RPS

# A9 Dualling: Kincraig to Dalraddy
# Stage 3 Cycle/Accessibility Audit

# Document Control Sheet

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# 1 INTRODUCTION

## 1.1 BACKGROUND

This report was prepared in response to a commission from Wills Bros. John Paul JV Ltd. for a Stage 3 Cycle Audit for the Non-Motorised User (NMU) route running parallel to the A9 Dualling Kincraig to Dalraddy scheme in accordance with the requirements of Chapter 11, Cycle Audit System, of Cycling By Design.

The cycle auditor was:

[redacted] – BEng, MSc, MIEI,
Roads & Transportation, RPS

The site was visited during the day and night time on 16th November 2017. The weather conditions during the visits were dry and as such the road surface was mostly dry but slightly wet due to changeable weather. Traffic volumes were considered to be low for both the day and night time site visits.

Representatives of Police Scotland, Transport Scotland, Highland Council, Atkins, and Wills Bros. John Paul (WBJP) JV were invited to attend. The following individuals attended some or all the site visit:

- [redacted] – Atkins(d)
- [redacted] – WBJP JV (d)

*(d=day time only)*

No specific Client Brief or Context Report was provided.

The site has been inspected and this Report compiled in respect to the consideration of those matters that have an adverse effect on NMUs safety. It has not been examined or verified for compliance with any other standards or criteria.

The problems identified in this Report are considered to require action in order to improve the safety of the NMUs and minimise risk of accident. Photographs relating to some of the problems are included in the Report where necessary.

A number of observations are also included at the end of the Report for information purposes.

## 1.2 SCHEME DETAILS

This Scheme involves the dualling of approximately 7.5 kilometres of existing single carriageway and the reduction of approximately 1.8 kilometres of WS2+1 carriageway between Kincraig and Dalraddy to WS1+1. The Scheme also includes approximately 7.5km of NMU facility running parallel to the northbound carriageway.

# 2 PREVIOUS ROAD SAFETY AUDITS

A Stage 1 NMU audit report was carried out on the NMU route by Atkins in July 2014 and a Stage 2 cycle audit was carried out by TMS consultancy in March 2015.

Issues raised in the Stage 1 and Stage 2 were responded to by the Designers and have been verified as complete during the audit.

# 3 PROBLEMS IDENTIFIED DURING THIS STAGE 3 CYCLE AUDIT

This Stage 3 Cycle audit was confined to the NMU facility running parallel to the northbound carriageway.

## 3.1 PROBLEM

**Location:** Junction to RZSS Highland Wildlife Park, approx. Ch. 0

**Summary:** No signage on local road to identify NMU route.

There is no signage to identify the location of the NMU route to people travelling on the Local Road.

**Problem 3.1 –No Signage Provided to Identify NMU Route**

### Recommendation

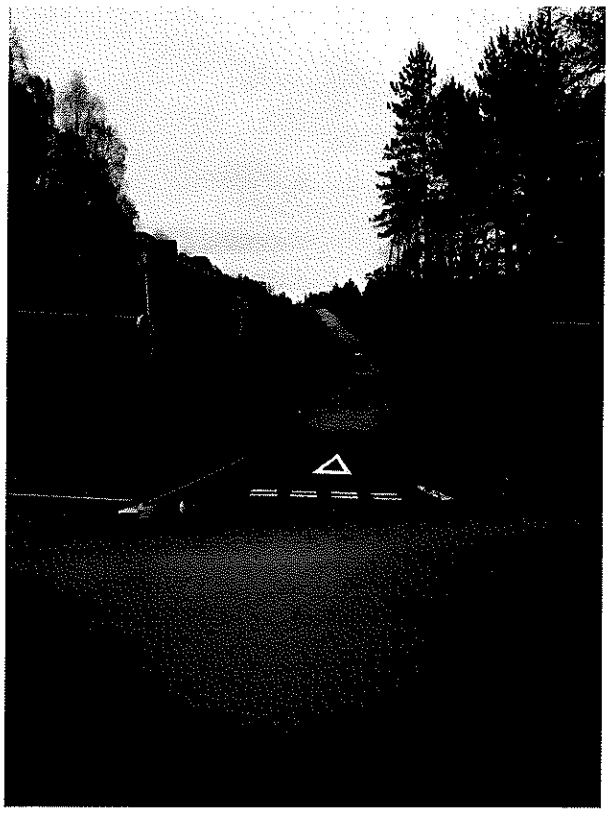
Appropriate signage should be provided to identify location of NMU route.

