



meraki alliance

Highways, Transportation & Safety Consulting

Residential Development: Lingards Road, Slaithwaite - S38

Road Safety Audit: Stage 2

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Highways, Transportation & Safety Consulting

Residential Development: Lingards Road, Slaithwaite - S38

Road Safety Audit: Stage 2

Report Produced for:	Kirklees Council
Report Produced by:	Jonathan Birkett
Report Dated:	02 Sept 2024
Report Reference:	MAL/LRSRSA2Rev0
Road Safety Audit Team Leader:	Jonathan Birkett

Residential Development: Lingards Road, Slaithwaite - S38

Road Safety Audit: Stage 2

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1 Introduction

1.1 General

This report has been prepared in response to a request to undertake a Stage 2 Road Safety Audit (RSA), (i.e., carried out prior to construction), by Steve Mitchell of SB Homes on behalf of the Overseeing Organisation, Kirklees Council.

The scheme submitted for Audit is the proposed access junction and internal layout of the residential development. The works will include:

- Priority access.
- Footway works.
- Internal road layout.

Overseeing Organisation

Kirklees Council.

Client

SB Homes.

Designers

Haigh Huddleston & Associates.

The audit comprised an examination of documents forming the Audit Brief and an examination of the site.

1.2 Documents Forming the Brief

The documents were made available to the Road Safety Audit Team by Steve Mitchell of SB Homes on behalf of the Overseeing Organisation, Kirklees Council. The total documents forming the Audit Brief are listed in Appendix 1:

Generally, the Brief comprised:

- Agreed brief.
- Drawings.
- Previous RSA 1 Sevenairs Consulting Ltd Ref 2022-09 Slaithwaite RSA1.
- Designers response.

1.3 Collision Traffic and Speed Data

Collision data was available as part of the Brief. The data covered the most recent 5 years of data available on the “Crashmap” website. A plan of the most recent 5 years of data 2018-2022 is provided in Figure 1 below.

Examination of the data shows that there have been no personal injury collisions in proximity to the proposed development.

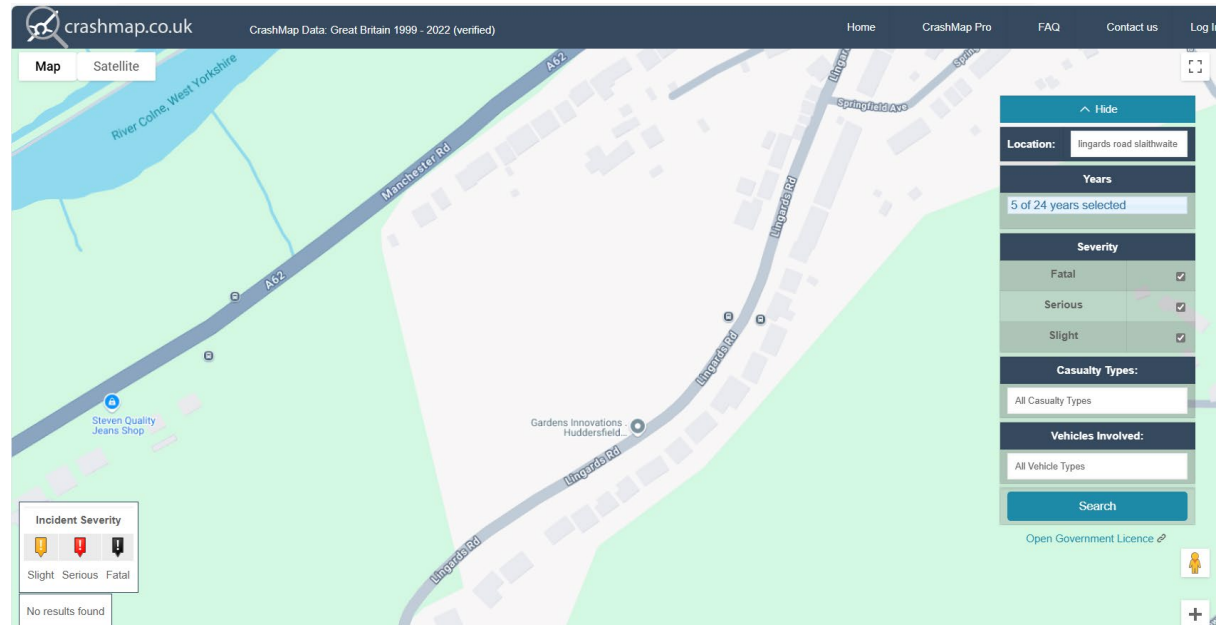


Figure 1: CrashMap Data 2018 -2022

Traffic count data was not available.

Speed data was not available.

1.4 Details of Site Visit

A site inspection was undertaken on 01 September 2024 between 11:30 and 12:15. The Audit Team spent 45 minutes on site understanding the proposed works and their interaction with the local road network.

During the site visit the weather was overcast and warm. No incidents were noted whilst on site.

