Concept Design

Land at George Lane, Kilmington

January 2023

lhc design

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Introduction

This short report summarises concept proposals for provision of a sustainable residential development at George Lane, Kilmington.

PLANNING CONTEXT:

The proposed allocation site comprises two fields immediately adjoining the settlement boundary of Kilmington and within the East Devon AONB, as defined in the Adopted East Devon Local Plan 2013-2031. The recently made Kilmington Neighbourhood Plan allocates the western field for around 14 dwellings, with a mix of market, affordable and self-build homes to be delivered by 2031. The Regulation 18 consultation draft of the East Devon Local Plan Review extends the allocation to cover the eastern field and identifies a capacity of 37 dwellings for the whole site.

The Sustainability Appraisal accompanying the draft Local Plan appraises KILM_09 to be a preferred site for allocation taking into account the following factors:

- *Arable land with trees and vegetation along the site boundaries. No ecological sites within 100m of the site.*
- *A major negative effect associated with development in the AONB. However, this applies to all sites within Kilmington, except KILM_11.*
- *Three Grade II listed buildings within 40m of the site.*
- *7 of 12 local facilities are within a reasonable walking distance of the site.*
- *The site lies outside any critical drainage area and in an area at low risk of flooding.*
- *Located within the catchment of the River Axe the site has the potential to have a negative effect on water quality.*
- *Proximity of the site to the A35 could have a negative effect on the health and wellbeing of residents.*

To mitigate the anticipated impacts of the development, the sustainability appraisal recommends the following mitigation measures:

- *Considerable landscaping to assimilate the development into the landscape and mitigate harm to the AONB;*
- *Enhancement of public transport services and pedestrian/cycle links to increase the potential for sustainable travel;*
- *Provision of on-site employment opportunities, where reasonable.*

KEY FEATURES OF THE PROPOSAL INCLUDE:

- *A new community of up to 37 new homes, including affordable housing and potential for self-build plots, in close walking distance to Kilmington Village Centre and facilities.*
- *A landscape-led design that delivers houses within the Area of Outstanding Natural Beauty, whilst reinforcing the edge of the village*
- *A design that complements the character of Kilmington and the surrounding countryside, with potential to be highly sustainable using low-carbon building design with generous private gardens and communal green space.*
- *Integrated multifunctional green space that is easily accessible for the use and enjoyment of the whole community and makes connections with the wider landscape - including a new pocket park, a community orchard and new hedgerows, wetland and meadow areas to enhance biodiversity.*

Site and Context Appraisal

The site is located within 2 arable fields on the northern edge of Kilmington. An initial site and context appraisal has been undertaken to inform the development of initial concept proposals to demonstrate the deliverability of the site.

- Site Boundary (2.46 ha)
- Potential SUDs Ponds & Swales
- Potential Pedestrian / Cycle Links
- Potential Visibility Splay (2.4 x 43m)
- Potential Vehicle Access
- Ecological/Landscape Buffer
- Listed Buildings
- Existing Bus Stops
- Existing Hedges
- Existing Gaps in Hedges
- Existing Trees to be retained
- Existing Trees to be removed
- Existing Gated Access
- Existing Combined Sewer
- Existing Watermain
- Road Noise Buffer
- Flood Zone 3
- Overhead Cables (to be Undergrounded)

LANDSCAPE AND VISUAL APPRAISAL

The Visual Envelope of the site is limited by topography and existing buildings and vegetations. In views of the village from the surrounding landscape (and AONB) the proposed houses would be seen as an integral part of the village. In the immediate context of the site there are open views from the A35 and George Lane. The proposed development has been set back from the A35 frontage to enable the existing hedge and trees to be retained and enhanced with additional tree, hedge and scrub planting.

ECOLOGY AND ARBORICULTURE

The key existing features of the site are the boundary hedgerows and trees to the site boundaries. The proposals will retain and enhance all of these with the exception of the George Lane frontage, which will need to be removed to provide the vehicular access to the site. A replacement native hedge can be provided to the newly defined site boundary.

The concept plan demonstrates the potential to provide robust Green and Blue Infrastructure with reinforced hedgerows and marginal areas that provide habitat and areas for bats and other wildlife to move and feed; a small village green in the western part of the site; a pond and an infiltration basin, a community orchard and informal open space which is managed to ensure the site delivers biodiversity net gain.

DRAINAGE AND FLOODING

The site is at 'very low risk' from surface water flooding (although a small area of the site, outside the proposed housing development, is at medium risk immediately adjacent to the southern edge of the A35).

The proposed drainage strategy will utilise an infiltration basin in the north east corner of the site. Should infiltration not be practical a storage basin can be accommodated within the same area and a restricted discharge to the existing culvert under the A35 utilised. Both options will ensure that surface water from the site is below the existing green field run-off rate.

A combined sewer passes through the western part of the site and within the A35 to the north and it is proposed that foul sewerage from the site is connected to one or both of these, subject to discussions with SWW.

HERITAGE

3 Grade II Listed Buildings are located in close proximity to the site: Kilmington War Memorial, George Farmhouse and The Old Inn Public House. The concept plan proposes a landscape buffer to the northern edge of the site which will ensure the proposed houses are set back from the Listed Buildings and do not impact on views of these from the adjacent streets and footpaths. The development is also set back from the north- western boundary to protect the setting of the War Memorial.

ACCESS

The proposed layout is served by vehicular access from George Lane, which will require relocation of the existing hedgerow behind the visibility splays for the access point. The Highway Authority has no objection in principle to this access point. Additional pedestrian and cycle connections are proposed to Gammons Hill (utilising the existing field gate) and Meadow Bank, providing excellent walking and cycling connectivity to village facilities.

SITE APPRAISAL

The site itself is relatively unconstrained. The land falls gently to the east, from a high point of circa 61m in the west to 52.5m in eastern corner. A public sewer runs diagonally through the eastern field, and can be retained in situ on site. Overhead power cables also run across the site and have potential to be removed and provided underground within the site boundaries. As noted above there is excellent potential for pedestrian and cycle connectivity to village facilities. Adjacent properties to the southern edges of the site are offset from the site boundaries and the concept layout has been carefully designed to provide appropriate buffers to the few windows (in Dares Field) which are close to the site boundaries.

Concept Design

The site represents an excellent opportunity to create a development which fits in with its surroundings and complements the existing character of Kilmington, providing high quality housing and accessible public open space.

It will be a sustainable development, which respects and enhances existing biodiversity, creating new habitats and areas of native species planting. Residents will be able to walk or cycle to existing village amenities, and take advantage of local public transport links to services in surrounding areas.

PLACE

The proposed development will have a distinctive identity, which takes cues from existing buildings within Kilmington. It will have a clear and legible development form, with high quality external spaces set in an integrated landscape structure.

A VISION FOR CLEAN GROWTH

The land at George Lane provides the basis to create a low carbon community with energy efficient buildings and excellent connectivity. The site will use a multifunctional green and blue infrastructure network to ensure climate resilience and use zero carbon and energy positive technology where possible.

CONNECTIONS

The site will provide new walking and cycling links to the amenities in the village and wider area, and a direct link to the existing bus stops on Gammons Hill which connect to Axminster and the wider area.

COMMUNITY

The new community will be healthy and active, creating a walkable, vibrant, sociable neighbourhood with good connections to Kilmington and the wider landscape. The community will be balanced with mixed tenure homes and housing types, including affordable housing and the opportunity for Self Build plots.

WORKING AND LIFE BALANCE

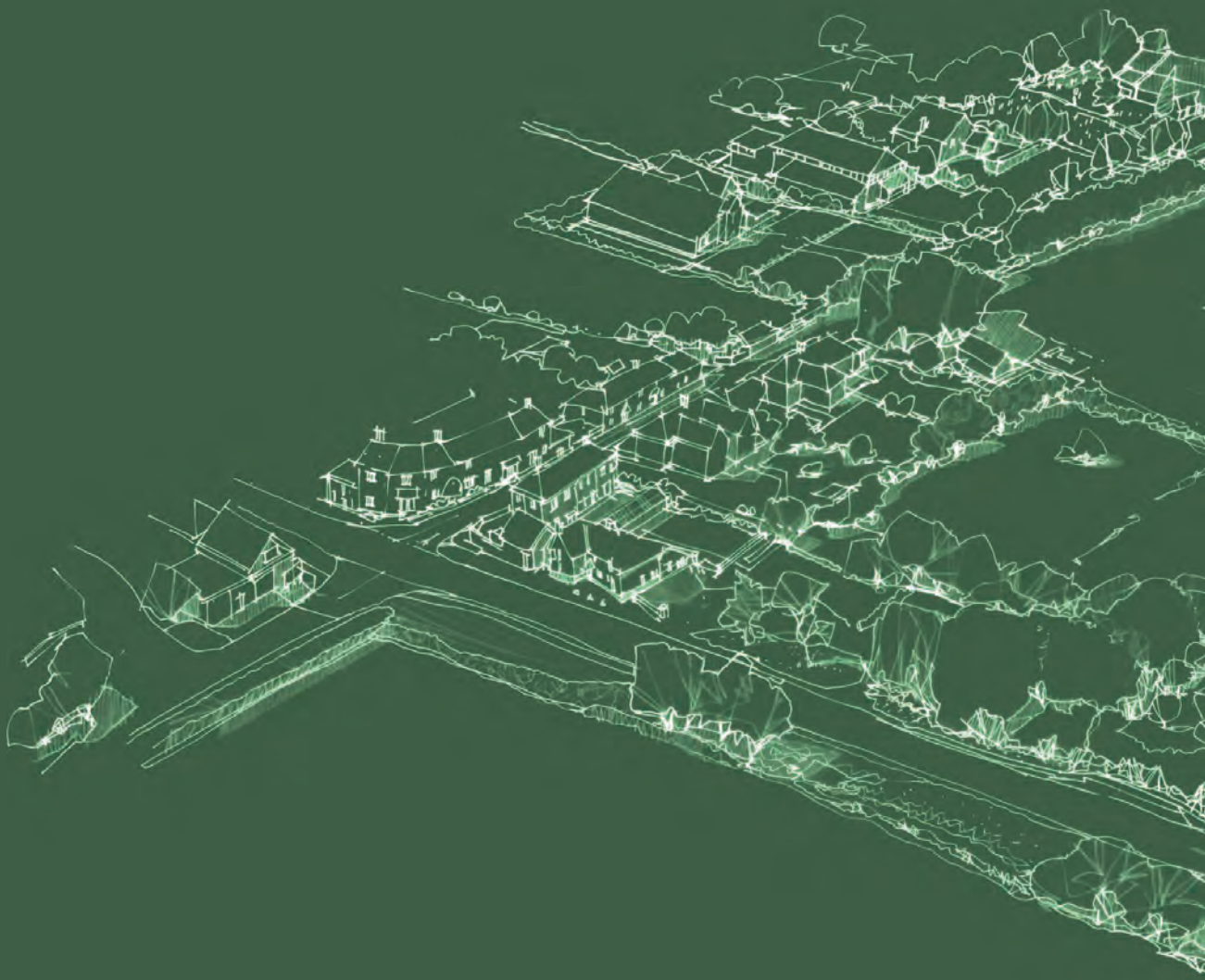
Homes will enable home working and have flexibility built into them, in order to accommodate changes in people's lifestyles and work-life balance. Home working space will be provided to enable flexible working patterns and reduce commuting requirements.

