Table C.1 Project Summary

Document reference:	241213 Storthes Hall, Kirkburton Stage 1 Road Safety Audit Brief (Initial issue)
Date:	13th December 2024
Prepared by:	Optima Highways and Transportation Consultancy Ltd
On behalf of:	Kirklees Council
AUTHORISATION SHEET	
Project:	Storthes Hall, Kirkburton
Report title:	Stage 1 Road Safety Audit Brief (Initial issue)
PREPARED BY	
Name:	James Stackhouse BA (Hons) MCIHT AMSoRSA Engineer
Signed:	
Organisation:	Optima Highways and Transportation Consultancy Ltd
Date:	13th December 2024
I APPROVE THE RSA BRIEF AND INSTRUCT THE RSA TO TAKE PLACE ON BEHALF OF THE OVERSEEING ORGANISATION	
Name:	Adam Darwin FIHE – Group Engineer Highways Development Management
Signed:	
Organisation:	Kirklees Council
Date:	

Table C.2 General Details

General details				
Highway scheme name and number:	Storthes Hall, Kirkburton 18092			
Type of scheme:	Proposed access arrangements and off-site highway works associated with a residential development at the former Storthes Hall Student Village, Kirkburton.			
RSA stage tick as appropriate	1 ☒	2 ☐	3 ☐	4 ☐
	Interim			
Overseeing organisation details		**Design organisation details**		
Kirklees Council		Optima Highways and Transport Transportation Ltd		
Police contact details		**Maintaining agent contact details**		
N/A		Kirklees Council		
RSA team membership				
Road Safety Initiatives Team Leader: Martin Morley BSc(Hons) MCIHT MSoRSA Certificate of Competency or Mark Hedley IEng MCIHT MSoRSA FIHE RegRSA (IHE) Certificate of Competency Team Member: Alan Bawn BSc(Hons) MICE				
Terms of reference				
DMRB GG119 (rev 2) Road Safety Audit				

Table C.3 Scheme Details

Scheme description/objective
General
The Site is located at the former 'Storthes Hall Student Village', located on land to south and east of Storthes Hall Lane, Kirkburton. The Site forms part of a larger housing allocation, designated in the Kirklees Local Plan Allocations and Designations document under site reference MDGB1 'Land at Storthes Hall'. The development proposals are illustrated on the Parker Peel Architecture Indicative Masterplan (drawing ref 1862-MP-01) and comprise the construction of up to 261 dwellings. The Site forms a circa 550m wide frontage onto Storthes Hall Lane and benefits from two existing access points connected via a one-way route through the site, which forms a clockwise bus route. An entrance only is located to the north of the Site and an exit is located to the south-western corner of the Site, referenced to hereafter as the 'northern site access' and the 'southern site access'. It is proposed to upgrade both the northern and southern site accesses to facilitate two-way movements and serve the development via an internal spine road, suitable to accommodate a bus route running between both accesses. The proposals will retain access to Shelley Community Football Club, Huddersfield Dragons Hockey Club and a single residential dwelling known as 'Ravensknowle House'. Both the proposed access arrangements and internal spine road have been designed to accommodate bus penetration. Off-site highway improvement works are also proposed to the Storthes Hall Lane bridge, Penistone Road/Storthes Hall Lane and Penistone Road/North Road junctions in order to satisfy the site specific allocation requirements. **Northern Site Access** It is proposed to upgrade the existing entry only access, as shown on Optima Drawing no. 18092/GA/01/REV/E. A summary of the key alterations are: • 10m corner radii; • Removal of existing barrier system and road narrowing to provide a 6.5m wide single carriageway (6.5m rather than 6.75m is provided to minimise impacts on trees as agreed with Kirklees Council); • Internal 2m footway to the west and 0.6m margin to the east, again to minimise tree impacts; • Inset dropped crossing with tactile paving and appropriate pedestrian visibility connecting existing footways to both sides of the site access along Storthes Hall Lane; • Relocation of existing, listed gate posts and gates to accommodate carriageway widening and appropriate pedestrian visibility; and • Relocation of the ornamental pillars and existing boundary walls to accommodate visibility splays of 2.4m x 90m junction visibility splays in both directions. Bus and refuse collection vehicle swept path analysis of all movements at the proposed northern site access is shown on Optima drawing no. 18092/ATR/01/REV/A.