1.5 Road Safety Audit Team and Format

It was considered that the information provided was sufficient for the purpose of carrying out the Road Safety Audit Stage 2 requested.

The Road Safety Audit Team membership approved was:

JONATHAN BIRKETT IENG MICE FIHE

Holder of Certificate of Competency

Road Safety Audit Team Leader

The Road Safety Audit comprised an examination of the documents and drawings supplied to the Road Safety Audit Team (referenced in Appendix 1 of this report). No member of the Road Safety Audit Team has had any previous input to the design of the scheme.

The Terms of Reference are as described in the National Highways Design Manual for Roads and Bridges document GG119 'Road Safety Audit'. The scheme has been examined and this report compiled only with regard to safety implications to road users of the scheme as presented. It has not been verified for compliance with any other Standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. However, any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.

Furthermore, any recommendations included within this report should not be regarded as being prescriptive design solution to the problem raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, as stipulated in GG119, and in no way imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which should be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

It is the Project Sponsor's responsibility to ensure that all problems raised by the Road Safety Audit Team are given due consideration.

In the event of a collision and any resulting legal action, Meraki Alliance Ltd would have to defend its actions on the basis that it took such care, as in all circumstances was reasonably required, to ensure that the highway was not dangerous to road users. It is important therefore that recommendations contained in the report are acted upon wherever possible.

1.6 Departures or Relaxations from Standards

No departures from standard have been provided to the RSA Team.

1.7 Issues Raised at Previous Road Safety Audit.

A previous RSA 1 was undertaken by Sevenairs Consulting Ltd Ref 2022-09 Slaithwaite RSA1. Details of the problems raised and associated Designers Response are within Appendix 2.

1.8 Information Not Provided at this Road Safety Audit Stage 2

All information provided.

1.9 Items Considered but not Included Within the Road Safety Audit

No items identified outside the scope of the RSA.

2 Items Raised at Previous Stage 1 Road Safety Audit

The previous RSA 1 and Designers Response are contained within Appendix 2 for reference. All problems previously raised and associated Designers Response have been considered as part of this RSA 2.

**END OF PROBLEMS IDENTIFIED AND RECOMMENDATIONS PRESENTED IN
PREVIOUS STAGE 1 ROAD SAFETY AUDIT**

3 Items Raised at Stage 2 Road Safety Audit

This section details the findings of this Stage 2 Road Safety Audit. The problems identified are summarised in Appendix 3.

3.1 Road Safety Audit - Problems - Stage 1/2

PROBLEM		2-1
Location:	Access junction.	
Summary:	Obstructed visibility will increase the risk of failure to give way type collisions.	
The Audit Team were concerned that on street parking could block visibility to the left for vehicles existing the development. During the site visit it was noted that cars were parked outside number 45 Lingards Road within the proposed visibility splay (photo). Obstructed visibility will increase the risk of failure to give way type collisions.		
RECOMMENDATION		
Ensure that unobstructed visibility is provided.		

PROBLEM		2-2
Location:	Uncontrolled crossing access junction.	
Summary:	Obstructed visibility between pedestrians on the crossing and approaching vehicles will increase the risk of pedestrian/vehicle collisions.	
An uncontrolled crossing is proposed at the new site access junction which is slightly inset. The Audit Team considered that the position of the crossing could lead to physical features around the junction (hedge/trees) blocking intervisibility between pedestrians on the crossing and approaching vehicles. DMRB CD 109 states that visibility at uncontrolled crossings is measured 1.5m back from the edge of carriageway with a splay appropriate for the speed of approaching vehicles turning into the development. Obstructed visibility will increase the risk of pedestrian/vehicle collisions.		
RECOMMENDATION		
It is recommended that visibility splays of at least 1.5m x 40m are provided and if these cannot be provided without obstruction then the crossing will need to be moved.		

**END OF PROBLEMS IDENTIFIED AND RECOMMENDATIONS PRESENTED IN
PREVIOUS STAGE 1/2 ROAD SAFETY AUDIT**

4 Audit Team Statement

We certify that this Road Safety Audit has been carried out in accordance with GG119	
ROAD SAFETY AUDIT TEAM LEADER	
NAME:	JONATHAN BIRKETT
SIGNED:	
POSITION:	DIRECTOR
ORGANISATION	MERAKI ALLIANCE LTD
DATE:	02 SEPT 2024
ROAD SAFETY AUDIT TEAM MEMBER	
NAME:	GILLIAN KIDD
SIGNED:	
POSITION:	AUDIT TEAM MEMBER
ORGANISATION	MERAKI ALLIANCE LTD
DATE:	02 SEPT 2024

