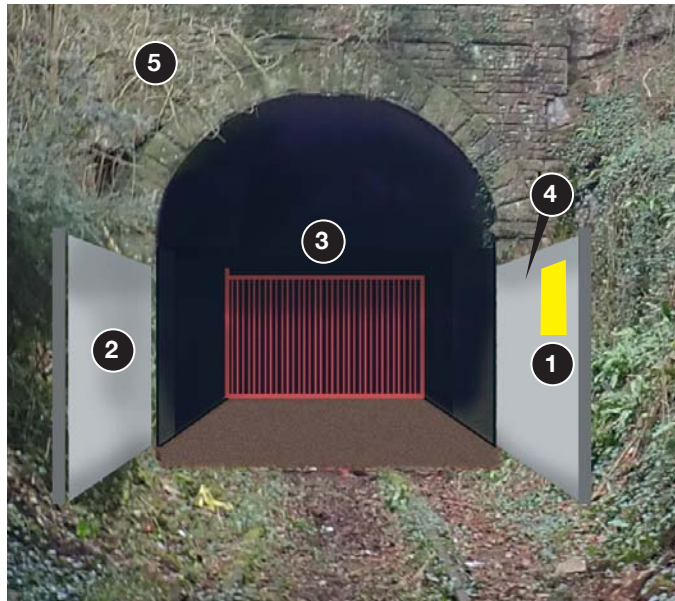
Map of access points

5 Works at Tidenham Tunnel

The specialised Geotechnical Assessment Report carried out by Hydrock Consultants identified a number of actions to be carried out.

1 Tunnel Portal

The rock faces in the immediate vicinity of the portals are to be cleaned back, loose rocks removed, potential loose rocks bolted into place, and the path fenced at ground level to prevent the public scrambling up the rock face and potentially destabilising the rocks.



Sketch showing fences to be installed adjacent to tunnel portals

- 1 Clear notice advising the public of the possibility of falling rocks
- 2 New steel mesh fences in secure steel posts for first 3m from portal to prevent the public scrambling up the rocks in this area.
- 3 Set new gates suitable for works access 10 -15 metre setback from the tunnel portal.
- 4 Pin back projecting slabs of rock
- 5 Clear face of vegetation and remove any loose rocks

- 2 **Warning notices** at each end of the tunnel to state that there is the possibility of falling rocks at each entrance and at unlined sections of the tunnel. The risk of this is extremely low but the public need to be vigilant of fragments which might lie on the path.

3 Gates

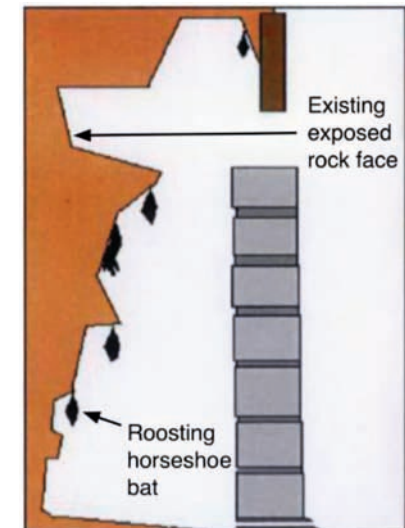
The tunnel will be gated at each end and these will be locked at dusk each day and then reopened at 8.00am or similar the next. This will have the effect of further reducing any exposure to risk, of controlling unwanted events, and minimising disturbance to bats.



View of typical gates to be set 15m in from the portal so as to minimise disturbance to the visual aspect of the tunnel portals

4 Alcoves

There are 100 alcoves along the length of the tunnel and the consultants have recommended walling some off to prevent loose rock falling on the path. The arrangement will double up as creating more favourable conditions for hibernating bats. A total of 10 alcoves will be walled up combining those the engineers would most like to see and the ones the ecologist considers most favoured by bats.



Cross section through wall

5 Works at Tidenham Tunnel: continued

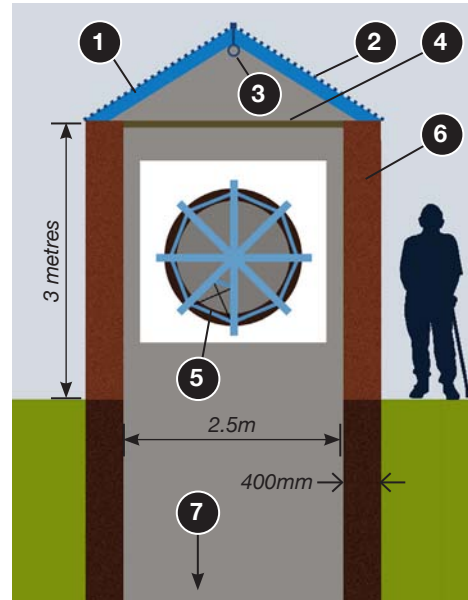
5 Airshaft

A new grid will be installed at the top of the airshaft designed with a conical aspect in order that debris and missiles currently thrown down the tunnel are stopped, and will tend to roll off the mesh onto the ground.

In addition, the rudimentary grid at the bottom of the airshaft will be repaired to catch any rock which might come from out of the shaft, although this is considered sound.