ENVIRONMENT

The development will be set within a green and blue infrastructure network which provides a variety of high quality public spaces, generates biodiversity gains and connects with existing landscape features. Existing hedgerows and trees will be retained and enhanced where possible, with their setting enhanced with a generous offset to development. This will create a green infrastructure 'wrap' around the site, ensuring existing habitats are maintained and improved for local wildlife and delivering biodiversity net gain. Features such as a pond and community orchard will be provided, and the landscape framework will include places for informal play, activity and socialising.

Offices

[redacted]



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Kilmington, Axminster, Devon

Landscape & Visual Appraisal

lhc design

Client Name Place Land

Document Reference Landscape Appraisal

LHC Project Number 21121

Quality Assurance - *Approval Status*

Issue	Date	Prepared By	Checked By	Approved By
A	Jan 2023	[redacted] *Landscape Architect*	[redacted] *Director*	[redacted] *Director*

Disclaimer

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We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

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Contents

Executive Summary

LHC Design have been appointed to undertake an initial, high-level landscape and visual appraisal (LVA) to record baseline landscape and visual conditions present on site and in the surrounding study area. This will help inform opportunities and constraints analysis and capacity testing for George lane site which is proposed for housing under policy KILM-09 in the draft East Devon Local Plan.

This analysis considers the sensitivity and capacity of the site to accommodate the proposed development. It is important to clarify that this initial LVA is not a detailed assessment of the effects of the development upon the landscape/visual receptors

The Visual Envelope of the site is limited by topography, existing buildings and vegetation. Views from the surrounding landscape (and Area of Outstanding Natural Beauty) are potential gained from higher ground to the south and north, and from the Axe valley to the east. In more distant views the proposed houses would be seen as an integral part of the village and therefore the potential landscape/visual impact will be limited.

In the immediate context of the site there are open views from the A35 and George Lane. In these views there would be a change from an open view to the existing fields to a view of the new residential development, seen within the context of the existing village and set within a landscape framework.The proposed development has been set back from the A35 frontage to enable the existing hedge and trees to be retained and enhanced with additional tree, hedge and scrub planting.

Site Photos

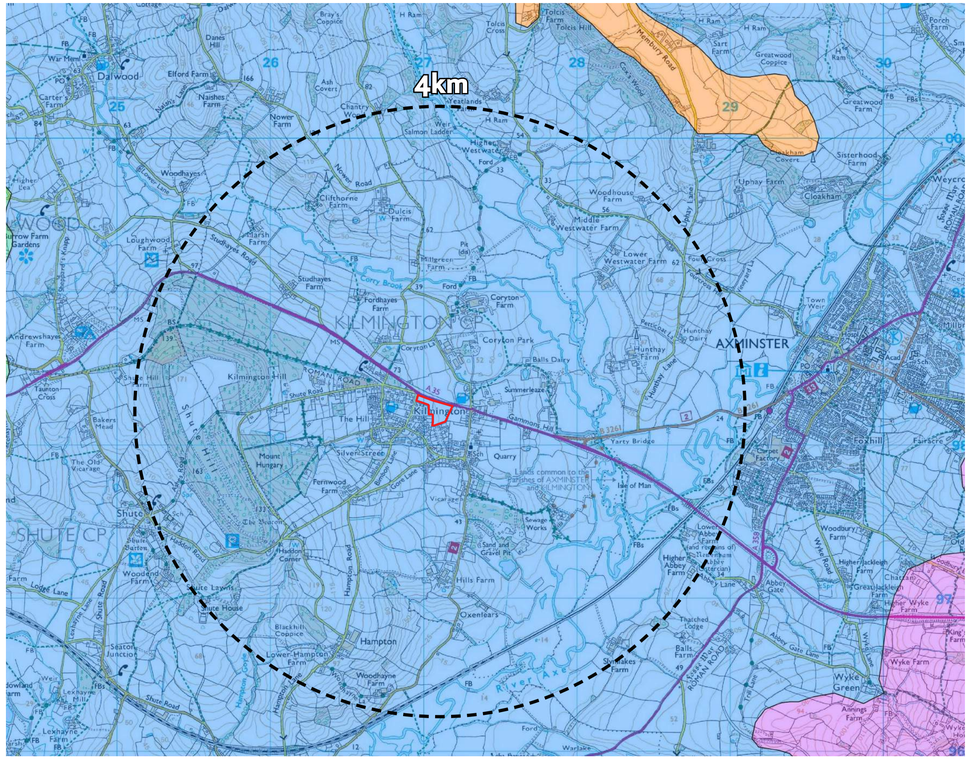
View looking east towards the site on the pedestrain right of way which follows the A35

View taken from the A35 looking south west towards St Giles' Church

View taken from the A35 looking south towards Dares Field

View taken from the A35 from an existing field access looking south west towards St Giles' Church

Landscape Character Areas



Site Boundary

Devon Landscape Character Areas

Axe Valley

East Devon Central Ridge

Eastern Blackdown Ridge

Wootton Hills

Landscape Character Areas

The Site forms part of East Devon's Axe Valley local landscape character area. The Site and settlement of Kilmington is located as the broad Axe Valley rises west. The Axe Valley local landscape character area has been described by the local planning authority as having;

'Strong hedgerow pattern with hedgerow trees coupled with small broadleaved woods and occasional farm orchards which give rise to a generally wooded character overall. Land use is mainly pastoral set within small fields in the upper tributary valleys, with larger fields and some arable within the main Axe Valley. The open valley floor and relatively loosely defined valley sides make the character of this valley rare in a Devon context.

Towards its southern end the valley is closely flanked by steep wooded greensand scarp slopes and assumes a more tidal character where it cuts through the coastal plateau to the sea. In contrast, moving northwards, there is a more gradual transition from river valley to upland open ridge.'