Appendix 1 – Audited Documents and Drawings

2022-09 Slaithwaite RSA1 - Rev 0

7567_005-01F Long sections

7567_009B Road Construction Details

7567_022D S38 Agreement Plan

7567_024H S104 Agreement Plan

7567_034K Vehicle Tracking Plan

7567_040B Kerbing Plan

7567_041B Surface Treatment Plan

7567_042B Road Contour & Gully Catchement Plan

7567_043A General Arrangement Plan

7567_050 Site Frontage - Construction details thro section A-A

7567_052 Road Contour Plan

7567_100E Highway Wall to Road 2A

7567_101 Highway Wall to Road 1A

7567L002 38 RSA designers response

Pedestrian island issue 28.08.24

R-2646-1 Landscape Masterplan 500@A1

REF 2404 _ Lingards Road, Slaithwaite - Pedestrian crossing at the entrance

Stage 2 RSA Audit Brief Rev A

Street Lighting 6817 Layout1 (1)

Appendix 2 – Previous RSA 1 and Designers Response



Sevenairs Consulting Ltd

Lingards Road, Slaithwaite, Kirklees

Road Safety Audit Stage 1

September 2022



Document Control

Report Title:

Lingards Road, Slaithwaite, Kirklees – Road Safety Audit Stage 1

Date of Site Visit

13th September 2022

Document Reference

2022-09 Slaithwaite RSA1 – Revision 0

Report Prepared By:

Haydn Vernals FCIHT FIHE CMILT MSoRSA, Sevenairs Consulting Ltd

Sevenairs Consulting Ltd, 20 High Bank, Thurlstone, Sheffield, South Yorkshire, S36 9QH

On behalf of

Paragon Highways – Office 20/21 The Rear Walled Garden, Nostell Estate, Wakefield WF4 1AB

Highway Authority / Overseeing Organisation

Kirklees Council

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Document History:

Revision	Date	Description	By
0	14.07.2022	For Issue	HV

Introduction

Commissioning and Scope

This report results from a Stage 1 Road Safety Audit carried out at the site a proposed development access off Lingards Road in Slaithwaite, Kirklees, at the request of Paragon Highways Limited on behalf of the developer of the site.

The Road Safety Audit Brief was supplied by Leigh Ogden, Director, Paragon Highways on behalf of the developer.

The Road Safety Audit Brief was approved by Leigh Ogden, Director, Paragon Highways on behalf of the developer.

The Road Safety Audit team membership approved by Leigh Ogden, Director, Paragon Highways on behalf of the developer, and was as follows:

The Audit Team	Haydn Vernals FCIHT FIHE CMILT MSoRSA Directive 2008/96/EC (Certificate of Competency), Road Safety Team Leader in accordance with GG119
	Sarah Stewart BAHonsQTS NPQH, Road Safety Team Member in accordance with GG119
Audit Observers	None

A site visit took place comprising of the RSA team on Tuesday 13th September 2022 between 12:00 and 12:30 hours during which the weather was sunny and the road surface was dry. Traffic conditions were light and free flowing, with a small number of pedestrians observed but no cyclists observed.

The main project is the development of the site for residential use, with 42 new homes, with a single point of access onto Lingard Hill for 33 of these new homes, the reminder accesses directly from Lingard Hill. The scope of this audit is to review the site access, internal access road, access points for works on Lingard Hill and a dropped crossing nearby on Springfield Avenue.

The RSA took place in September 2022 at the Sevenairs Consulting Office in Sheffield and was undertaken in accordance with the RSA brief provided by Leigh Ogden, Director, Paragon Highways on behalf of the developer. The audit comprised of an examination of the documents provided as outlined in the audit brief and the scheme as proposed on site.

No departures from standard have been brought to the attention of the RSA team with regard to the scheme as designed.

Documents Supplied

- E-mail proposal background
- 1804 202 - Springfield Avenue Improvements
- 7567_000E Planning Layout
- 7567_034B Vehicle Tracking Plan

Terms of Reference

The terms of reference of this Road Safety Audit are as described in GG119 Road Safety Audit. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

Each of the auditors' responses is classified as a 'Problem' that is likely to result in a significant road safety hazard. All comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan at the end of the report.

Where recommendations are made, these do not comprise design decisions, and it remains the responsibility of the Design Team to incorporate any changes into the scheme, and consider any interactions between design elements.

Problems Raised at this Stage 1 RSA

PROBLEM – A-01

Location: Junctions and bends on the internal estate roads

Summary: Visibility – Insufficient forward visibility into side roads and around bends may increase the risk of collisions involving pedestrians.

Although junction visibility has been provided at the main access onto Lingards Road, there are locations across the development where the forward visibility when turning around the bend or into the turning heads may be obstructed by planting, fencing, walls, areas for parking etc. This is especially an issue for left turns where children could be crossing or playing in the street or shared space areas. Insufficient forward visibility around bends or into turning heads may increase the risk of collisions involving pedestrians.

RECOMMENDATION

It is recommended that forward around the inside of bends and into turning heads is assessed and that the visibility envelope is kept clear of obstructions such as planting, fencing, walls, areas for parking etc, in line with Manual for Streets. i.e. planting when mature should not exceed 600mm from the adjoining carriageway surface with the underside of any tree canopy to be above 2000mm. This is especially an issue on this particular development in terms of the steep gradients which may push the upper envelope of visibility above the 2000mm height.