## 3.2 PROBLEM

**Location:** Ch. 0

**Summary:** No Tactile paving to aid the visually impaired.

No tactile paving has been installed to warn visually impaired pedestrians about the hazard of entering the carriageway. This could lead to conflicts with motorists resulting in potential serious or fatal injuries.



**Problem 3.2 – No Tactile Paving Provided**

### Recommendation

Tactile paving should be installed.

## 3.3 PROBLEM

**Location:** ST01 NMU Bridge, approx. Ch. 30

**Summary:** Approaches to and from the NMU Bridge.

The fencing approaching and departing the parapets at ST01 are provided in line with the NMU track. This could lead to NMU's colliding head-on with the fencing causing injury.

**Problem 3.3 – Fencing at ST01**

### Recommendation

Fencing at parapets should be tapered.

## 3.4 PROBLEM

**Location:** ST01 NMU Bridge, approx. Ch. 30 and Junction at Ch. 2350 approx.

**Summary:** Steel / Wood Plates on NMU bridge / route surface.

Steel plates located on the deck of ST01 and wood plates on the travel surface at the junction at Ch. 2350 could cause a trip hazard to NMU's.

**Problem 3.4 – Steel Plates on ST01 Deck (Left) and Wood Plates on Route Surface (Right)**

**Recommendation**

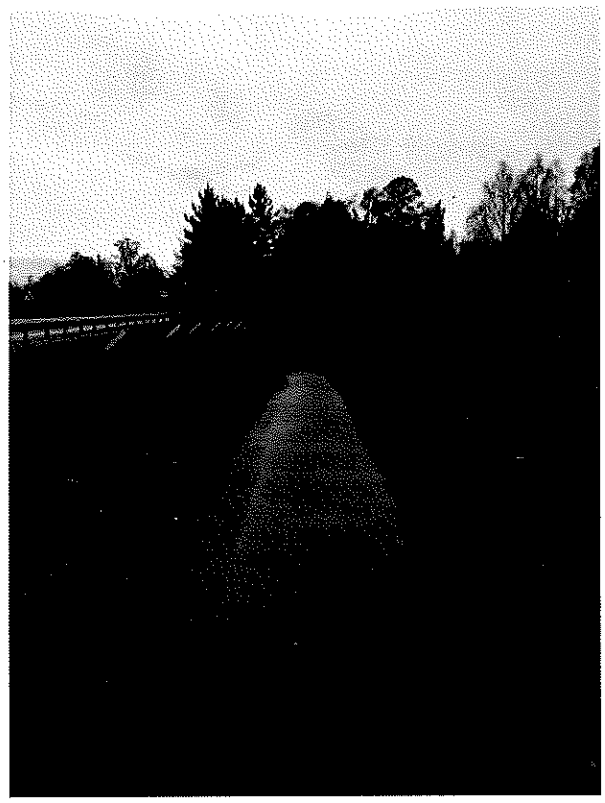
Steel plates on the deck and wood plates on route surface should be removed.

## 3.5 PROBLEM

**Location:** Ch. 0 – Ch. 100

**Summary:** Cranks on fencing close to NMU track

The cranks on the top of the badger and otter fencing are located approximately 1m from the edge of the NMU route. This could lead to NMU's colliding with the cranks causing injury