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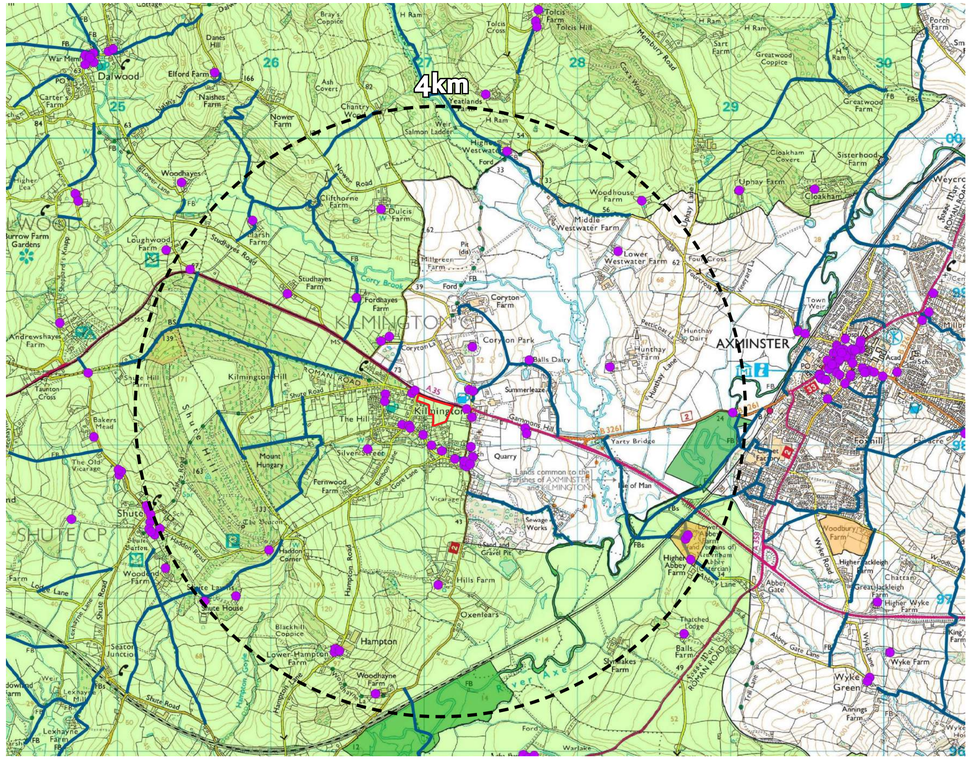
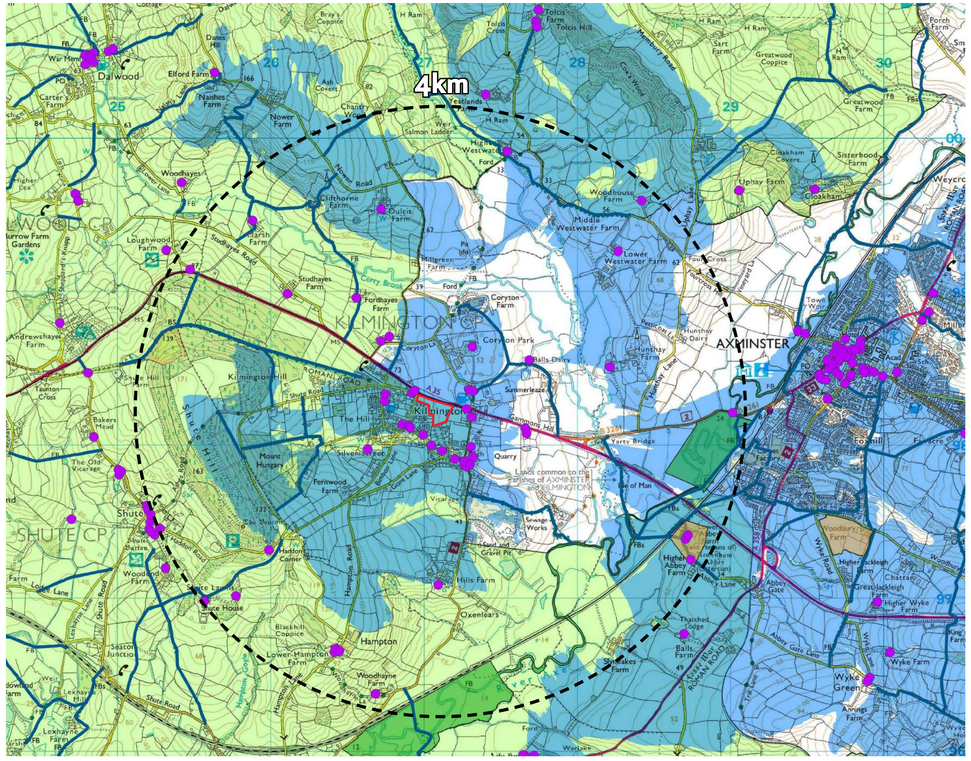
Policies and Heritage Assets



The desk study has identified several listed buildings within the study area that have potential intervisibility with the site. The zone of theoretical visibility and on-site appraisal work will take these into account when selecting viewpoints and help demonstrate potential impacts.

The site is located on the edge of the East Devon Area of Outstanding Natural Beauty. The AONB covers 103 square miles and covers approximatly 32% of East Devon District. It is one of five AONBs that fall within Devon, abutting the Blackdown Hills AONB to the north and Dorset AONB to the east. With the exception of Budleigh Salterton, the AONB skirts the major settlements in the area and is characterised by small villages and hamlets at the coast and along its valleys.

Zone of Theoretical Visibility (ZTV)

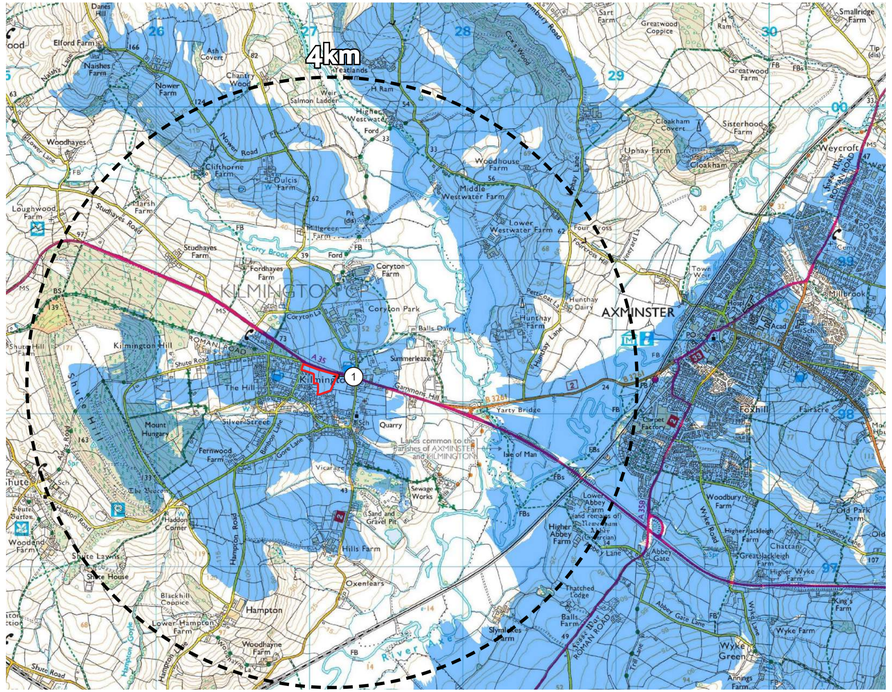


The approximate zone of theoretical visibility (ZTV) was calculated within the study area using GIS software and LiDAR digital terrain mapping data, based on the roof height of a 2 storey building. The Site may not be visible from all locations of potential visibility due to intervening built form or vegetation or the absence of publicly accessible viewpoints.

The ZTV is shown on the figure opposite with areas of potential inter-visibility shaded in blue. This shows that potential visibility covers a broad range of the study area when only taking into account the topography. A number of viewpoint locations were identified within the ZTV and study area to represent key visual receptors.

There were a number of viewpoints identified as part of the desk-based study within the ZTV that were found to have no intervisibility with the site due to built form or vegetation during on-site appraisal work. These have still been represented in the viewpoints to demonstrate the site in its context.

Viewpoint 1



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Grid Reference:	ST 27354 98222	Photograph Date:	09 / 01 / 2023	Project:	Kilmington
Page Size:	420 x 297mm	Issue Status:	Preliminary	Figure:	Viewpoint 1

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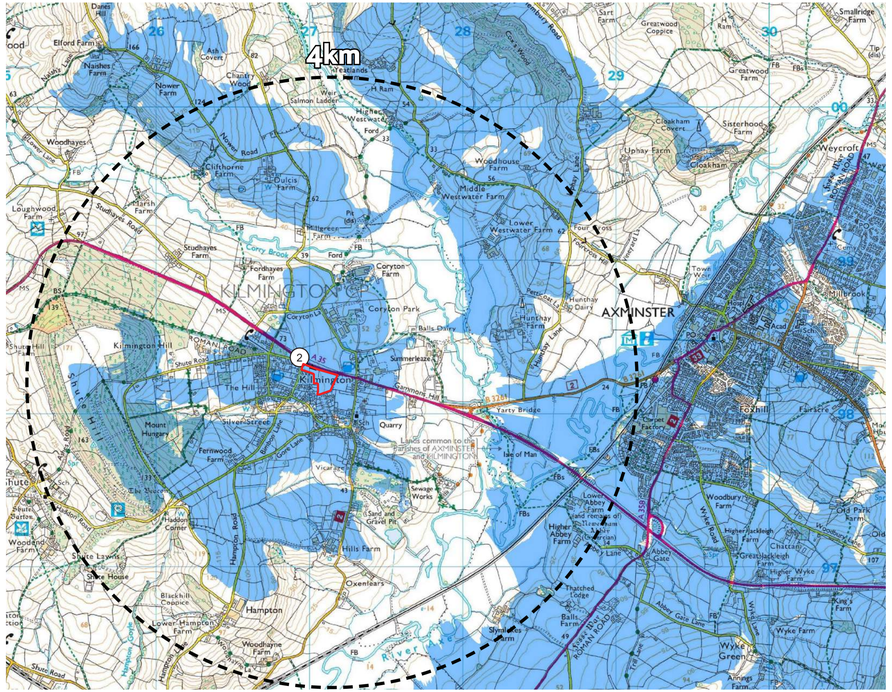
Viewpoint 1 Taken oppositie the junction with The Green on the A35 0.12km east of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

0cm 10cm

Viewpoint 2



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Grid Reference:	ST 27354 98222	Photograph Date:	09 / 01 / 2023	Project:	Kilmington
Page Size:	420 x 297mm	Issue Status:	Preliminary	Figure:	Viewpoint 2