Southern Site Access

It is proposed to upgrade the existing exit only access, as shown on Optima Drawing no. 18092/GA/02/REV/F. A summary of the key alterations are:

- 10m corner radii;
- Removal of trees, existing barrier system and road narrowing to provide of a 6.75m wide single carriageway;
- Localised 1m carriageway widening to accommodate bus and refuse entry swept path;
- 2m footways to both sides connecting with existing footways along Storthes Hall Lane;
- Inset dropped crossing with tactile paving and appropriate pedestrian visibility;
- Relocation of existing boundary wall to the north to accommodate visibility splays of 2.4m x 90m in both directions.

Bus and refuse collection vehicle swept path analysis of all movements at the proposed southern site access is shown on Optima drawing no. 18092/ATR/02.

Off-Site Highway Works

Background

The Site is required to provide local highway improvements to satisfy the following site specific allocation requirement:

- Development proposals will need to fully assess any impact on the junction of Storthes Hall Lane and Penistone Road, and if necessary, include improvement to that junction.

At present, the Site is not provided with a continuous footway connection to the closest facilities within Highburton and Kirkburton to the north and east along the A629 Penistone Road, due to presence of a pinch point as Storthes Hall Lane crosses the Woodsome Beck and as Storthes Hall Lane (east) meets Penistone Road.

The current overbridge is approximately 5.7m wide and does not include a footway, therefore pedestrians utilising the bridge are required to discharge into the carriageway, beyond where the existing footway terminates.

The Penistone Road/Storthes Hall Lane junction is also currently problematic, due to its non-standard arrangement. Junction visibility is also restricted to c. 2.4m x 25m to the east due to the presence of existing pedestrian guard railing.

Previous Scheme

Following discussions with Highways Development Management (HDM), a scheme of off site improvements were presented to satisfy the site specific allocation requirements.

The previously proposed works were illustrated on drawing 18092/GA/03 and can be summarised as follows and included a one-way priority working system across the Storthes Hall bridge, in order to provide a continuous footway, with associated improvements to the Penistone road/Storthes Hall Lane and Penistone Road/North Road junction.

Following review of the proposed off site works, HDM confirmed that the proposals were not considered to provide workable solutions in their current form, specifically in relation to the one way system over the bridge and the concerns over the potential for traffic to queue back from the priority controlled give way to Penistone Road.

Proposed Scheme

In light of the above concerns, HDM requested the introduction of a 3-way traffic signals over the bridge in order to enable a new footway to be introduced and manage queuing towards Penistone Road. Improvements to the Penistone Road/Storthes Hall give way arrangement, the Toucan crossing along Penistone Road and the associated footway/cycleway and improvements at the Penistone Road/North Road junction have been retained/refined.

A further enhancement was also identified by HDM to improve visibility to the south by amending the existing retaining wall immediately to the south of the Penistone Road/Storthes Hall Lane junction.

The proposed off-site works are illustrated on Optima drawing 18092/GA/05 can be summarised as follows:

- Provision of a one-way priority working system across the bridge along Storthes Hall Lane, utilising 3-way traffic signals;
- Introduction of a continuous footway between Storthes Hall Lane and Penistone Road, over the bridge;
- Road Marking improvements to the Penistone Road/Storthes Hall Lane junction to:
    - Relocate give way and approach lining as far north as possible to maximise visibility, improve the approach angle and to create additional width for inbound traffic from Penistone Road to Storthes Hall Lane;
    - Formalise the existing parking bays to the west of the give-way;
    - Adjust the right turn lane markings to provide a circa 2.6m wide right turn lane and 3m through lanes; (at the request of KMC road safety team);
    - Segregate entry and exit movements through the provision of central area of road markings; and
    - Provide 'no-waiting at any time' double yellow lines traffic regulation order to assist vehicles turning right out of Storthes Hall Lane to Penistone Road.
- Provision of a 'Toucan' controlled crossing along Penistone Road near North Road;
- Provision of a section of a shared footway/cycleway along Penistone Road/North Road to assist cyclists turning right out of North Road to Penistone Road during busy periods.
- Amendments to the existing retaining wall immediately to the south of the Penistone Road/Storthes Hall Lane junction in order to improve visibility to the south. The indicative works include:
    - Replacement of the existing highway retaining wall over a circa 17m length;
    - Initial 4m of the retaining wall to be topped with a 1.15m high 50mm tubular steel handrail;
    - Provision of an 800m high parapet wall, topped with a 350mm high 50mm handrail over the remaining 13m length;
    - The amendments to the wall would increase visibility to the south from 2.4m x 25m to 2.4m x 53m, measured 0.5m into the carriageway avoiding the parapet; and
    - Visibility over the parapet wall, suitable for seeing high sided vehicles would increase to 2.4m x 90m, measured 0.5m into the carriageway.