**Problem 3.5 – Cranks on Fencing**

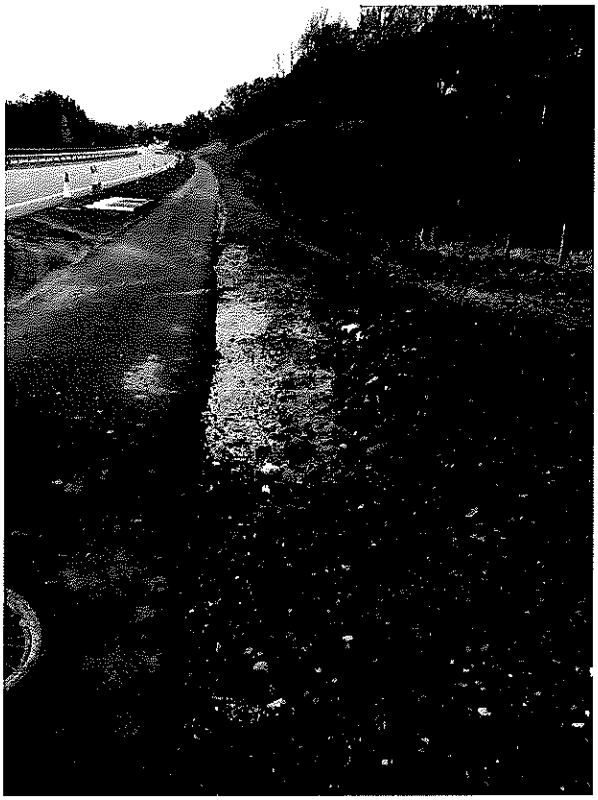
### Recommendation

Hazard should be mitigated by provision of secondary fence line or bund to prevent NMU's colliding with cranks.

## 3.6 PROBLEM

**Summary:** Verges unfinished or at lower level to the NMU Route.

There are several instances throughout the scheme where verge works are unfinished, or are at a lower level to the NMU Route. Cyclists who may be required to take evasive action to avoid other users inadvertently may travel into the verge and fall due to the level difference.



**Problem 3.6 – Example of Verge Not Level with Cyclepath at Ch. 500**

### Recommendation

It should be ensured that the verges are flush with the level of the cyclepath.

## 3.7 PROBLEM

General; Raised/lowered Service Covers

There are several instances throughout the scheme where services covers are proud and lower than the adjacent NMU route. Cyclists who wander or are required to take evasive action to avoid other users may collide with these services resulting in falls due to the level difference.

**Problem 3.7 – Example of Rasied Service Covers**

### Recommendation

Service covers should be flush with the adjacent ground level.

## 3.8 PROBLEM

General; cracking of pavement at the edge of the NMU route.

There is a cracking in the NMU track surface at a few locations which appear to be result of vehicle tracking. This may result in falls and injuries due to uneven surfaces

**Problem 3.8 – Cracked Surafce at Ch. 1060**

**Recommendation**

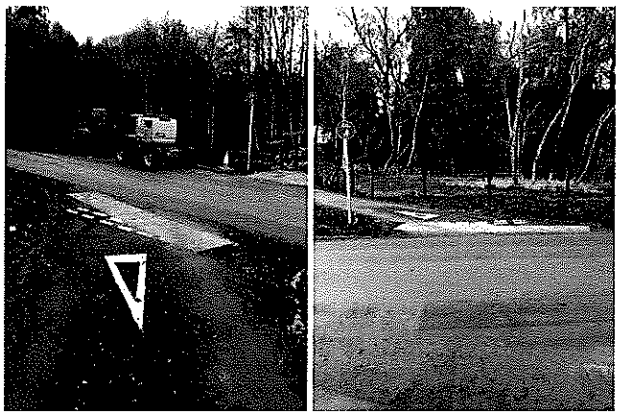
The pavement and verge surfaces should be repaired to ensure no cracking or uneven surfaces exist.

## 3.9 PROBLEM

**Location:** Uncontrolled crossing point Ch. 1700 approx., south side of ST02.

**Summary:** Surfacing, marking and tactile paving unfinished

Surfacing, marking and tactile paving appear unfinished and may lead to confusion causing conflict between users leading to injury.



**Problem 3.10 – Unfinished Work at Crossing**

**Recommendation**

Works should be completed with tactile and markings provided in accordance with best practice.

## 3.10 PROBLEM

**Location:** NMU Watercourse Bridge crossing point Ch. 1720m approx.

**Summary:** Gap in NMU Bridge.

There is a 50mm gap in NMU Bridge surface. NMU's could trip and fall on this gap whilst riding across it.