Viewpoint 2 taken on Shute Road in front of the war memorial 0.04km north east of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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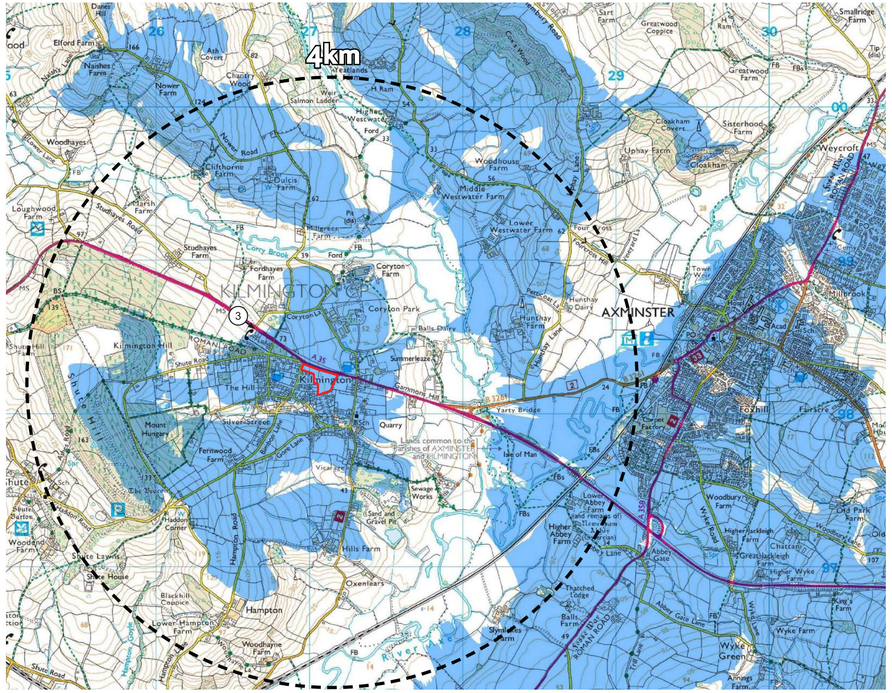
Viewpoint 3



Site Location

Photo viewpoint

Zone of Theoretical Visibility

Viewshed

Distance:	0.23km	Project Number:	21121
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Page Size:	420 x 297mm	Issue Status:	Preliminary

Project: Kilmington

Figure: Viewpoint 3

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Viewpoint 3 taken on the A35 approximately 0.23km north west of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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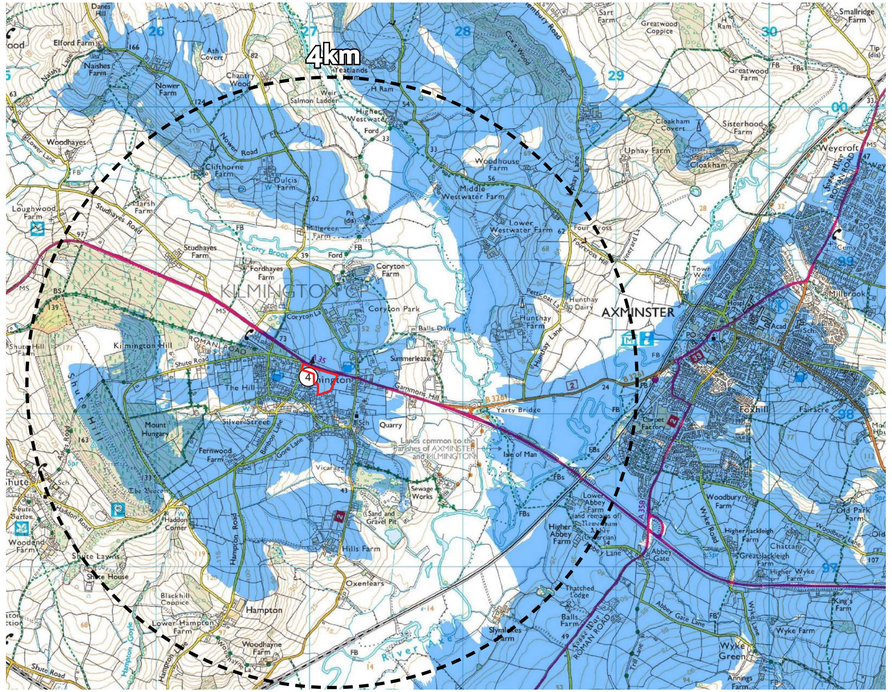
Viewpoint 4



Site Location

Photo viewpoint

Zone of Theoretical Visibility

Viewshed

Distance: 0.03km	Project Number: 21121	
Grid Reference: ST 26970 98269	Photograph Date: 09 / 01 / 2023	Project: Kilmington
Page Size: 420 x 297mm	Issue Status: Preliminary	Figure: Viewpoint 4

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Viewpoint 4 taken in Dares Field 0.04km south of the Site

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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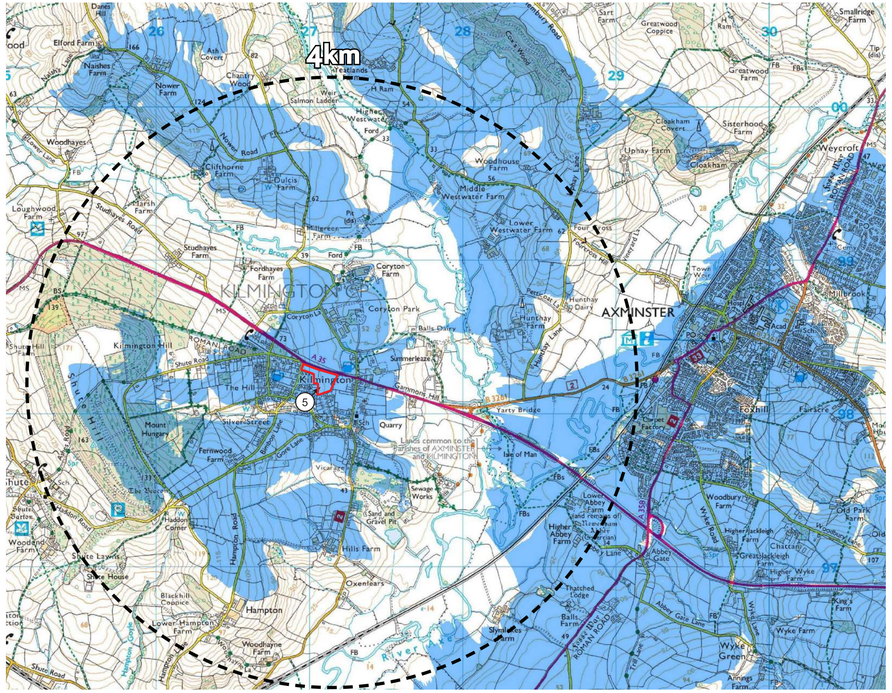
Viewpoint 5



Site Location

Photo viewpoint

Zone of Theoretical Visibility

Viewshed

Distance:	0.1km	Project Number:	21121
Grid Reference:	ST 26966 98071	Photograph Date:	09 / 01 / 2023
Page Size:	420 x 297mm	Issue Status:	Preliminary

Project: Kilmington

Figure: Viewpoint 5

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Viewpoint 5 taken on Whitehayes Close 0.1km south west of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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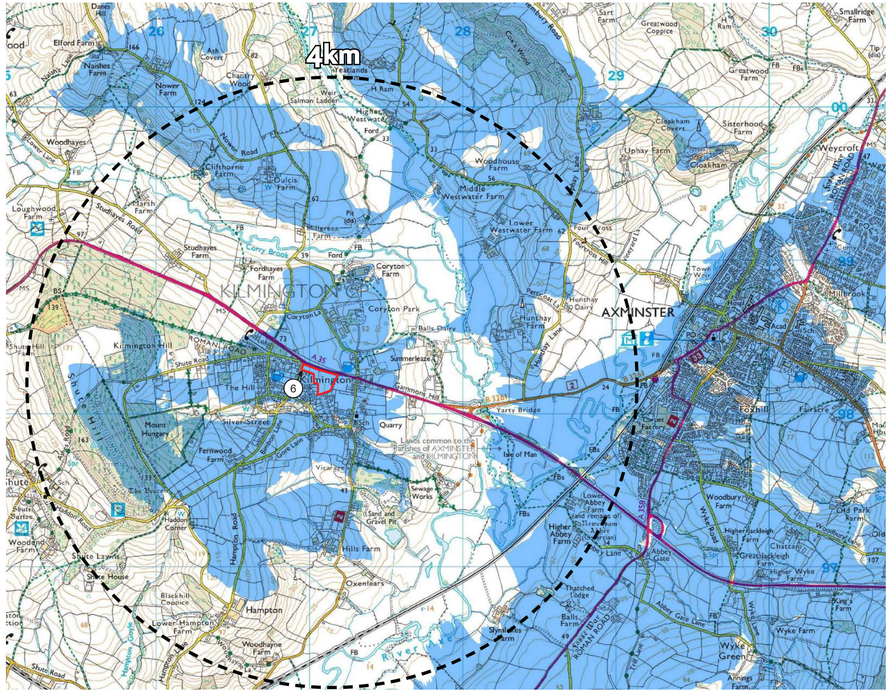
Viewpoint 6



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Page Size:	420 x 297mm	Issue Status:	Preliminary	Figure: Viewpoint 6	