View of airshaft showing debris on floor



Cross section and half scale plan showing new grid to top of airshaft

- | | |
|--|--|
| <ol style="list-style-type: none"> 1 Prefabricate steel frame and galvanise for maximum protection. 2 Fix 15mm grid heavy duty galvanised mesh panels to each of 8 facets. Provide for a works inspection entry at one panel. 3 Provide secure rope attachments at apex of frame so as to facilitate future inspections of the shaft. 4 Remove existing mesh and loose bars but leave any securely fixed beams in place. | <ol style="list-style-type: none"> 5 Allow for one removable panel for access. 6 Existing masonry walls to 3m high airshaft tower. 7 At bottom of shaft remove all loose material from existing gridwork of bars. Leave sound bars in place and add mesh panels above these to catch any small debris which comes through the top mesh. |
|--|--|

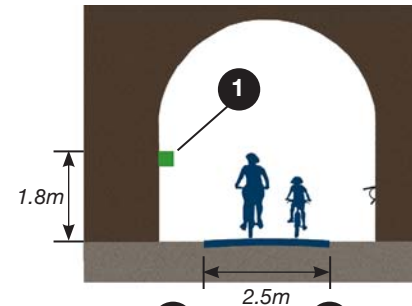
6 Repairs to the lined sections of the tunnel

There are 2 or 3 small sections of brickwork near the northern end of the tunnel, each less than 1 metre square, which need rebuilding and repairing. This will be done in matching brickwork and mortar.

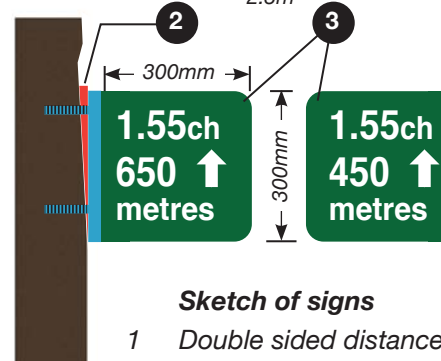
7 Chainage/Distance Notices

At present the distance along the tunnel is shown by a series of plates, one at each chain as measured from the junction of the mainline railway. Whilst this is of historical interest this is not as convenient as the actual meterage from the south portal. The chainage plates will be reprinted with this additional distance to the furthest portal. These plates will be double sided and mounted square to the wall of the tunnel so that they are clearly visible whichever way one is travelling.

In addition, small plates will be mounted adjacent to each alcove so as to permanently mark them W (West) and E (East) numerically from the south portal.



The purpose of these notices is to provide a clear indication of how far it is to the exit of the tunnel, and to provide a reference for reporting and records. The notices will project from the wall of the tunnel, will be double sided to read in either direction and will be printed with high reflectivity materials.



The notices will show the railway chainage (measured from the start of the line for historical reference) and the distance in metres to the tunnel exit ahead.

Sketch of signs

- 1 Double sided distance markers bolted to side wall at 1 chain (22yds 20metre) intervals
- 2 Shim or pack out to ensure that the notice is square to line of path
- 3 Round off exposed corners

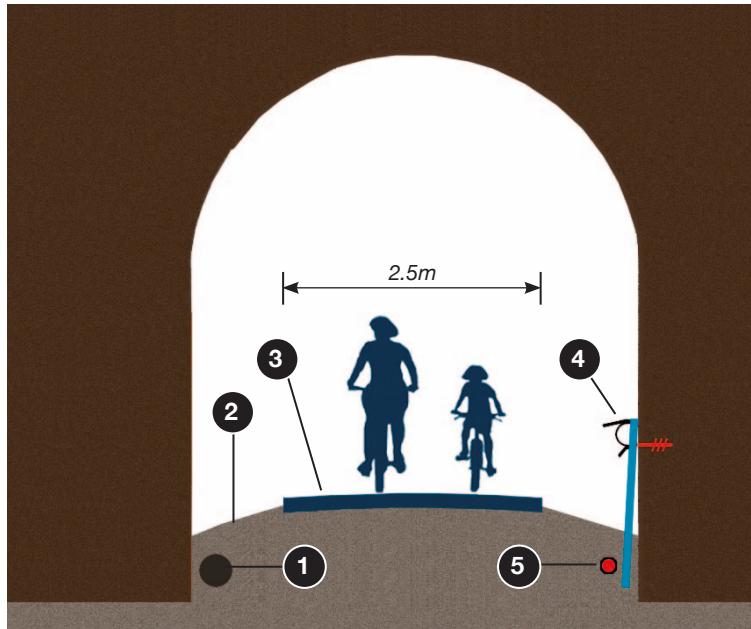
8 Inspections

The floor of the tunnel will be inspected daily by the NDAC staff member who opens up the gates each morning. Any rockfall, however small will be reported to the NDAC office, photographed and logged by chainage. If the rock is significant, then this will be reported to the project engineer who will decide what action, if any, needs to be taken.

NDAC will arrange for an engineering inspection at least once every 2 years, in June on account of bats, to check for loose or potentially loose rock which will be dealt with on the spot.

9 Path surface

Once the track and sleepers are removed, then the ballast will be graded up to give a central camber. If necessary a small amount of additional material will be brought in to level low spots, and the whole blinded off with limestone dust to seal the surface. Note that this tunnel is very dry and no evidence of railway drains has been found.



Cross section details showing path through Tidenham Tunnel

- 1 Excavate to see if there is any railway drainage (there may be none). If this is found, clean out throughout the length of the tunnel which is mostly falling at 1:100 towards the north.
- 2 Following the removal of the track rails and sleepers, reshape the ballast to create a good central camber, compact and roll level.
- 3 Dust off the central 2.5m width with thin layer of limestone dust to even out surface.
- 4 Lighting units on steel columns at 10 metre centres.
- 5 Armoured supply cable buried along the wall of the tunnel and wired up to lighting units at intervals.