Drawing 18092/IN/06 illustrates the extent of the proposed traffic regulation orders in the vicinity of the junction.

A vehicle swept path analysis of the scheme is provided on Optima drawing 18092/ATR/04.

Design standards applied to the scheme design
DMRB (CD123/CD109), LTN 1/20, Traffic Signs Manual & Kirklees Highway Design Guide.
Design speeds
Storthes Hall Lane – 40mph A629 Penistone Road – 40mph North Road – 30mph
Speed limits
Storthes Hall Lane – 40mph A629 Penistone Road – 40mph B6116 North Road – 30mph Recorded vehicle speeds are shown on drawings 18092/GA/01/REV/E and 18092/GA/02/REV/F.
Existing traffic flows/queues
2022 Survey Flows are shown on traffic flow diagram figures 100 and 101 for the AM and PM peak hours respectively contained within the Transport Assessment Addendum. 2032 Base Flows are shown on traffic flow diagram figures 126 and 127 for the AM and PM peak hours respectively. Recorded vehicle queues at the A629 Penistone Road/Storthes Hall Lane and A629 Penistone Road/North Road junctions are provided within Sections 5.2 and 5.8 respectively within the Optima Transport Assessment Addendum.
Forecast traffic flows
The development is predicted to generate 164 vehicle trips two-way during both the AM and PM peak hours. Traffic flow diagrams and junction capacity assessments are contained within the Transport Assessment Addendum.
Pedestrian, cyclist and equestrian desire lines
Key facilities located within Highburton and Kirkburton to the north-east of the Site and are accessible within a circa 1.8km walk via Storthes Hall Lane and A629 Penistone Road. A contribution is being made to provide bus penetration within the development. The closest existing bus stops are located at the Penistone road/Storthes Hall Lane junction. The development is predicted to generate low volumes of pedestrian trips given the distance to local facilities. The main desire line to facilities within Highburton and Kirkburton is along Storthes Hall Lane, A629 Penistone Road and North Road, via the improved footway provision at each junction. The proposed Toucan crossing will then facilitate safe passage for pedestrians and cyclists across the A629 Penistone Road just north of the Penistone Road/North Road junction. From here, pedestrians and cyclists will have access to a proposed shared footway/cycleway leading north-east along North Road. Cyclists will then discharge into an existing on-carriageway cycle lane, with pedestrians continuing along an existing 1.2m wide footway.

Environmental constraints
None known.

Table C.4 Locality

Description of locality
The Site is located on land to the southeast of Storthes Hall Lane, approximately midway along its length. The Site has a Nett area of 7.75 hectares (19.16 acres) and is located 5.5km southeast of Huddersfield and 1.7km west of the village of Kirkburton. The Site includes the former Storthes Hall Student Village, which previously accommodated 1,367 rooms. The student village closed in late 2024. The Site is bound by Storthes Hall Lane to the north and west, Shelley Community Football Club and pitches to the east (to be retained) and cleared land formerly accommodating Storthes Hall Hospital, which closed in 1991, to the south, which forms part of the large housing allocation. Storthes Hall Lane runs for approximately 2km on a northeast to southeast alignment from a priority T-junction with the A629 Penistone Road to a priority T-junction with Farnley Road to the southwest. Storthes Hall Lane is subject to a 40mph speed limit, commencing circa 180m north of the Farnley Road junction where the speed limit changes to from 60mph to 40mph. The A629 Penistone Road runs on a north to south alignment from the A642 Wakefield Road in Waterloo to Shepley Village. At the junctions with Storthes Hall Lane the speed limit is 40mph, with an area of central road hatching and a ghost turning island (2.1m wide) for access to the two-way section of Storthes Hall Lane.
Relevant factors which may affect road safety
See departure from standards.

Table C.5 Analysis

Collision data analysis

Personal injury collision data was obtained for the highway network in the vicinity of the Site for the 5-year period prior to July 2022 as part of the original TA. The study area included the full length of Storthes Hall Lane including its junctions with the A629 Penistone Road and Farnley Road, as well as Penistone Road up to and including the Penistone Road/North Road junction.