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Viewpoint 6 taken on George Lane opposite to The Orchard road junction approximately 0.08km south of the site entrance.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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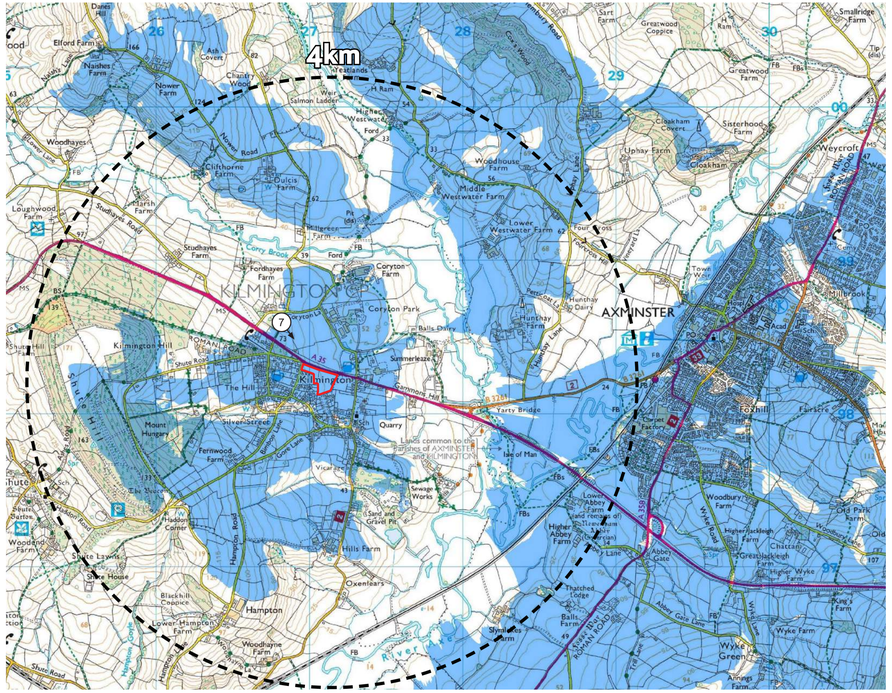
Viewpoint 7



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Viewpoint 7 taken on PRoW number 26 approximately 0.25km north west of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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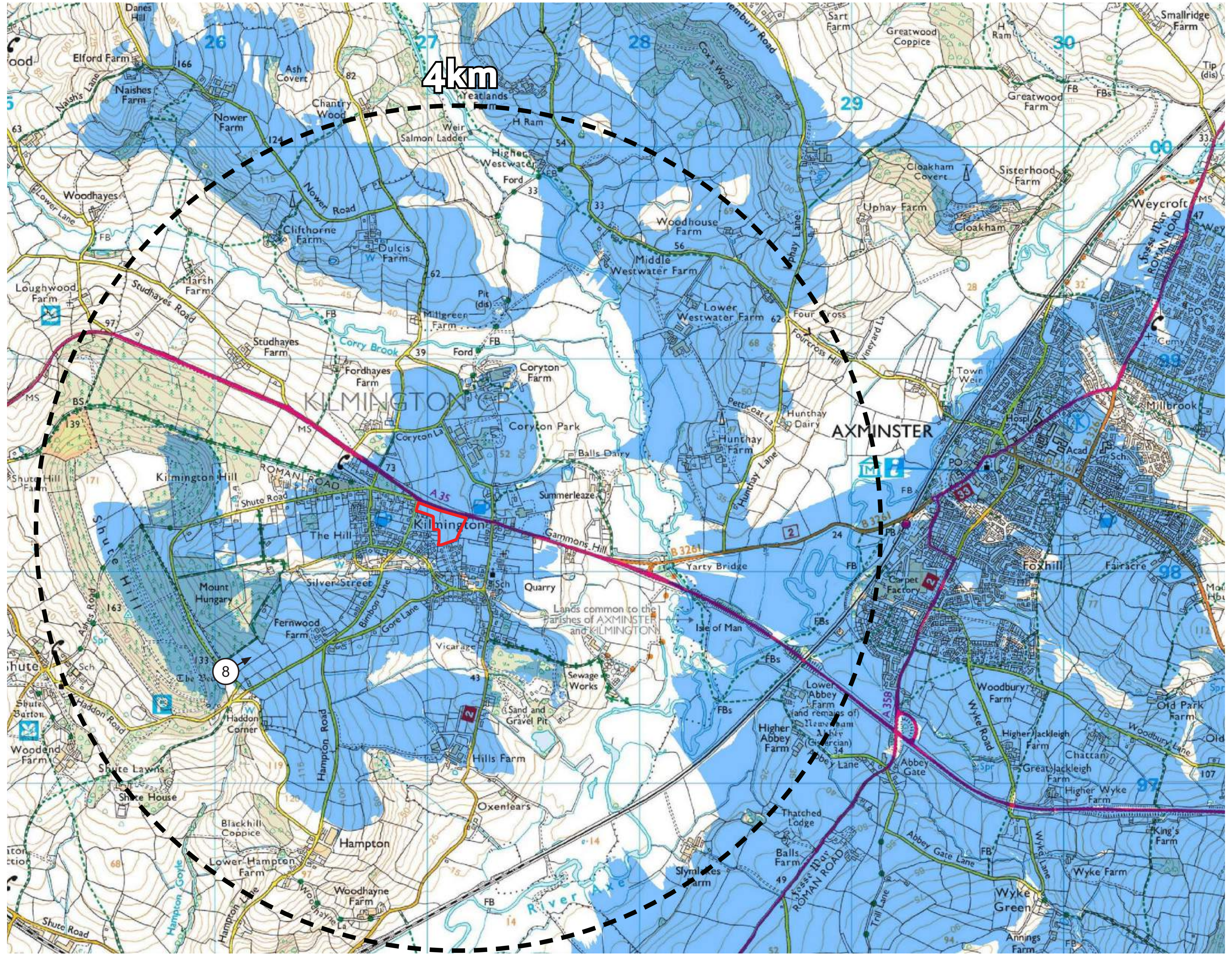
Viewpoint 8



Site Location
Photo viewpoint
Zone of Theoretical Visibility
Viewshed

Distance:	1.16km	Project Number:	21121	
Grid Reference: ST 27354 98222		Photograph Date:	09 / 01 / 2023	Project: Kilmington
Page Size:	420 x 297mm	Issue Status:	Preliminary	Figure: Viewpoint 8

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Viewpoint 8 taken 1.16km south west of the site on the vechile access connecting PRoW number 17 and PRoW Shute Footpath 5.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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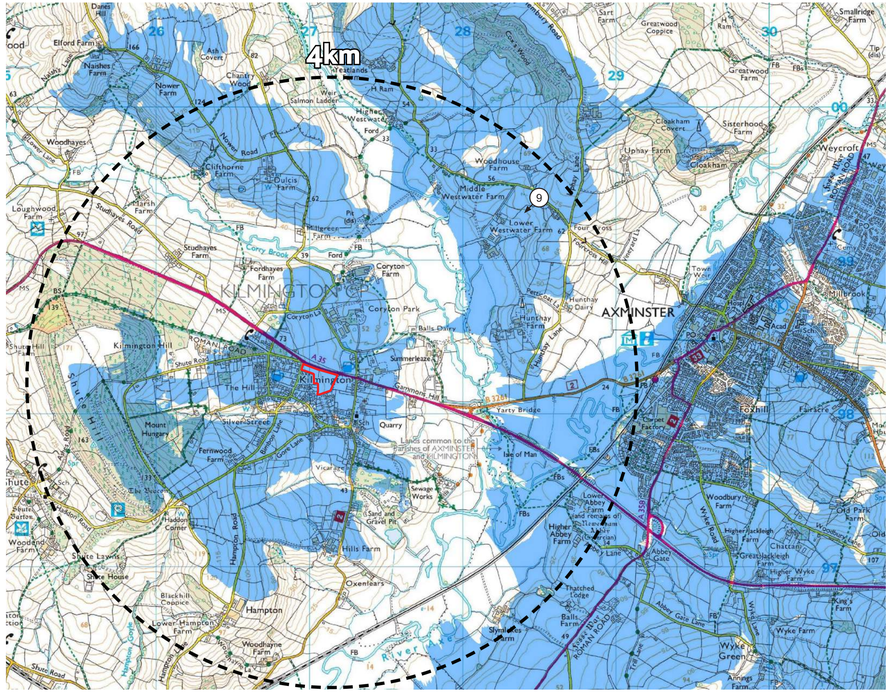
Viewpoint 9



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Page Size:	420 x 297mm	Issue Status:	Preliminary
			Project: Kilmington
			Figure: Viewpoint 9

Viewpoint 9 taken on the PRoW Axminster Footpath 42 approximately 1.7km north east of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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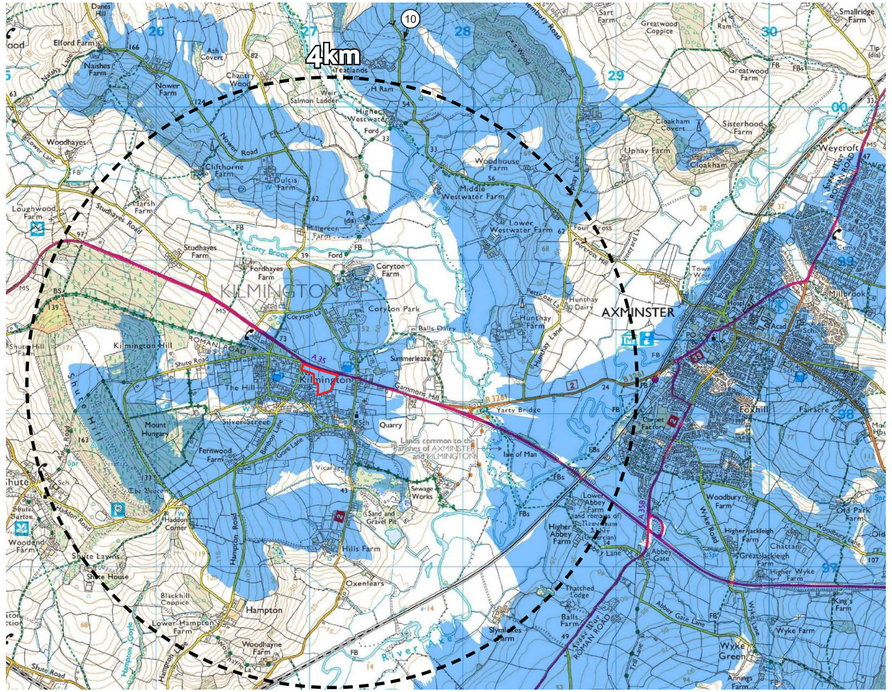
Viewpoint 10