**Problem 3.11 – Gap in NMU Watercourse Crossing Bridge**

**Recommendation**

The gap between the pavement and NMU bridge surface should be closed.

## 3.11 PROBLEM

**Location:** Ch. 1920m approx.

**Summary:** Repeater sign not installed

Repeater sign to notify that the route is shared between pedestrians and cyclists is missing. If pedestrians do not encounter the presence of cyclists straight away, the risk of collisions involving pedestrians and cyclists will increase.

**Recommendation**

Repeater sign should be installed.

## 3.12 PROBLEM

General; mud and debris on NMU surface.

There is mud and debris on the pavement surface at various locations along the NMU route. This can lead to cyclists falling causing injury.

**Problem 3.13 – Examples of Mud and Debris on NMU Route**

**Recommendation**

NMU route should be cleaned and all debris removed.

## 3.13 PROBLEM

**Location:** Junction at Ch. 2350 approx. and CH. 6100 approx.

**Summary:** Geometric profile of cyclepath.

The cyclepath at junctions Ch. 2350 approx. and Ch. 6100 approx. are at 90 degrees to the road cycle lane. Cyclists seeking to make the 90 degree turn may stray into the road to make the turn leading to conflicts with vehicles and side swipe collisions.

**Problem 3.14 – Examples of Cycle Path Diverting Through 90 degrees Ch. 2350 Approx. (Top Left) Ch. 6100 Approx. (Top Right) and Crossing Points at Junction at Ch. 6100 Approx. (Bottom)**

**Recommendation**

The cyclists should be provided with appropriate geometry for turning without needing to enter the road carriageway and facilitate easier passing.

## 3.14 PROBLEM

**Location:** Ch. 2450 to Ch. 2700 approx.

**Summary:** Drainage of NMU surface.

During the audit, ponding of water was noticed between Ch. 2450 to Ch. 2700 at the bottom of the embankment. This may lead to users making avoidance manoeuvres and/or black ice during freezing weather leading to falls/injuries.

**Problem 3.15 – Examples of Ponding on the NMU Surface**

**Recommendation**

Positive drainage should be provided to eliminate standing water occurrence.

## 3.15 PROBLEM

**Location:** NMU Watercourse Bridge crossing Ch. 3125 approx.

**Summary:** Hazard to cyclist and pedestrians.

There is a 200mm drop in level difference from the surface of the NMU bridge to the adjacent ground level as shown in the photo below. NMUs may trip and fall resulting in serious injuries.