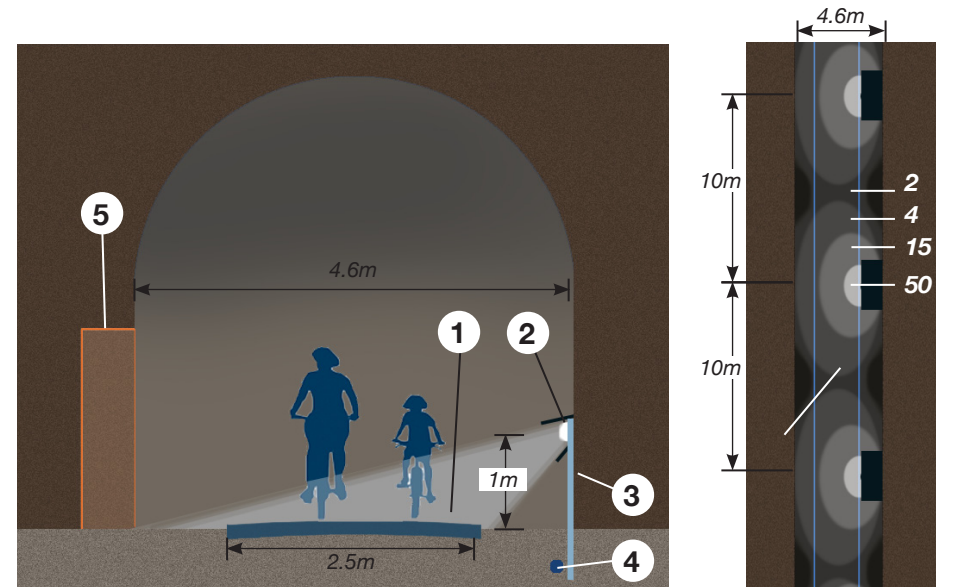
Tunnel Lighting

The section through the tunnel will have low level lighting designed to provide sufficient personal security whilst still maintaining a memorable atmosphere as well as catering for bats. This will comprise 300 lumen LED lighting units positioned at 10m intervals down one side of the tunnel. The lights will be fitted to robust steel brackets set 1m above the floor of the tunnel. The effect of this arrangement is shown in the test photograph and will ensure that one side of the tunnel and the crown of the tunnel is in darkness to suit the recommendations of the bat specialist. The initial supply will be from the mains at the south end of the tunnel but we anticipate that in due course the system will be supplied by solar panels situated at the head of the single air shaft.

Each light fitting will be shrouded to limit the light to cover the area shown in the sketch. The lighting will be controlled by timers. At present the specialists consider that it may be best to leave the lights on 24 hours a day through winter months (even when the tunnel is closed), in order that bats are used to a constant condition, whilst in the summer it will be best to only run the lights from dawn to dusk. Emergency lighting will be provided at 100 metre centres sufficient to guide the public through the tunnel if need be. Notices at the entry of the tunnel at each end will advise of the low level of lighting and the reasons for this, and recommend that cyclists and pedestrians have access to their own torches.



Picture showing lighting test in Tidenham Tunnel



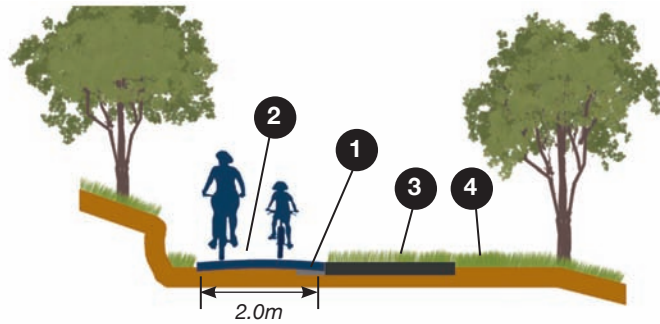
Schematic arrangement of tunnel lighting: shrouded 300 lumen lights set 1m above ground level at 10 metre centres

Plan showing illumination levels (lux) on floor of tunnel

- 1 Once the track and sleepers are removed the remaining ballast will be levelled and shaped to give a central camber 50mm high. This will be compacted solid, and finished with 10mm thick limestone dust.
- 2 One 300 lumen unit (2 watt) LED waterproofed unit set every 10 metres. Each light will be fitted with a shroud to ensure that the illumination is confined to the area shown. At 100 metre intervals emergency lighting will be installed.
- 3 Each light will be fixed to a galvanised stand driven into the floor of the tunnel and bolted to its wall. This stand will also hold the supply cable to the light.
- 4 Supply cable.
- 5 Alcoves. As far as possible the lights will not be positioned opposite any alcoves, unless these are ones blocked off as required by the bat mitigation strategy.

6 Ecology

The detailed studies are found in Appendix 1. We will be following its recommendations set out by our Ecological consultant. In particular the path will be arranged to run alongside the railway sleepers over the sensitive sections through the SSSI north of the tunnel as far as Tintern Quarry. This will minimise the disturbance to significant plant communities

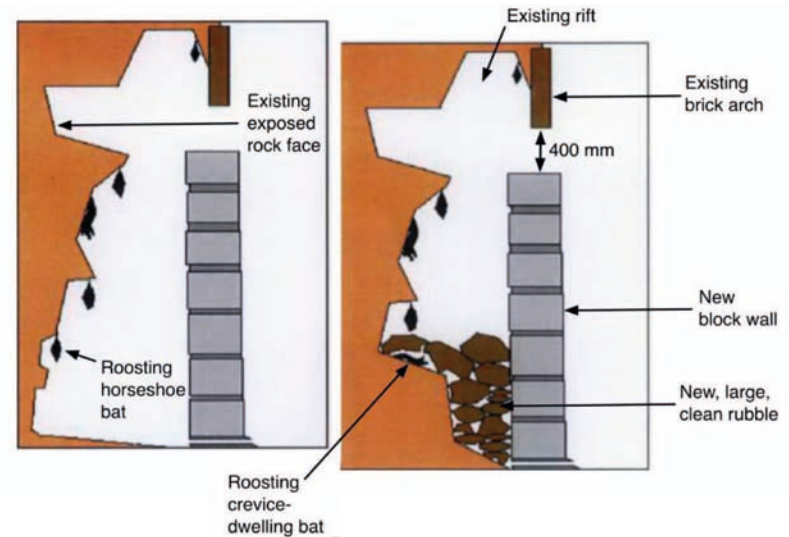


Typical section of finished path through SSSI

- 1 Cut off end of sleeper if rotten or damaged.
- 2 Clean off ground of vegetation, compact the railway stone, lay layer of clean stone 50mm thick, compact to camber and finished off with limestone dust 20mm thick.
- 3 Remainder of sleeper remains intact after removing the far side rail and chairs at the end of all construction work.
- 4 Maintain all vegetation undisturbed.