Site Location

Photo viewpoint

Zone of Theoretical Visibility

Viewshed

Distance:	2.34km	Project Number:	21121
Grid Reference:	ST 27612 00430	Photograph Date:	09 / 01 / 2023
Page Size:	420 x 297mm	Issue Status:	Preliminary

Project: Kilmington

Figure: Viewpoint 10

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Viewpoint 10 taken on PRoW Axminster Footpath 56 approximately 2.34km north of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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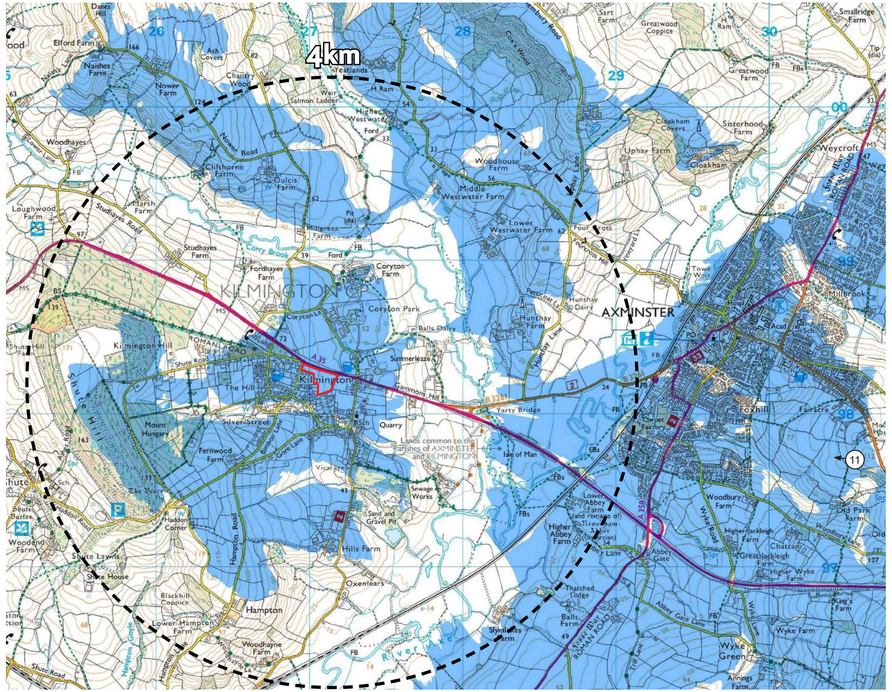
Viewpoint 11



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			Project: Kilmington
			Figure: Viewpoint 11

Viewpoint 11 taken on PRoW Axminster Footpath 76 approximately 3.4km east of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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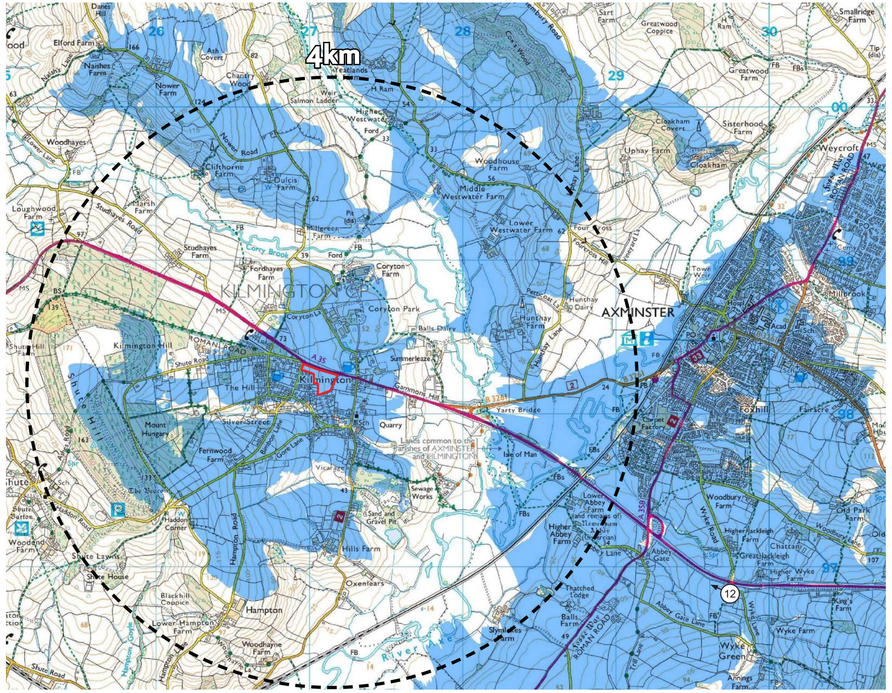
Viewpoint 12



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			Project: Kilmington
			Figure: Viewpoint 12

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Viewpoint 12 taken on PRoW Axminster Footpath 31 approximately 2.9km east of the site.

Original image size 390 x 260mm

Note: To view this image digitally, calibrate this scale bar on screen for a correct scale representation and view the photograph at a comfortable arms length.

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Site Accessibility and Access Appraisal

Project name	George Lane, Kilmington		
Design note title	Site Accessibility and Access Appraisal		
Document reference	16610-HYD-XX-XX-RP-TP-2001		
Author	[redacted]		
Revision	P01		
Date	10 January 2023	Approved	✓

1. Existing Site Context

1.1 Overview

1.1.1 This Site Accessibility and Access Appraisal provides a high-level review of existing pedestrian, cycle, public transport and vehicular accessibility to serve the proposed development, which seeks to develop land at George Lane in Kilmington. The development proposals comprise of a residential development and associated parking, with a proposed new access.

1.1.2 The development site is located in the village of Kilmington, near Axminster in East Devon. The site is bounded by the A35 to the north, residential properties to the south, agricultural land/ pub to the east, and George Lane to the west. The indicative redline boundary and site location are shown in Figure 1.1.

Figure 1.1: Site Location Context

1.2 Existing Site Use

1.2.1 The existing site is undeveloped agricultural land that benefits from an existing agricultural gated access point onto George Lane.

1.3 Surrounding Road Network

1.3.1 George Lane bounds the development site to the west and provides a link to the A35. Access to the development is proposed via George Lane which is subject to a 30mph speed limit and provides access to residential dwellings in the village of Kilmington. The carriageway varies in width, allowing for one-way vehicle movements for the majority, and benefiting from numerous passing place points allowing for two vehicles to pass. No footways or street lighting are present along the carriageway with the road being in a rural setting.

1.3.2 At the northern extent of George Lane, the carriageway forms a priority junction with Shute Road. Shute Road is subject to a 30mph speed limit and serves the western boundary of the village of Kilmington. Shute Road forms a junction with the A35 at its eastern extent, directly north of the site.

1.3.3 At the southern extent of George Lane, the carriageway forms a priority junction with The Street which serves many of the residential properties within the village. There are no footways or street lighting present along the carriageway which is not unusual considering the rural setting.

1.3.4 To the east of the site, the A35 provides access to the B3261 via an on-off slip road; the B3261 provides a route to and from Axminster, the closest town to the site. The B3261 is subject to national speed limit (60mph) and reduces to 30mph on approach to Axminster. The B3261 benefits from a shared footway/cycleway along the northern side of the carriageway.

1.4 Road Safety Records

1.4.1 Personal Injury Accident (PIA) data has been obtained from recorded road safety data published annually by the Department for Transport (DfT). The statistics provide PIA data reported in each local authority using the STATS19 accident form. The most recent five-year dataset has been reviewed, covering the period between January 1st 2017 and 31st December 2021 inclusive with the study area as shown in Figure 1.2.