**Problem 3.16 – NMU Watercourse Bridge Ch.3125 Approx.**

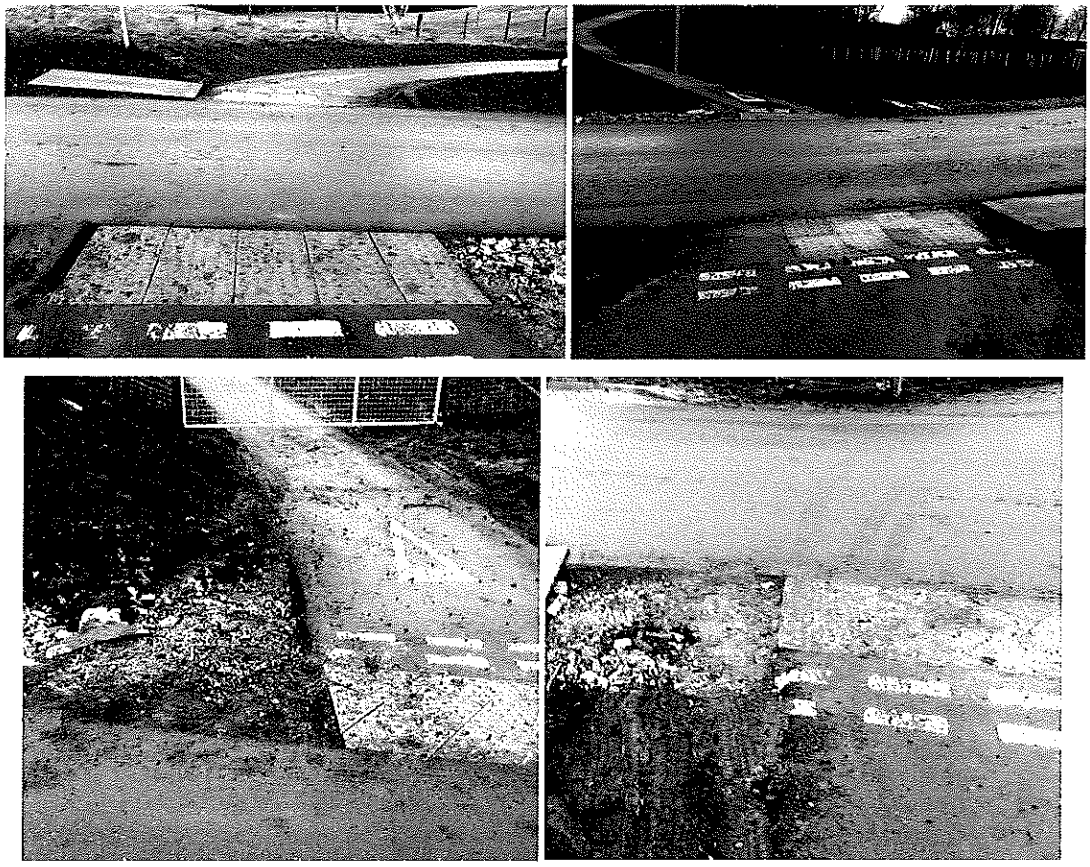
**Recommendation**

The ground level at the back of the structure needs to be raised to the level of the NMU surface.

## 3.16 PROBLEM

General; unfinished works around tactile paving.

Verge / surface works are incomplete around tactile or at a lower level than that of the NMU track. NMUs could trip and fall over this hazard resulting in serious injuries.



**Problem 3.17 – Examples of Unfinished Works Around Tactile Paving**

**Recommendation**

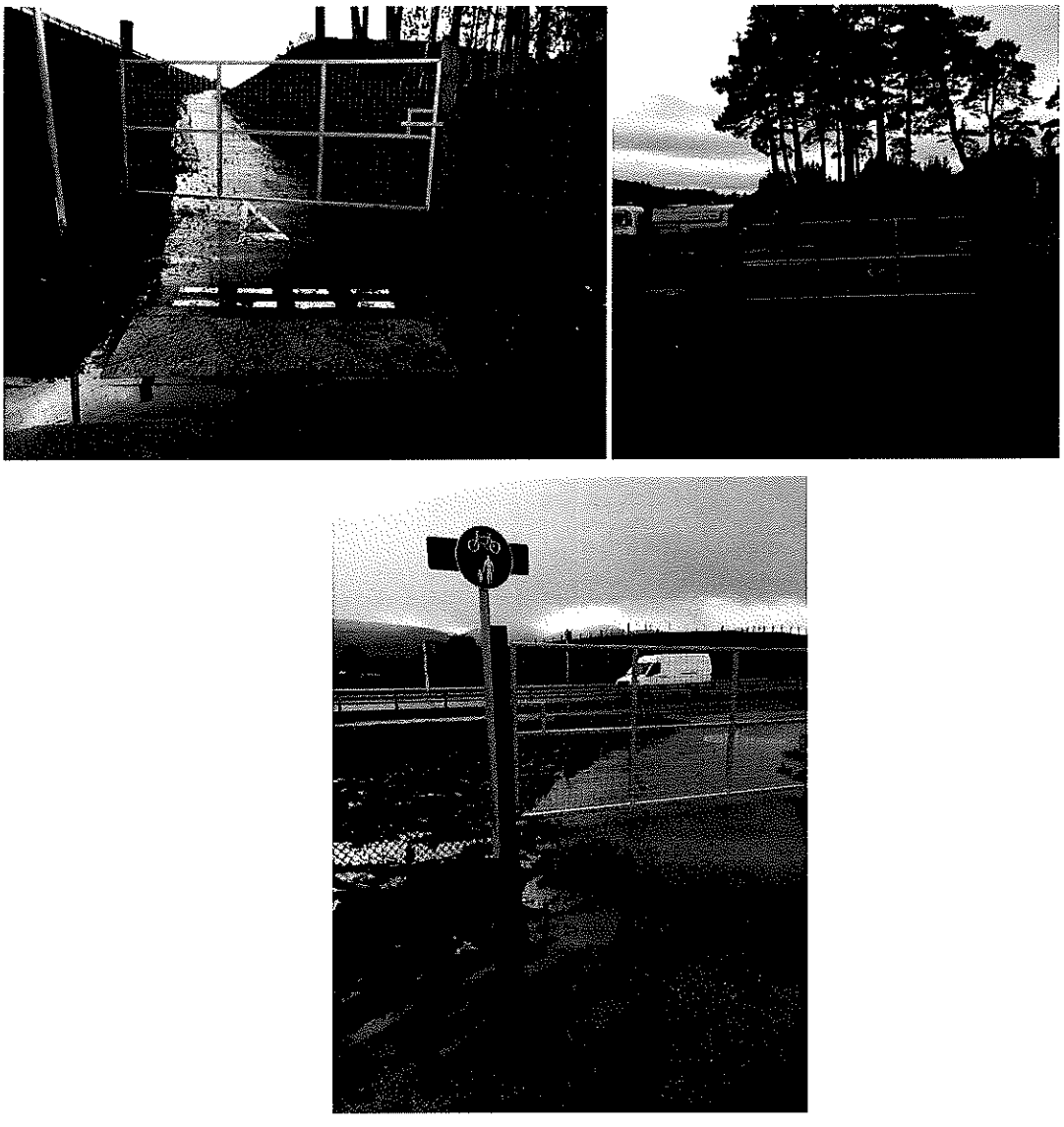
Verges should be flush with the level of the adjacent NMU track.