PROBLEM – A-02

Location: Main access and internal estate roads

Summary: Drainage – Insufficient surface water drainage may increase the risk of skidding type collisions at the junction, and also slips and falls by pedestrians

At this early stage, no details have been provided on the proposed drainage arrangements. It was noted that the development site graded significantly down away from Lingards Road, as such, this may require measures to manage surface water towards the western end of Road 1 and the northern end of Road 2, to reduce the risk of standing water and detritus in the turning heads that may consequently cause skidding type collisions or slips and falls by pedestrians crossing in this area.

RECOMMENDATION

It is recommended that drainage details are provided at the next stage of road safety audit including locations of gully locations, levels and contours.

PROBLEM – A-03

Location: Lingards Road

Summary: Drainage – Insufficient surface water drainage may increase the risk of skidding type collisions at the junction, and also slips and falls by pedestrians

At this early stage, no details have been provided on the proposed drainage arrangements. It was noted that Lingards Road graded steeply down towards the north east, and specifically to the frontage of plots 36 to 42, appeared to have crossfall towards an existing non-kerbed verge, where surface water is allowed to currently freely drain into the verge. It is assumed that a full height kerb will be provided on the north western edge of existing carriageway, as such, this may require measures to manage surface water to the high side of each driveway / direct access point, to reduce the risk of standing water and detritus in the vehicle crossing areas that may consequently cause skidding type collisions or slips and falls by pedestrians crossing in these areas.

RECOMMENDATION

It is recommended that drainage details are provided at the next stage of road safety audit including locations of gully locations, levels and contours.

PROBLEM – A-04

Location: Internal development roads

Summary: Skidding Resistance – Insufficient skidding resistance may increase the risk of loss of control type collisions.

No details have been provided of the polished stone values (PSV) of the bituminous materials, especially with consideration of the proposed estate road gradient of 1 in 12 (8.33%). In addition, there are likely to be inspection chamber covers on gradients and near junctions. Inappropriate carriageway construction with low PSV values or covers with a low PSV may increase the risk of overshoot, rear shunt or pedestrian accidents, and may also increase the risk of skid/loss of control type collisions for powered two-wheel users.

RECOMMENDATION

It is recommended that a minimum 55 PSV is provided and that inspection chamber covers provide a similar level of skidding resistance to the surrounding carriageway surface.

PROBLEM – A-05

Location: Existing Watercourse

Summary: Fences and Restraint System – A lack of protection to the watercourse may increase the risk of falls and errant vehicles entering the water.

Access to the site was not possible, so the scope of the watercourse could not be established. However, regardless of the general water levels, there may be a significantly increased risk of danger during and after heavy rainfall that is common in this area. The audit team note that no details have been indicated to the level difference to the watercourse or to any form of guardrail or vehicle restraint provided. There is a risk that in particular, during and after heavy rainfall, whilst the risk does not change, the severity outcome may increase significantly should a pedestrian fall into the watercourse or an errant vehicle enter the watercourse, i.e. from a driveway or the car port area. This lack of protection to the watercourse may increase the risk of falls and errant vehicles entering the water.

RECOMMENDATION

It is recommended that sufficient measures are in place to reduce the risk of pedestrians falling into the watercourse and also to reduce the risk of errant vehicles entering the watercourse.

PROBLEM – A-06

Location: Junction onto Lingards Road and the southern end of Road 2

Summary: Carriageway Markings – Lack of junction priority markings may increase the risk of junction related collisions

At this early stage, no details have been provided on the proposed road markings on the internal estate roads. The audit team felt that with the greater number of vehicles using the access than the southern end of Lands Beck Way, there was a risk that the side road traffic may adopt a “right of priority” over the existing road. A lack of junction priority markings may increase the risk of junction related collisions on the estate roads.

RECOMMENDATION

It is recommended that junction priority markings (give way markings) are provided.

Audit Team Statement

We certify that this Road Safety Audit has been carried out in accordance with GG119.

Road Safety Audit Team Leader

Signed:

Haydn Vernals FCIHT FIHE CMILT MSoRSA, Directive
2008/96/EC (Certificate of Competency)

Date: 14th September 2022

Sevenairs Consulting Ltd
20 High Bank, Thurlstone, Sheffield,
South Yorkshire, S36 9QH

Road Safety Audit Team Member

Signed:

Sarah Stewart BAHonsQTS NPQH

Date: 14th September 2022

Sevenairs Consulting Ltd
20 High Bank, Thurlstone, Sheffield,
South Yorkshire, S36 9QH



E19/7567/HH/001

12 October 2022

FAO Steve Mitchell
SB Homes
Empire House
Lewisham Road
Slaithwaite
Huddersfield
HD7 5AL

Dear Sir,

Re: Development off Lingards Road, Slaithwaite for SB Homes.