7 Bats

Tidenham Tunnel has been exhaustively studied for the effect of path works on bats in the area. The Project will be following the recommendations of our Bat specialist as set out in Appendix 2. In particular a number of side alcoves will be blocked up to near their crown to provide more secluded habitats for bats, and the levels of lighting will be kept extremely low compatible with the safe use of the tunnel by the public.



Indicative sketch through blocked up alcove (Clarke Webb Ecology Ltd)

8 Transport Issues

Compared with the 2010 Connect2 application this NDAC scheme is entirely different in nature and intent. At that time the promoters considered visitor arrivals by car at a number of locations along the whole corridor, including at Tintern itself.

At that time the resources and car park at the National Diving and Activity Centre were not available.

By contrast the current scheme envisages that the only access to the Wye Valley Greenway with car parking will be at NDAC, where bike hire will be available.

Usage of the Wye Valley Greenway

The Wye Valley Greenway will be used in a number of ways as follows;

- Existing walkers using the Forestry Commission railway path who originate from Tintern and possibly from parking up on the Coleford Road, or in seasons from Beech Farm campsite.
- Long distance walkers who divert to follow the Greenway through the Tidenham Tunnel so as to avoid the present Offa's Dyke Path section which follows the Coleford Road. This is shown in map 7.1.
- NDAC visitors who walk along the Greenway, possibly only as far as Tidenham Tunnel or through it to the Tintern Quarry area.
- NDAC visitors who bring their own bikes, or hire bikes to cycle the 6km route to Tintern and back, 12kms in total. This journey could be developed as the way to reach Tintern Abbey without a car. The A48 past NDAC provides for a car route which avoids the whole of the ANOB and this project has the potential to reduce the pressure on that sensitive area
- Some people may use the Greenway as part of longer cycling journeys to the Forest of Dean, or to the Usk Valley, or even northwards along mainly level main road towards Llandoger.
- Campers at Beech Farm site will find this a useful resource. They can already walk down the hillside to Tintern, but now they have the potential of cycling, and of cycling through to the activities at the NDAC.
- Families of NDAC participants. The nature of some of the specialist facilities at the Diving Centre are not suitable for families. The Greenway will be a most attractive activity to fill the time whilst a parent is diving, so we see the development of guided family trips of some interest.
- Walkers and cyclists who wish to avoid Tidenham Tunnel either because they don't like the idea of a 1.1km tunnel or because the tunnel is closed at night, or in emergency, will be offered alternative routes via existing paths or minor roads. These will be signed as routes to the Wye Greenway, although they are so hilly and tortuous that they are all but unusable in practice.
- Public transport to the area is not particularly good. There is a two hourly train service to Chepstow Station, and an hourly bus service from Bristol and Newport, as well as a few local bus services. A small number of visitors, and local residents will cycle up from Chepstow to reach the Greenway via Bishton Lane.

The net result of all these different types of trips would be an increase in the numbers of cyclists visible at Tintern and on some local roads, a small increase in traffic on the A48, and a possible small decline in visitors to Tintern arriving there by car.



- 1 The current NDAC application is confined to old railway from the south of Forestry Commission land to A48
- 2 Linking route for cyclists from Chepstow
- 3 Linking route along Forestry Commission track
- 4 Sustrans 2010 application extended southwards to Sedbury
- 5 Sustrans 2010 application extended to Tintern Station via a planned new bridge over the Wye

- 2010 Sustrans scheme
- Current NDAC and Greenways project
- Existing Forestry Commission railway path to Wireworks Bridge

7.1 Map comparing earlier proposals with current submission for the Wye Valley Greenway.



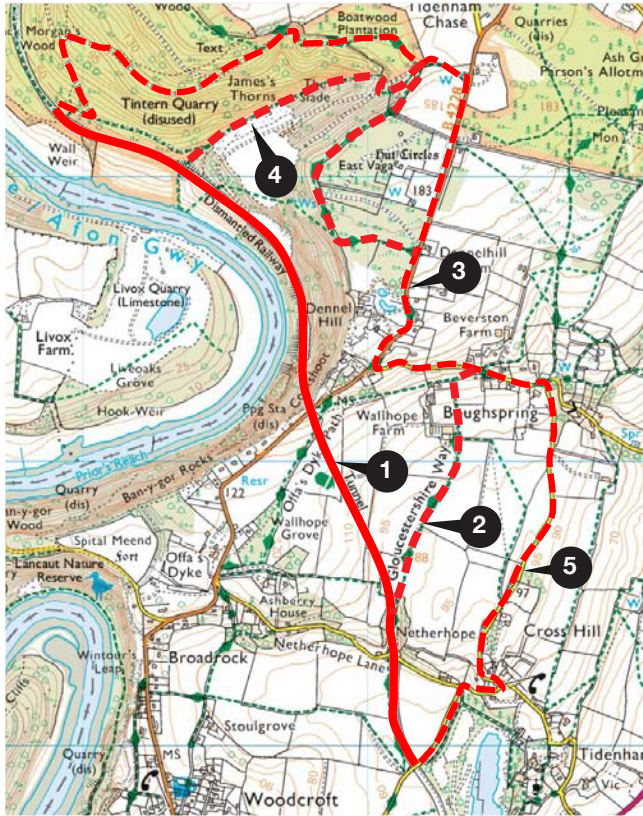
7.1 Map showing a possible diversion of Offa's Dyke Path to follow through Tidenham Tunnel