## 3.17 PROBLEM

**Location:** General

**Summary:** Gates at NMU crossings at Ch. 4450 and Ch. 6850

At the time of the audit some installed gates presented difficulty when opening and closing due to presence of unlevel ground, ponding, etc. This may lead to users not using or not closing gates causing safety problems.



**Problem 3.20 – Examples of Gate Openings at Ch. 4450 NMU Crossing (Top Left and Top Right) Example of Gate Opening at Ch. 6850 (Bottom)**

**Recommendation**

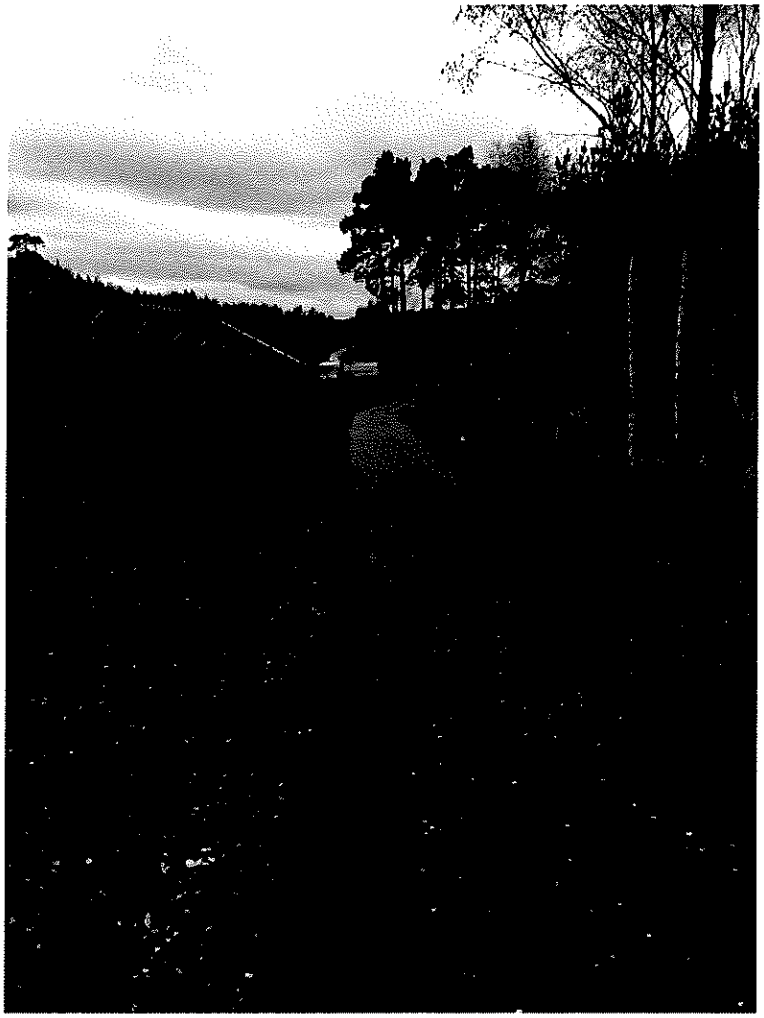
A suitable level surface should be provided from both sides to enable all desired users to easily open and close gates.