Collisions across the proposed scheme were recorded as follows:

Location	Severity			
	Slight	Serious	Fatal	Total
Northern Site Access	1	0	0	**1**
Southern Site Access	0	0	0	**0**
Storthes Hall Lane	0	0	0	**0**
A629 Penistone Road/Storthes Hall Lane junction	2	0	0	**0**
A629 Penistone Road (in vicinity of proposed Toucan Crossing)	0	1	0	**1**
A629 Penistone Road/North Road junction	2	0	0	**2**

Departures from standards

Northern Site Access

The Northern site access is to be provided with 2.4m x 90m junction visibility splays in both directions, in order to minimise the impact on trees to the north and south of the junction, the principle of which has been agreed with HDM. The proposed visibility splays are based on DMRB CD109 Table 2.10 'one-step below' values based on recorded vehicle speeds.

The proposed access arrangements provide a significant improvement to existing visibility of 2.4m x 52m to the east and 2.4m x 50m to the west.

Southern Site Access

The Southern site access is also to be provided with 2.4m x 90m junction visibility splays in both directions, in order to minimise the impact on trees to the north, the principle of which has been agreed with HDM. The proposed visibility splays are based on DMRB CD109 Table 2.10 'one-step below' values based on recorded vehicle speeds.

The proposed access arrangements provide a significant improvement to the northern visibility which is currently provided at 2.4m x 24m.

A greater level of visibility, measured at 2.4m x 134m is available to the south.

Proposed Bridge Signalisation
Footway widths of circa 1-1.7m are proposed in the vicinity of the proposed bridge signalisation along Storthes Hall Lane, which fall below the recommended minimum widths quoted within Inclusive Mobility Guidance. However, the proposed scheme incorporates the maximum widths that can be provided within the constraints of the adopted highway, whilst also accommodating the required vehicle swept path analysis. The scheme also provides a significant betterment to the existing situation, which results in pedestrians entering the carriageway when crossing the existing bridge and as Storthes Hall Lane (east) meets the A629 Penistone Road.

North Road Proposed Cycle Facility
In order to accommodate the required swept path analysis along North Road, the proposed shared footway/cycleway reduces to 2-2.5m over a distance of circa 17m, which is below recommended widths identified within LTN 1/20 of 3.0m. To the south, the cycle/footway widens to 2.7m before transitioning back to the existing cycle lane, and to the north widens to 3m+ for the remaining length up to the proposed Toucan crossing.

Half size SLOW markings and cycle symbols have been provided to mitigate the reduced width and downhill gradient towards Penistone Road.

Previous road safety audit stage reports, road safety audit response reports and evidence of agreed actions

None.

Strategic decisions

Bridge signalisation in order to manage queuing toward Penistone Road.

List of included documents and drawings

Documents

Optima Transport Assessment (Rev 1) dated November 2023
Optima Transport Assessment Addendum (Initial Issue) dated December 2024

Drawings

Drawings Subject to this Road Safety Audit

Northern Access
Optima drawing no. 18092/GA/01/REV/E – General Arrangement
Optima drawing no. 18092/ATR/01/REV/A – Vehicle Swept Path Analysis
Southern Access
Optima drawing no. 18092/GA/02/REV/F - General Arrangement
Optima drawing no. 18092/ATR/01/REV/A – Vehicle Swept Path Analysis
Off-site Improvement Scheme
Optima drawing no. 18092/GA/05 – General Arrangement
Optima drawing no. 18092/ATR/04 – Vehicle Swept Path Analysis
Optima drawing no. 18092/IN/06 – Traffic Regulation Orders

Drawings provided for background information
Parker Peel drawing no. 1862-MP-01 – Indicative Masterplan

Table C.6 Checklist

Tick all that are included and provide reasons for those that are not included			
Site location plan	☒	Scale layout plans	☒
Departures and relaxations from standards	☒	Construction/typical details N/A	☒
Previous RSA reports N/A	☒	Previous RSA response reports and evidence of agreed actions N/A	☒
Collision data and collision data analysis	☒	Road traffic collision plot	☒
Traffic signal staging	☒	Traffic counts	☒
Speed surveys	☒	Pedestrian, cyclist and horse-riding desire lines and volumes	☒
Walking, cycling and horse-riding assessment and reviews N/A	☒	Items outside the scope of the RSA/strategic decisions N/A	☒
Other factors that may impact on road safety N/A	☒	Design speeds/speed limits	☒
Design standards used	☒	Adjacent land uses	☒