- 1 Offa's Dyke Path
- 2 700m long section of official path runs along Coleford Road which could be bypassed via Tidenham Tunnel
- 3 Link in footpaths to Greenway
- 4 Follow through Tidenham Tunnel
- 5 Current walk to Offa's Dyke path via existing Forestry Footpath



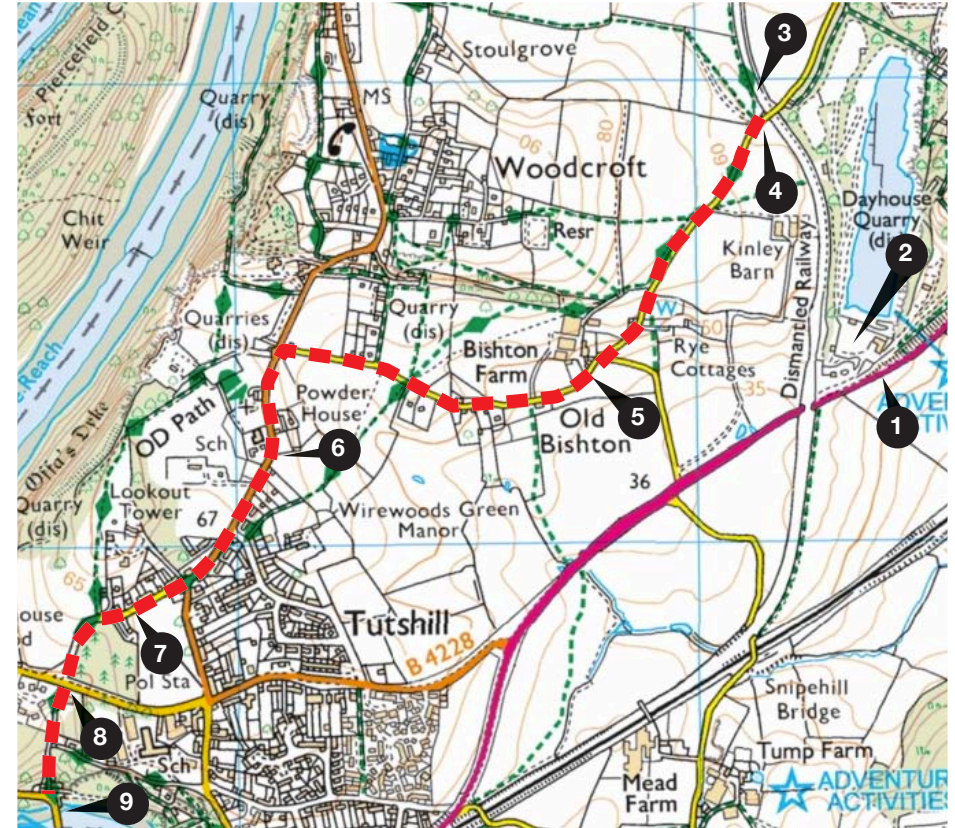
7.2 Map of route showing different types of usage

- 1 The most heavily used section from Dayhouse Quarry car park to the south portal of Tidenham Tunnel (0.5 mile)
- 2 A good proportion of all users will walk or cycle through the tunnel and enjoy the spectacular cliff sections through to Tintern Quarry (2 miles)
- 3 Some of the walkers and many of the cyclists will travel the length of the Greenway to Tintern to have refreshments and perhaps visit the Abbey
- 4 A few cyclists will follow a network of minor roads through to Forest of Dean
- 5 Beech Farm Campsite will generate trips in season
- 6 Small proportion of the cyclists will follow minor roads to Usk
- 7 Walkers and cyclists could come from Chepstow by footpaths and minor roads



7.2a Walking and cycling routes avoiding Tidenham Tunnel, in the case of emergency closure

- 1 Tidenham tunnel 1100m long
- 2 Existing footpaths
- 3 Offa's Dyke walk follows the Coleford Road before re-joining the line of the Dyke
- 4 Drop back to Greenway via Forestry path
- 5 Cyclists can avoid most of the hill on the Coleford Road by going via Boughspring



7.2b Map showing the proposed link for cyclists from Chepstow to The Wye Valley Greenway via Bishton Lane

- 1 Vehicle access from A4
- 2 Car parking and facilities
- 3 Wye Valley Greenway to Tintern
- 4 Link to Bishton Lane
- 5 Bishton Lane minor road
- 6 Coleford Road with traffic calming measures past school
- 7 Signed cycle route (cul-de-sac)
- 8 Short flight of steps to old road
- 9 Chepstow Bridge over the Wye

Car parking elsewhere from NDAC

No car parking will be provided for the Greenway apart from at the NDAC nor will any be shown on any Greenway leaflets.