## 3.18 PROBLEM

**Location:** General

**Summary:** Gates at NMU crossings Ch. 4450 and Ch. 6850

Cyclists can build up high speeds on long sustained gradients, especially on a smooth surface. Gates could suddenly appear in front in cyclists. This could lead to cyclists colliding with gates and resulting in serious injury.



**Problem 3.21 – Hazard of Gates**

**Recommendation**

Gates should be highlighted with reflective tape and appropriate tactile/signage installed to warn cyclists of approaching hazard.

## 3.19 PROBLEM

**Location:** General

**Summary:** Standing water at NMU crossings.

There is standing water at a number of crossings. NMUs may deviate from the desire line or slip during icy conditions leading to injury.

**Problem 3.22 – Standing Water at NMU Crossing Points**

**Recommendation**

Positive drainage measures should be provided to ensure ponding does not occur.

## 3.20 PROBLEM

**Location:** End of shared NMU track, Ch. 6850 approx.

**Summary:** Hazard to NMUs.

End route signage has been provided for NMUs travelling northbound at Ch. 6900 approx. However, NMUs may continue northbound along the NMU route due to the unrestricted access. This may lead to unauthorised crossings further north.

**Problem 3.23 – End of Shared NMU Track**

### Recommendation

A temporary restraint should be installed to further discourage NMU's continuing northbound.

## 3.21 PROBLEM

**Location:** Ch. 7180 approx., ST08

**Summary:** Geometric profile across ST08.

There is a sudden level difference from where the cyclepath joins the concrete surface of the Structure ST08. Cyclists traveling across may trip and fall across this abrupt level difference.

**Problem 3.24 – NMU Track Approach to ST08**

**Recommendation**

Ensure smooth transition onto structure deck.

## 3.22 PROBLEM

**Location:** General, NMU Bridge Crossings

**Summary:** Timber post and rail fencing

Cyclists can build up high speeds on long sustained gradients. Gates and fencing may suddenly appear in front in cyclists at night. This could lead to cyclists colliding with these hazards resulting in serious injury.

**Problem 3.25 – Approach to NMU Bridge Crossing**

**Recommendation**

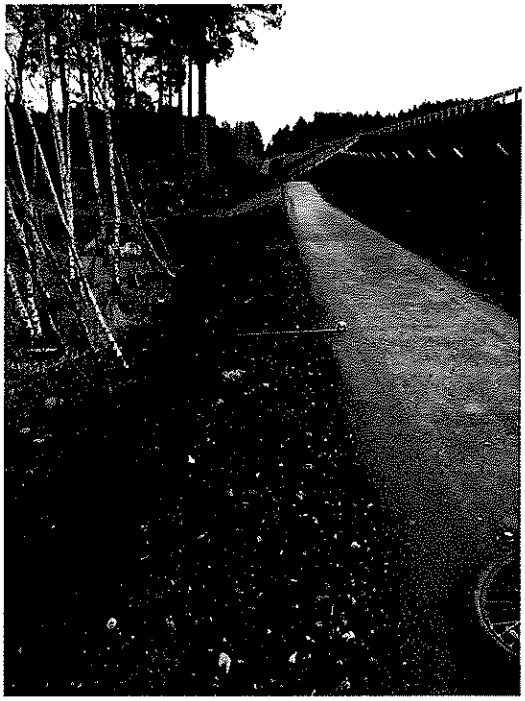
Reflective tape should be installed on fences and gates on high speed approaches to ensure visibility at night.