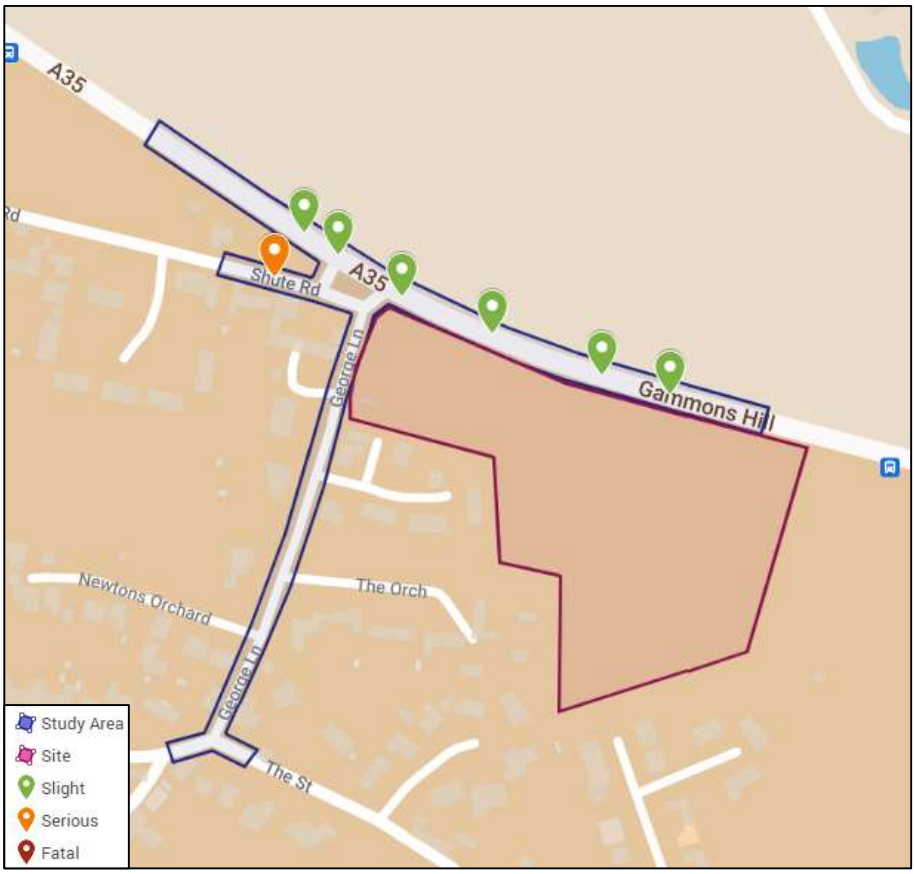


Figure 1.2: PIA Study Area

1.4.2 The purpose of examining PIA data is to ascertain if there are elements of the highway examined that may be causal factors in PIA events. It is unlikely that a single incident at a particular location will be of sufficient evidential value to implicate highway design or condition as a causal factor, unless the particular highway issue is in some way extreme, so particular attention is paid to accident clusters.

1.4.3 Within the study area in the five-year period, seven PIAs were recorded of which six were recorded as slight in nature and one as serious. There were no fatal accidents recorded within the study area. The accidents recorded as slight in nature are summarised as follows:

- **A35**
  - Involved two vehicles and one casualty. Vehicle one was proceeding normally along the carriageway and the first point of impact was at the front of the car; the object that was hit was unknown. Vehicle two was not impacted in the collision.
  - Involved two vehicles and one casualty. Vehicle one was parked in the carriageway and vehicle two was in the act of turning right and collided with the parked vehicle.
  - Involved two vehicles and two casualties. Vehicle two was waiting to proceed normally but was held up and vehicle one was slowing down but collided with the rear of vehicle two.
  - Involved two vehicles and three casualties. Vehicle one collided with the rear of vehicle two.
  - Involved two vehicles and one casualty. Vehicle one collided with the rear of vehicle two.
  - Involved three vehicles and three casualties. Vehicles two and three were waiting to proceed normally but held up and vehicle collided with the rear of the vehicle in front.

1.4.4 The accident recorded as serious in nature was located on Shute Road and involved one vehicle and one pedestrian casualty. The vehicle was proceeding normally along the carriageway and collided with a pedestrian who was walking in the carriageway with their back to the traffic.

1.4.5 There were no cyclists involved in the recorded PIAs in the study area within the most recent five-year period, nor are there clusters of four or more accidents. Although all incidents are regrettable, the PIAs that occurred do not indicate a specific pattern or issue with the geometry of the highway that would be exacerbated by the proposals.

2. Accessibility and Connectivity

2.1 Pedestrian Connectivity

2.1.1 The site benefits from a footway on the A35, connecting to the shared footway/cycleway routing along the B3261 into Axminster. There are crossing points with dropped kerbs and tactile paving provided and junctions. The journey from the site into Axminster is approximately a 30 min walk, where a wider range of facilities are provided.

2.1.2 Within the village of Kilmington, pedestrians typically share the carriageway with motor vehicles and other users, as is commonplace for a site situated in a rural location, and the absence of any pedestrian/vehicle collision history suggests that this does create a safety concern

1.1.1 This situation is not unusual for rural settlements such as this. Manual for Streets 2 notes that villages are the most numerous type of settlement in the UK and, at 2.7.4, that:

2.1.3 'Many villages have existed for centuries and are likely to have an historic centre with a street pattern that is unlikely to conform to a standardised highway layout but which is desirable to conserve in the interests in (sic) maintaining the character of the area. Carriageways are often narrow, and footways may be narrow or non-existent and as a result speeds can be low.

2.1.4 Strava (www.Strava.com) heatmaps were used to review frequently used routes for walking/running. While this data only captures the activity of those who choose to record and upload it, it is a useful tool to demonstrate the attitude of predominantly local users to a particular route. The extract at Figure 2.1 shows that George Lane is well used by pedestrians, suggesting that there is no overriding safety related anxiety arising from the layout.

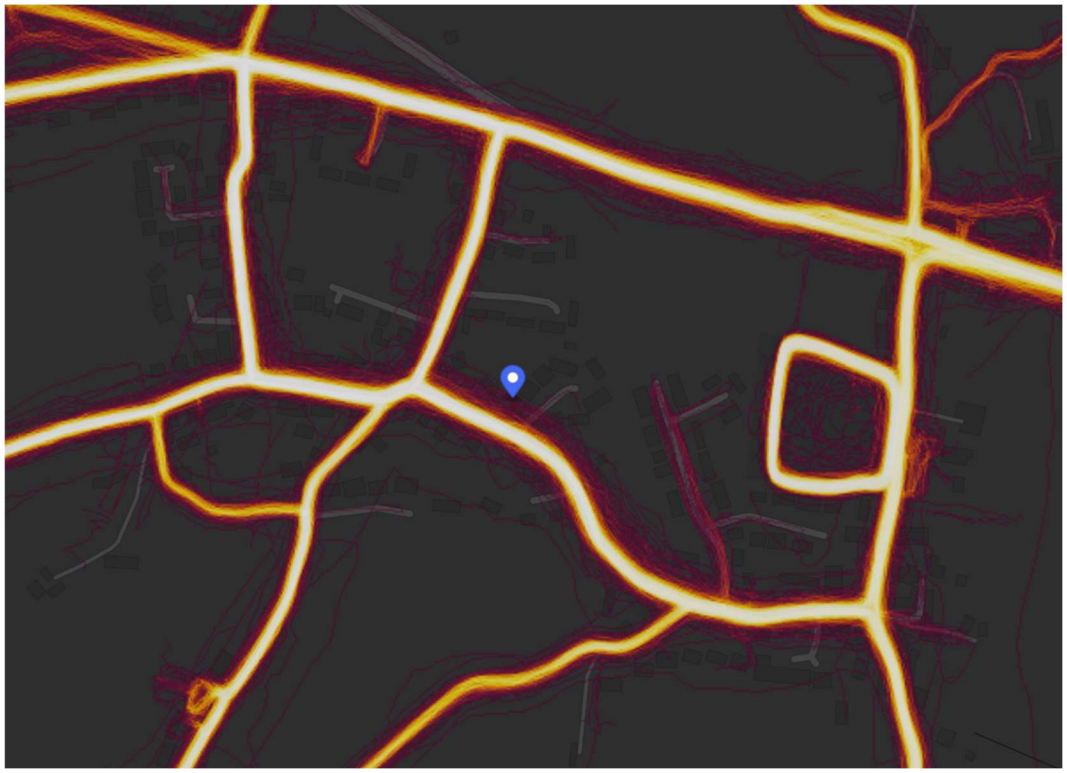


Figure 2.1: Strava Heatmap (Pedestrian)

2.2 Public Rights of Way

2.2.1 The existing Public Right of Way (PRoW) network in the vicinity of the development site has been reviewed, which includes footpaths, bridleways and by-ways. Figure 2.2 indicates the locations of the nearby existing routes, which forms part of Devon County Council's PRoW network. There are no PRoWs which route through the site or that connect to the site.