This letter has been prepared as a response to the S38 Stage 1 Road Safety Audit undertaken by Sevenairs Consulting Ltd. Each problem raised by the Road Safety Audit has been listed, along with the recommendations and our designers response:

Problem – A-01

Summary: *Visibility – Insufficient forward visibility into side roads and around bends may increase the risk of collisions involving pedestrians.*

Although junction visibility has been provided at the main access onto Lingards Road, there are locations across the development where the forward visibility when turning around the bend or into the turning heads may be obstructed by planting, fencing, walls areas for parking etc. This is especially an issue for left turns where children could be crossing or playing in the street or shared space areas. Insufficient forward visibility around bends or into turning heads may increase the risk of collision involving pedestrians.

Recommendation: *It is recommended that forward around the inside of bends and into turning heads is assessed and that the visibility envelope is kept clear of obstruction such as planting, fencing, walls, areas for parking etc, in line with Manual for Streets, ie. Planting when mature should not exceed 600mm from the adjoining carriageway with the underside of any tree canopy to be above 2000mm. This is especially an issue on this particular development in terms of the steep gradients which may push the upper envelope of visibility above the 2000mm height.*

Designers Response: All fencing, planting and walls along the proposed carriageway has been designed in line with Manual for Streets and has is shown on the attached landscaping plan for reference (drwg no. R/2646/1A). A stand-off distance from the new channel line has also been included to ensure no trees are planted within 3m of the highway.

Problem – A-02A

Summary: *Drainage – Insufficient surface water drainage may increase the risk of skidding type collisions at the junction, and also slips and falls by pedestrians.*

At this early stage, no details have been provided on the proposed drainage arrangements. It was noted that the development site graded significantly down away from Lingards Road, as such, this may require measures to manages surface water towards the western end of Road 1 and the northern end of Road 2, to reduce the risk of standing water and detritus in the turning heads that may consequently cause skidding type collisions or slips and falls by pedestrians crossing in this area.

Recommendation: *It is recommended that drainage details are provided at the next stage of road safety audit including locations of gullies locations, levels and contours.*

Designers Response: The proposed road & drainage design for the new development has been attached for reference (drwg no. E19/7567/004D) which includes the locations for all proposed gullies, road levels and existing site survey information.

Problem – A-03

Summary: *Drainage – Insufficient surface water drainage may increase the risk of skidding type collisions at the junctions, and also slips and falls by pedestrians.*

At this early stage, no details have been provided on the proposed drainage arrangements. It was noted that Lingards Road graded steeply down towards the north east, and specifically to the frontage of plots 36 to 42, appeared to have crossfall towards an existing non-kerbed verge, where surface water is allowed to currently freely drain into the verge. It is assumed that a full height kerb will be provided on the north western edge of existing carriageway, as such, this may require measures to manage surface water to the high side of each carriageway / direct access point, to reduce the risk of standing water and detritus in the vehicle crossing areas that may consequently cause skidding type collisions or slips and falls by pedestrians crossing in these areas.

Recommendation: *It is recommended that drainage details are provided at the next stage of road safety audit including locations of gullies locations, levels and contours.*

Designers Response: A new 2m minimum wide footpath is to be constructed along the site frontage of Lingards Road as shown on drwg no. E19/7567/004D. Several new gullies will also be constructed along the new kerb line. These new gullies are to be constructed upstream of each drive access of plots 34-43 to help reduce the risk of standing water and detritus occurring on the vehicle crossings.

Problem – A-04

Summary: *Skidding Resistance – Insufficient skidding resistance may increase the risk of loss of control type collisions.*

No details have been provided of the polished stone values (PSV) of the bituminous materials, especially with consideration of the proposed estate road gradient of 1 in 12 (8.33%). In addition, there are likely to be inspections chamber covers on gradients and near junctions. Inappropriate carriageway construction with low PSV values or covers with a low PSV may increase the risk of overshoot, rear shunt or pedestrian accidents, and may also increase the risk of skid/loss of control type collisions for powered two-wheel users.

Recommendation: *It is recommended that a minimum 55 PSV is provided and that inspection chamber covers provide a similar level of skidding resistance to the surrounding carriageway surface.*

Designers Response: The proposed highway is to be constructed to Kirklees Standard Guidance as part of the S38 agreement. A copy of the Kirklees construction specification has been included on drwg no. E19/7567/004D for reference. In addition, the proposed manhole covers within the adopted highway are to be Class D400 ductile iron and comply with European standards BS EN 124 in accordance with Yorkshire Water standards as part of the S104 agreement.

Problem – A-05

Summary: *Fences and Restraint System – A lack of protection to the watercourse may increase the risk of fall and errant vehicles entering the water.*

Access to the site was not possible, so the scope of the watercourse could not be established. However, regardless of the general water levels, there may be a significantly increased risk of danger during and after heavy rainfall that is common in this area. The audit team note that no details have been indicated to the level difference to the watercourse or to any form of guardrail or vehicle restraint provided. There is a risk that in particular, during and after heavy rainfall, whilst the risk dose not change, the severity outcome may increase significantly should a pedestrian fall into the watercourse or an errant vehicle enter the watercourse, ie. from a driveway or the car port area. This lack of protection to the watercourse may increase the risk of falls and errant vehicles entering the water.