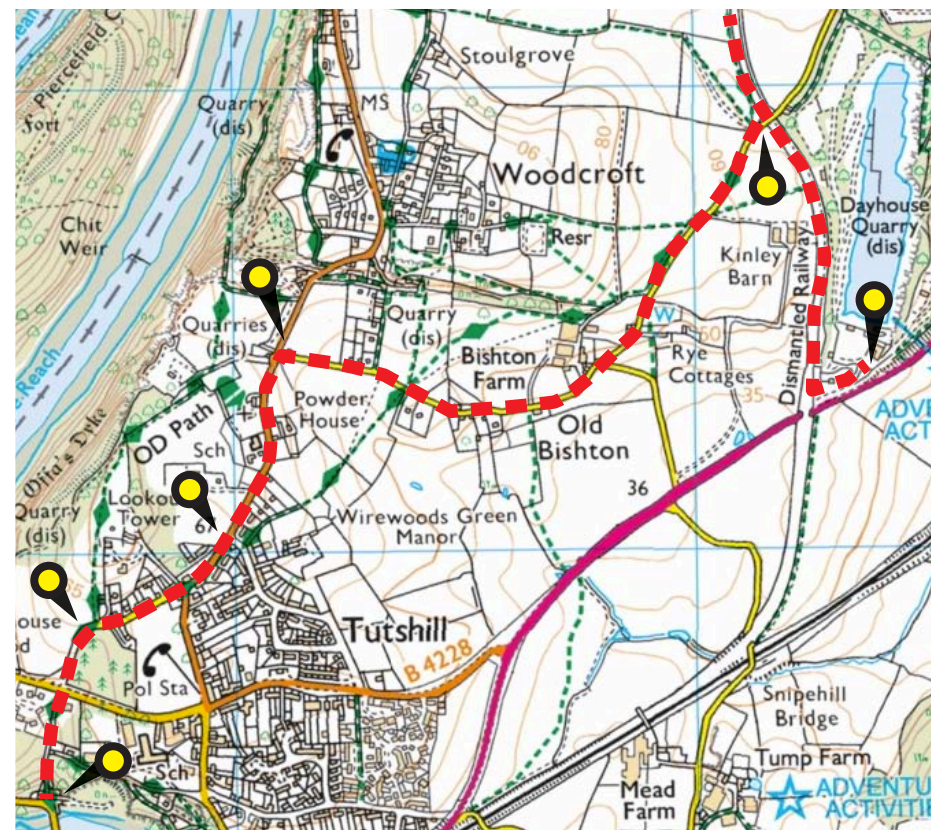
Whilst motorists could park elsewhere it is difficult to see why they should do this. Possible locations include;

- 1 Coleford Road at Bishton. This road does have ample space for parking, especially at weekends outside school hours. However, it is difficult to see why anyone would want to start here, when there will be free car parking at NDAC as well as café, toilets and bike cleaning for visitors.
- 2 Bishton Lane access might be vulnerable but we propose to add “Single track road with no parking” signs to the 7.5 tonne weight limit signs either end.
- 3 Netherhope Lane will not provide any access to the Greenway. The path and steps which led down to the original Netherhope Halt will not be reinstated and the connection from the public footpath to the Greenway will be deliberately near to Bishton Lane and remote from Netherhope Lane.
- 4 Tidenham Chase. A few people already park here to enjoy the walks in the woods down to the river. But it is not really attractive to cyclists who would be faced with a stiff climb back from the Greenway to their cars, when there is a level access at NDAC.
- 5 Tintern. Visitors to the Abbey who arrive by car may wish to extend their stay by visiting the Greenway, but as the car parks here are charged, there would be no incentive to arrive to ride the Greenway when car parking at NDAC is free, and more easily accessible by main road. Local residents from Brockweir or Llandogo might choose to drive down to the start of the Greenway but these will be very few in number and being locals will avoid peak times.

There are no other access points from the public highway which are suitable for cyclists, although existing possible footpaths, including Offa's Dyke to inevitably lead through from roads.

Signing

Signing will be limited to directing access to NDAC and the Greenway from the Chepstow area and the A48. There will be no signing at the Tintern end unless the Rights of Way team decide to revise their existing signing. Where appropriate the phrase ‘Wye Valley Greenway’ will be added to existing NDAC signage.

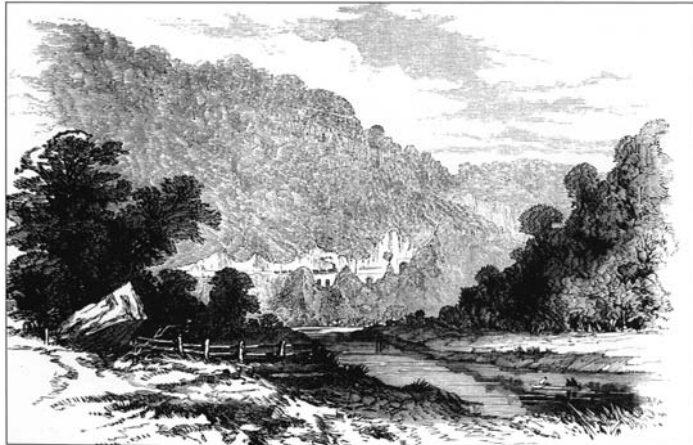


7.3 Map showing locations of proposed signing arrangements

9 Landscape and Visual Impact Assessment

The former railway runs through the Wye Gorge landscape zone within the Wye Valley ANOB. The section at Tintern Quarry is cut into the limestone cliffs and runs on a ledge through to the portal of Tidenham Tunnel. Whilst in the early illustrations of the railway, the engineering works and trains are clearly visible from Tintern Abbey and other view points on the Welsh side, nowadays the woodland hides everything and even in the winter it is difficult to discern the line of the railway.

The proposed path will only be visible to those actually walking or cycling along it where it will look very similar to the existing Forestry Commission section of the railway running northwards towards the Wireworks Bridge and Tintern.



View of railway 1880



8.1a View of former railway just to the north of Tintern Quarry



8.1b View of existing railway path on the way to Tintern

Aside from any view along the path, people walking along nearby footpaths may get a glimpse of the public visiting the old railway through winter trees.

South of Tidenham Tunnel the railway runs in a shallow cutting all the way through to Dayhouse Quarry (NDAC). The path will be briefly visible from Bishton Lane at the planned link to the lane, and at the planned seating area on the edge of the former Tidenham Station.

The path will be remembered as a woodland walk and by Tidenham Tunnel providing a level route bypassing the stiff climbs over the hills either side of the River Wye. Seats will be made from either the rocks available on site, or from local timber.



View of railway sleeper seat: View of rock seat from Symonds Yat path

Only at the locations of the two former Quarry Sidings will there be any break in this sylvan scene when an opportunity could be taken to interpret these stone workings with the remains of quarry machinery or similar.

This Wye Valley Greenway is being developed as part of the NDAC suite of activities. The only car park will be within the Dayhouse Quarry itself which has space for 500-700 vehicles, and all visitors to the Greenway will arrive here. Because the Forestry Commission path continues to the Wireworks Bridge and Tintern, the Greenway could be used to advantage to give access to Tintern and its Abbey, without arriving there by car. The authority could promote this as a significant tourist feature in the desire to reduce existing traffic levels through Tintern. If this was achieved this could make a positive contribution to reducing the visual impact of traffic in the ANOB.