## 3.23 PROBLEM

**Location:** Ch. 3850 approx.

**Summary:** Risk to NMU's.

Only a 1m verge is provided along the top of a high embankment at Ch.3850 approx. The recovery zone for NMU users along this section of the NMU track is narrow and could lead to serious injuries due to falling from embankments.



**Problem 3.27 – NMU Track at Ch. 3850**

**Recommendation**

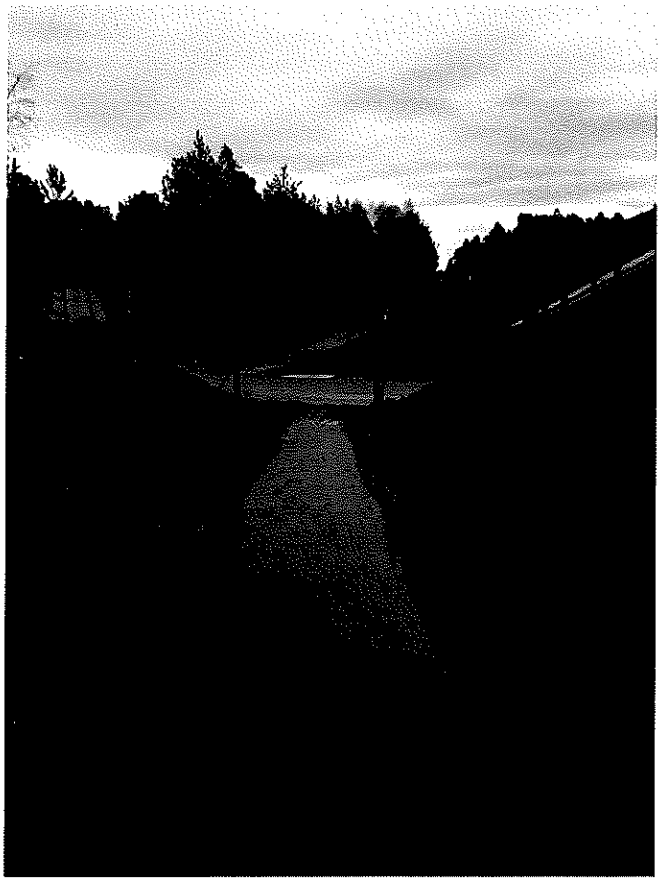
Consideration should be given to the need for protective fencing along this section of the NMU track.

## 3.24 PROBLEM

**Location:** NMU Crossing Point at Ch.4500.

**Summary:** Risk to NMU's.

The crossing point for the NMU in this location is staggered which increases the crossing distance for NMU users. This in combination with the limited visibility on the approach to the crossing could lead to conflict with vehicles or side swipe collisions.



**Problem 3.28 – NMU Track at Ch. 3850**

**Recommendation**

Geometrics of NMU track should be altered to provide the shortest route across the road and warning signs should be provided on the approaches to the crossing.

# 4 OBSERVATIONS

1. At the time of the audit, the cyclepath was still being used by work jeeps, vans and lorries. This should be discouraged as undue stress on the NMU pavement surface was evident and significant debris was noted on the NMU surface.

# 5 CYLCE AUDIT STATEMENT

I certify that this audit has been carried out in accordance with HD 19/15 and that I have examined the site as referred to in this Report. The examination has been carried out with the sole purpose of identifying any features of the design which may have an impact on user safety.

The problems identified in this Report, together with associated safety improvement recommendations should be addressed. This Audit has been carried out by the person named below who has not been involved in any design work on this scheme as a member of the Design Team.

CYCLE AUDITOR

[redacted] BEng, MSc, MIEI
RPS Consulting Engineers

Signed: [redacted]
Date: 20/11/17