Recommendation: *It is recommended that sufficient measures are in place to reduce the risk of pedestrians falling into the watercourse and also to reduce the risk of errant vehicles entering the watercourse.*

Designers Response: A 900mm high post & rail fence has been specified to run along the edge of the watercourse to separate the watercourse from the footpath and help reduce the risk of pedestrians falling in and also reduce the risk of errant vehicles entering the watercourse. Please refer to drwg no. R/2646/1A for reference.

Problem – A-06

Summary: *Carriageway Markings – Lack of junction priority markings may increase the risk of junction related collisions.*

At this early stage, no details have been provided on the proposed road markings on the internal estate roads. The audit team felt that with the greater number of vehicles using the access than the southern end of Lands Beck Way, there was a risk that the side road traffic may adopt a "right of priority" over the existing road. A lack of junction priority markings may increase the risk of junction related collisions on the estate roads.

Recommendation: *It is recommended that junction priority markings (give way markings) are provided.*

Designers Response: 'Give Way' markings have been introduced to the site entrance junction and the Rd1/Rd2 junction to ensure the 'right of priority' is clear to all road users. Please refer to drwg no. E16/7567/004D for reference.

I trust the above statement meets with your satisfaction, however should you require any further information please do not hesitate to contact me direct.

Yours faithfully,



1. ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "CODES FOR ADOPTION", THE RELEVANT BRITISH EUROPEAN AND YORKSHIRE WATER'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
2. MANHOLE COVERS SHALL MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.
3. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
4. YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAIN/AND DRAINAGE RUNOFF INTO THE PUBLIC SEWER NETWORK OR ADOPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUNOFF WILL THEREFORE BE REQUIRED AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY, LAND DRAINAGE SECTION WITH REGARD TO THE DISPOSAL OF THE FILTER DRAIN/AND DRAINAGE RUNOFF.
5. COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY YORKSHIRE WATER INSPECTOR. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOADING BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600x600mm FOR THE YORKSHIRE WATER SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEMS ASSOCIATION (CPSA), TECHNICAL BULLETIN ISSUED AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.
6. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
7. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1m AND MANHOLES 0.5m FROM KERB FACES.
8. SEWERS MUST HAVE 5m CLEARANCE FROM TREES AND HEDGES.
9. SEWERS TO BE LAID IN CLASS "S" BEDDING (150mm GRANULAR BED AND SURROUND), WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) THEN A 175mm CONCRETE SLAB OVER SEWER SHALL BE PROVIDED.
10. ALL PIPEWORK 300mm DIAM. OR LESS TO BE VITRIFIED CLAY CONFORMING WITH BS 65. MINIMUM CRUSHING STRENGTHS TO BE AS FOLLOWS: 100mm DIA. 40kN/m, 150mm DIA 45kN/m, 225mm DIA 45kN/m, 300mm DIA 72kN/m.
11. ALL PIPEWORK 375mm DIAM. OR GREATER TO BE CONCRETE CLASS 120 TO EN 1916/ BS 5911-1: 2002.
12. THE CHAMBER SIZE OF MANHOLE WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
13. YORKSHIRE WATER POLICY IS NOT TO ACCEPT TYPE "C" BRICK MANHOLES AND 1050mm DIAM. MANHOLE RINGS. INSTEAD IT IS PREFERRED THAT YOU USE A TYPE "B" MANHOLE WITH 1200mm DIAM. OR 1500mm DIAM. RINGS, WITH THE OPENING SIGHTED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1-1.5m.
14. ALL HIGHWAY WORKS AND MATERIAL TO CONFORM WITH KIRKLEES COUNCIL DESIGN GUIDANCE AND SPECIFICATION.
15. GULLY COVER AND FRAMES SHALL BE D400 DUCTILE IRON AND COMPLY WITH EUROPEAN STANDARD BS EN 124. THOSE SIGHTED IN ACCESSWAYS AND MEWS COURTS MUST BE SUITABLE FOR USE IN PEDESTRIAN AREAS.
16. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-2 (TABLE A2).
17. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD PREFER CLAYWARE CHANNELS IN MANHOLES. YORKSHIRE WATER HAVE FOUND THAT PLASTIC CHANNELS ARE DIFFICULT TO SET IN CONCRETE AS THEY FLOAT AND A SATISFACTORY FINISH CANNOT BE OBTAINED ON BENCHING.
18. WHERE A 51/25 COVER AND FRAME HAS BEEN APPROVED, THIS **MUST NOT** BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE **NOT** ACCEPTABLE.
19. THERE SHOULD BE ENOUGH CLEARANCE TO ACCOMMODATE THE BEDDING FOR BOTH PIPES, APPROX 300mm : IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY BE INCREASED.