10 Archaeological and Heritage Sites

The Greenway runs along, and is confined to the Railway, with some nearby interest in Tintern and Dayhouse Quarries both of which had loading gantries and sidings to export their stone.



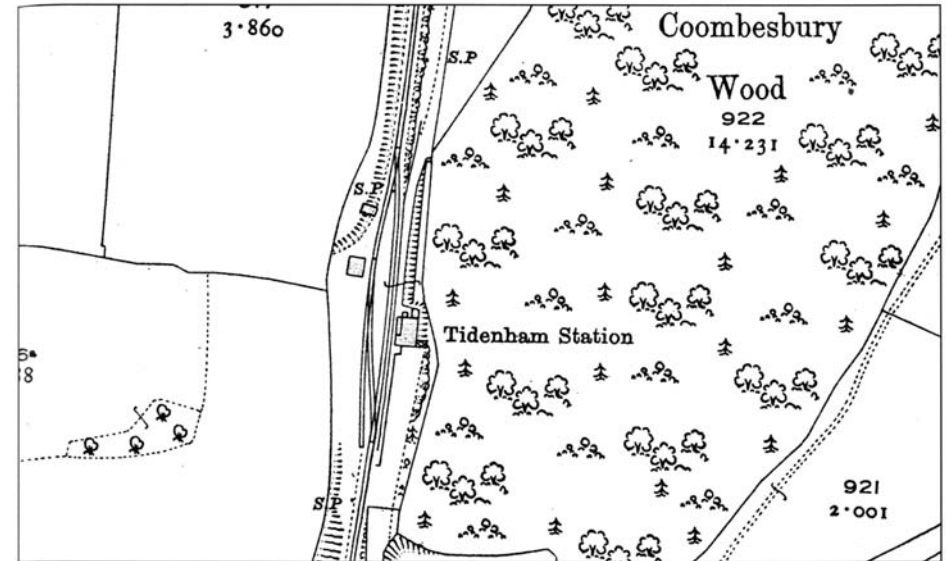
Tintern Quarry stone loading, September 1959



Dayhouse Quarry with stone train coming through, 1979

The railway opened in 1876, and was closed in 1959, before the Beeching Cuts. Stone Trains continued to Tintern Quarry to 1981, and to Dayhouse Quarry to 1992. The rails and sleepers from this period remain in place. These will all be lifted. The principal consequence of the Greenway will be to enable the public to view Bishton Lane Bridge, Netherhope Arch, and Tidenham Tunnel. There will also

be opportunities for interpretation of the Quarry workings, and of Netherhope Halt and the earlier Tidenham Station. The benefit of the Greenway will be to put in place an ongoing maintenance regime for these situations, and for the Tintern embankment culvert which already carries footpath 20.



Map of railway features at Tidenham (1921) before Dayhouse Quarry workings

11 Flood Risk Assessment

The proposed path runs along the line of the old railway for a distance of 6kms. The path surface will consist of the existing ballast and stone on site, reshaped to provide a smooth-running surface with a central camber and finished with locally procured limestone dust. This work will not materially change the existing drainage patterns after rainfall.

No watercourses are affected, or crossed by this stretch of the old railway which runs through limestone country. No part of the works runs in the proximity of any watercourse so no Land Drainage Consent will be required.

A Track Removal – for information only

The track may be divided into 2 sections. From the main line junction to Bishton Lane at 1 mile 33 chains, the track is owned by Network Rail. They have transferred this to the Forest of Dean Railway who have commissioned its removal, starting first with the section from Bishton Lane bridge to the A48.

The remainder of the track works north of Bishton Lane and through the tunnel is under the control of NDAC.

As working through Tidenham Tunnel is only permitted June to September, track removal must be ready to commence no later than June 1st 2019. This will require tree removal north of the tunnel for a distance of 900 metres, which will be carried out under a Forestry Licence by the end of February 2019. Most of the trees on this section are saplings less than 5cms in diameter with a few trees 10 – 12 cms.

As noted in the ecological study there are a number of species of plants which need to be translocated. Our scheme is to remove the steel rails throughout and all the sleepers except those in sensitive areas through the SSSI north of the tunnel. These will be left in place and the path built to one side.

The rails will be stored on site near the former Dayhouse Quarry sidings until convenient to remove them off site. Similar sleepers will be stored here, except those to be used as features along the way.



A Track Recovery Plan

- 1 Rails and sleepers past Dayhouse Quarry recovered by Forest of Dean Railway January/ February 2019
- 2 Remainder of track for Forest of Dean railway recovered 2019/2020
- 3 NDAC section through to north end of Tidenham Tunnel recovered June/July 2019 under direction of bat specialist. Track and sleepers to Dayhouse Quarry.
- 4 The most northern NDAC section recovered via Tintern Quarry

B Brief review of repairs to Forestry Commission section – for information only

The Forestry Commission owns the former railway from north of Tintern Quarry through to the end of the Wireworks Bridge, a distance of 2.8kms. Note that NDAC have approximately 3.5kms of the railway including the 1.1km Tidenham Tunnel connecting the Forestry Lands to Dayhouse Quarry at the A48.