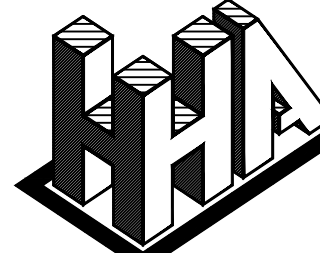
KIRKLEES PAVEMENT DESIGN					
ROAD LAYER	ALTERNATIVE MATERIAL	SHARED SURFACE/ HOME ZONE	LOCAL RESIDENTIAL STREET	CONNECTOR STREET	INDUSTRIAL ROAD
SURFACE COURSE	10mm stone mastic asphalt surface course SMA 14 surf 40/60			50	50
	0/8mm dense surface course AC 6 dense surf 100/150	30	30		
	Concrete block paving on 30mm sand bed red or brindle or similar approved. (Tegula / Yorkstone in conservation area)	80	N/A	N/A	N/A
BINDER COURSE	0/20 dense binder course AC 20 dense bin 100/150	55	55	55	55
BASE COURSE	0/32 dense / binder course AC 32 dense base / bin 100/50	85	85	85	150

KIRKLEES PAVEMENT FOUNDATION DESIGN				
SUBBASE ON CAPPING			SUBBASE ONLY	
CBR %	CAPPING(mm)	+ SUB BASE(mm)	SUB BASE(mm)	
<2.5	Ground improvement will need to be considered to improve the subgrade CBR			
2.5	430	250	OR	420
3	380	230		370
4	320	220		320
5-15	260 -160	200		280 - 210
Greater than 15	150	200*		200*

- *Recommended minimum:
150mm sub-base + 600mm capping with layer 1 geogrid
1. Where <2m of made ground is present full excavation and replacement with engineered fill is required (usually without geogrids).
 2. Where 2m to 5m of made ground is present a minimum 2m depth of excavation is required and replacement with geogrid (minimum 2 no. layers) reinforced engineered fill (proposal requires approval).
 3. Where >5m of made ground is present specific ground improvement (proposal requires approval) is required.

KIRKLEES FOOTWAY AND CYCLEWAY PAVEMENT DESIGN					
TYPE	CBR	SUB-BASE(mm)	BASE (mm) AC 32 dense base 100 / 150	BINDER COURSE (mm) AC 20 dense base 100 / 150	SURFACE COURSE(mm) AC 6 dense base 100 / 150
Pedestrian only Footway / Cycleway or Footpath	≥ 2.5%	100	0	50	20
Vehicular Footway Crossing or Light-Vehicle footways / cycleways	≥ 2.5%	225	0	50	20
Heavy-Vehicle footways/ Cycleways	≥ 2.5%	320	90	0	25
	≥ 2.5% & ≤ 4%	210	90	0	25

- Rev D Gullies added to new site frontage footpath. Tactile paving added. 12.10.22 HH
Rev C Updated to suit latest planning layout, SWS outfall amended to suit 11.10.22 HH
clients instructions. White lining added.
Rev B Road 1A amended to suit Kirklees comments 21.07.22 HH
Rev A Plot 6-19 & 24 amended to suit clients instructions. Site entrance radii 21.07.22 HH
increased. Highway dimensions added. Visibility displays added to plots 36-41.



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Client

SB HOMES

Project

LINGARD ROAD, SLAITHWAITE

Detail

MAIN ROAD AND SEWER PLAN

Dwn

HH

Chkd

Date

JUN-22

Scale

1:500@A1

Dwg No.

E19/7567/004D



KEY

- Existing vegetation to be retained
- Proposed Extra heavy standard (14-16cm girth) tree
- Proposed heavy standard (12-14cm girth) tree
- Proposed selected standard (10-12cm girth) tree
- Proposed Beech hedging
- Proposed native species hedge
- Proposed ornamental shrub planting
- Proposed mixed native species scrub
- Proposed turf
- Rear gardens
- Proposed amenity grass seed
- Proposed wildflower grass seed
- Proposed 1500mm high close boarded timber fencing with 300mm trellis on top (detailed by others)
- Proposed 1800mm high close boarded timber fence to 2m from wall of house then 1200mm for the rest of it's length (detailed by others)
- Proposed walls (detailed by others)
- Proposed retaining walls (detailed by others)
- Proposed 900mm vertical metal railing (detailed by others)
- Proposed 900mm post and rail fence (detailed by others)
- Existing stone boundary wall (detailed by others)
- Proposed tarmacadam surface (detailed by others)
- Proposed block paving (detailed by others)

NOTES

PROTECTION OF EXISTING VEGETATION

Existing vegetation to be retained on site shall be protected where necessary during works by a tree protective barrier, secured to a scaffold tubing framework with fluorescent tape to the top rail. Protective fencing shall be erected on the canopy drip line wherever possible. Laminated, waterproof A4 signs shall be fixed to the fence posts at 10m intervals bearing the words 'PROTECTED TREE ZONE - NO STORAGE OR OPERATIONS WITHIN FENCED AREA'.