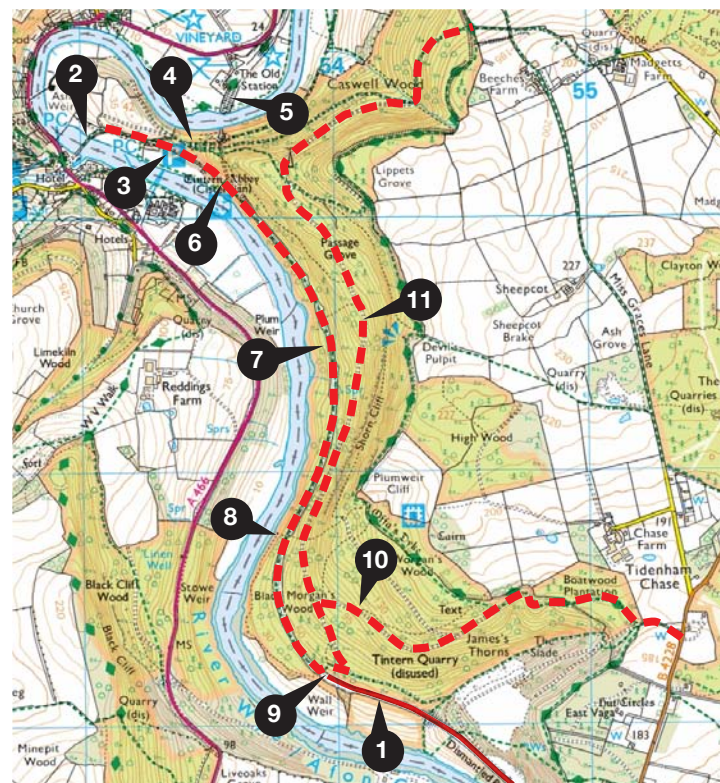
Wireworks Bridge – 3 spans, 200ft in length and owned by the Council

The first 700m from the bridge was the Wireworks branch and constructed by the company to “compensate” for rerouting the planned Wye Valley Railway to the east side of the Wye thereby bypassing Tintern. The trackbed is well used as a path and no work is proposed other than to scrape off detritus and remove particularly intrusive tree roots.

It is worth noting that a short length of this section is not a public right of way. The original footpath led down to a ferry crossing for Tintern Abbey and then ran along the river edge. Due to bank erosion this route is now impassable and there would be merit in formally transferring the ROW to the old railway.

The remainder of their 2.k8m section is all designated as a public footpath on which the Commission are minded to permit cycling as they do on other forest roads in the area.

Maintenance works would scrape off leaf mould, repair and renew cross drains and clear vegetation from some railway walls so that they perform better.



B: Plan showing Forestry Commission owned section of the former Wye Valley Railway and the Wireworks Branch together with other linking tracks on their land

- 1 Wye Valley Greenway
- 2 Wireworks Bridge connects through to Tintern
- 3 Section of riverside path lost to erosion
- 4 Monks path to Brockweir
- 5 Portal of Tintern Tunnel
- 6 Short section requiring repairs and drainage
- 7 Slipped area requiring culverts
- 8 Black Morgan Viaduct
- 9 End of Forestry Commission section with path and start of section to Dayhouse Quarry which is the subject of this planning application.
- 10 Forest Road climbs evenly to reach the Coleford Road
- 11 This Forest road runs through to the telecommunications station and to Beeches Farm to provide access for campers

C Previous History of Project

In 2010, Sustrans applied for planning permission to construct a traffic free route from Sedbury to Tintern Station and the road to Brockweir. The Forest of Dean Council granted consent 10th November 2010 – P126/10/FUL. However its conditions included approval by Monmouthshire which was not forthcoming in time for Sustrans to meet its Connect2 Lottery Grant requirements so they had to withdraw from the project. Numerous detailed reports and studies were prepared as part of the proposal at that time, and these have been very useful in providing a background for today’s ecologists and bat specialists.

The extent of the Sustrans proposals is shown by the map. However, although the current scheme uses sections of the same railway formation it is much more limited in scope and is focussed on acting as a resource for the National Diving and Activity Centre, rather than as a national cycle route.



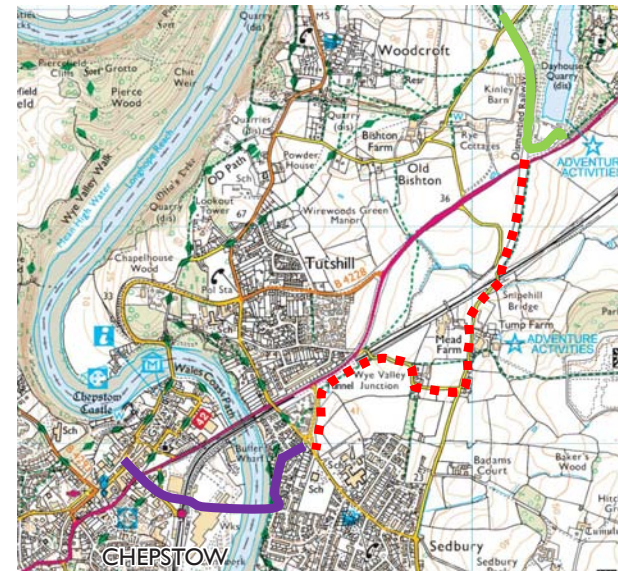
Map showing the extent of the Sustrans 2010 Scheme

D A second and further stages south from NDAC to eventually reach Chepstow

Currently it is not practical to extend the path south from Dayhouse Quarry because the track and sleepers occupy all the room on this high embankment. The Forest of Dean Railway is recovering these rails for their own use, which may take a number of years. Once this is done then an extension southward over the A48 can be brought forward.

At present we have to use the historic cast iron bridge to cross the Wye as the more direct route, the A48 high level bridge, made no provision for cyclists. What is much needed is a new direct crossing from Sedbury to Chepstow – a resource for the area which could be provided by the redevelopment of the engineering works.

If this is achieved then local residents will have a most useful local path, and the public could reach the start of the Wye Valley Greenway along a most attractive and memorable route.



- NDAC project to Dayhouse Quarry
- - - - - A possible extension once the rails and sleepers are lifted on the remainder of the branch line
- Proposals for a link across the Wye as part of local redevelopments

Map showing potential stages towards Chepstow