Tracking of machinery, storage of chemicals and building materials shall not be permitted within the protected area. Leaks or spills should be removed immediately and the contaminated soil replaced. No bonfires shall be lit within 5m of the canopy spread. Any excavation work beneath the canopy spread shall be carried out by hand. All works affecting trees within the development shall be subject to BS 5837:2012.

TREE PLANTING

Tree planting to the front gardens of selected plots will break up the hard lines of the buildings and create focal points within the development. The tree species selected will maximise food and nectar sources for birds and invertebrates. Trees will be planted as Select and Heavy Standards to provide a reasonable degree of instant maturity to the development.

Tree planting within the rear gardens will follow the contour line and provide lines of green canopy through the development breaking up the building mass and establishing connectivity for wildlife.

Foundation design of new buildings shall accommodate proposed tree planting in accordance with NHBC guidelines.

Species to be selected from a typical list such as this:

- | | |
|---------------------------------------|--|
| Acer campestre (Ac) | Prunus subhirtella 'Autumnalis Rosea' (PsAR) |
| Acer platanoides 'Laciniatum' (ApL) | Pyrus calleryana 'Chanticleer' (PcC) |
| Alnus incana (Ai) | Quercus robur (Qr) |
| Betula pubescens (Bpu) | Sorbus aria (Sa) |
| Betula utilis var. jacquemontii (Buj) | Sorbus aucuparia (Sau) |
| Carpinus betulus (Cb) | Sorbus 'Embley' (SE) |
| Malus sylvestris (Ms) | Sorbus 'Joseph Rock' (SJR) |
| Malus tschonoskii (Mt) | Tilia x euchlora (Te) |
| Prunus padus (Pp) | Tilia cordata 'Green Spire' (TcGS) |
| Prunus sargentii (Ps) | |

SHRUB PLANTING

A mix of evergreen and deciduous shrubs will be planted in selected front gardens to soften the development and to provide a valuable food source for birds and invertebrates. A mix of medium/low shrubs will be planted to shrub beds with medium/large varieties used for informal hedging.

Species to be selected from: () density/m2

Berberis frikartii 'Amstelveen'(5), Berberis thunbergii 'Atropurpurea Nana'(5), Berberis cordifolia 'Siberlicht'(6), Ceanothus thrysiflorus repens(4), Chaenomeles superba 'Jei Trail'(4), Cornus alba 'Spaethii'(2), Cornus stolonifera 'Flaviramea'(2), Cytisus 'Allgold'(4), Elaeagnus pungens 'Maculata'(3), Escallonia 'Apple Blossom'(4), Euonymus fortunei 'Emerald Gaiety'(6), Festuca spp(6), Geranium 'Johnson's Blue'(4), Hebe albanica 'Red Edge'(4), Hebe 'Autumn Glory'(4), Hypericum x moserianum(4), Juniperus sabina 'Tamariscifolia' (3), Lavandula 'Hidcote'(6), Nepeta faassennii(4), Perovskia 'Blue Spire'(6), Phormium var, Potentilla 'Red Ace'(5), Prunus laurocerasus 'Zabelliana'(3), Pyracantha 'Orange Charm'(3), Rubus x 'Betty Ashburner'(4), Spiraea 'Gold Flame'(4), Spiraea 'Shirobana'(4), Viburnum tinus 'Eve Price'(3)

HEDGE PLANTING

Hedges will be planted into frontages to strengthen boundaries and improve screening. Ornamental hedge planting will consist of Beech, which will contribute to all year round colour and texture. Hedges are to be planted as a double staggered row of 40-60cm high hedging plants.

NATIVE HEDGE PLANTING

Native hedgerows will be planted to the frontage of properties on Lindard Rd and with open spaces throughout the site to improve wildlife foraging opportunities. Native hedge planting will consist of Blackthorn, Spindle, Dog rose, Guelder rose and Hazel. Hedges are to be planted as a single row of 40-60cm high hedging plants.

PUBLIC OPEN SPACES

Linking open spaces through the site will provide linking wildlife corridors and opportunities for enhancement of habitats and biodiversity. The central open space will retain the mature existing trees and the drystone wall enclosure. A linking footpath through the space will wind down the slope making it accessible. Blocks of mixed native planting will link to native hedgerows and new tree planting.

Rev.A: Updated to include visitor parking and minor amends to key (SF) Oct 2022

Sue Farmer BA MAID MAI Landscape Architect fdalandscape Westleigh Hall Wakefield Road Denby Dale Huddersfield HD8 8QJ telephone 01484 861611 fax 01484 861616 isdin 01484 866900 email info@fdalandscape.co.uk www.fdalandscape.co.uk	client SB Homes	
	project Residential Development LINGARD RD, SLAITTHWAITE	
	drawing title LANDSCAPE MASTERPLAN	
	scale 1:500 @A1	date Oct 22
	drwn by SF	drawing no R/2646/1A

Road Safety Audit: Stage 2, Residential Development: Lingards Road, Slaithwaite - S38