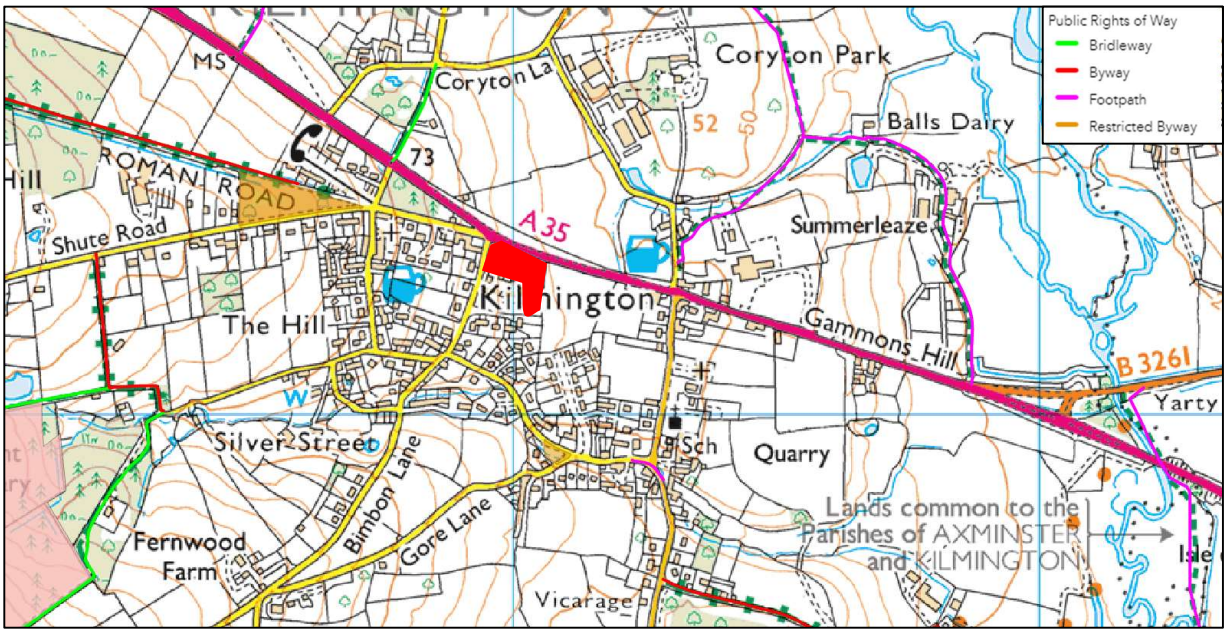


Figure 2.2: Existing PRoW Network

2.3 Cycle Connectivity

2.3.1 The existing cycling facilities within close proximity to the site are shown in Figure 2.3.

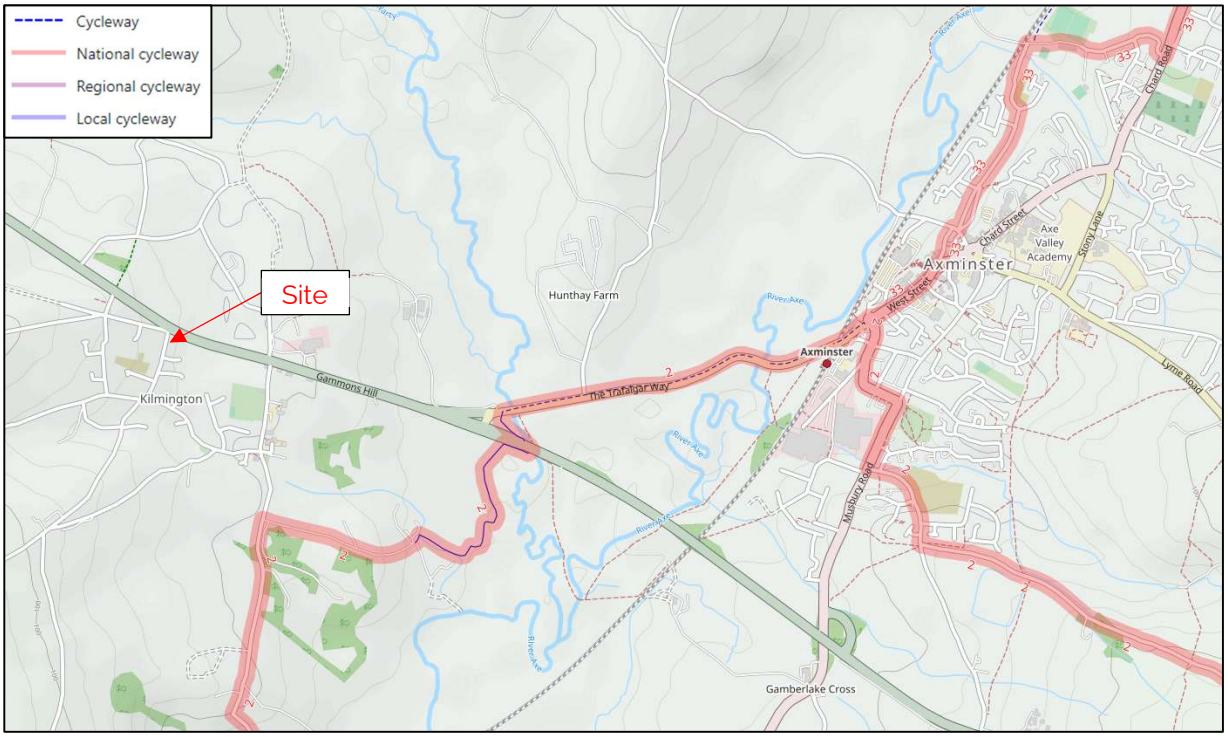


Figure 2.3: Cycle Routes within Close Proximity to Site

2.3.2 The site benefits from an off-road cycleway along the B3261 which routes into Axminster; this route forms part of National Cycle Network (NCN) Route 2. Route 2 is a long-distance cycle route which, when complete, will link Dover in Kent with St. Austell in Cornwall via the south coast of England.

2.3.3 NCN 2 can be accessed from the site via the B3261 which takes approximately a 7-minute cycle which provides access to the east and north. To the south, NCN Route 2 can be accessed via Whitford Road, approximately a 3-minute cycle from the site; to the south the route provides access to the coastal town and villages.

2.3.4 The Strava heatmap extract at Figure 2.4 shows that the surrounding roads are well used by cyclists, and therefore have potential to form part of a journey by bike.

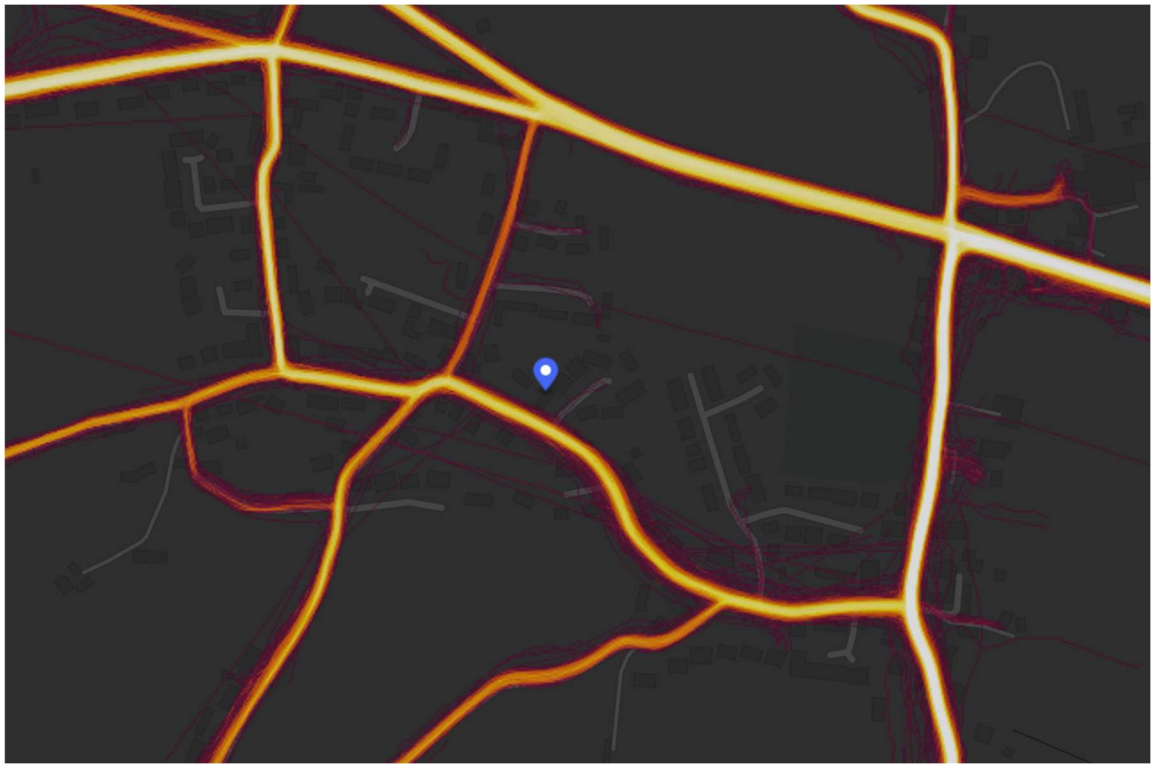


Figure 2.4: Strava Heatmap (Cycle)

2.4 Public Transport

Bus

2.4.1 The closest bus stops are located on the A35 (Old Inn and The Hill stops), to the east and west of the site approximately 180-260m from the site, equating to approximately a 3-minute walk from the site. The services these stops provide however are limited with only one service – service 44A. Service 44A routes from Exeter to Axminster and Axminster to Exeter, providing a service every two hours Monday to Saturday; no service is provided from these stops on Sundays.

Train

2.4.2 Axminster Rail Station is located approximately 2.64km from the site, which equates to a 33-minute walk or an 8-minute cycle. Additionally, bus service 44A routes to and from the station which takes approximately 10 minutes from the site, including the walk to and from the stops.

2.4.3 Axminster Rail Station provides hourly services to Exeter and London Waterloo.

2.5 Local Facilities and Services

2.5.1 Manual for Streets (paragraph 4.4.1) states that 'walkable neighbourhoods' are typically characterised by having a range of facilities within 10 minutes (up to 800m).

2.5.2 Paragraph 2.2 of TA91/05 Provision for Non-Motorised Users states that 2 miles is 'a distance that could easily be walked by the majority of people'. Paragraph 2.3 also continues by stating that 'Walking is used to access a wide variety of destinations including educational facilities, shops, and places of work, normally within a range of up to 2 miles' (3.2km).

2.5.3 In relation to shorter trips in particular, the CIHT publication Planning for Walking (section 2.1) states that across Britain about '80% of journeys shorter than 1 mile (1.6km) are made wholly on foot'.

2.5.4 Although now superseded by CD143, LTN 91/05 does provide useful guidance on likely walking and cycling distances and states (paragraph 2.11) that 'Cycling is used for accessing a variety of different destinations, including educational facilities shops and places of work, up to a range of around 5 miles. Cycling is also undertaken as a leisure activity, often over much longer distances.' Paragraph 2.9 also indicates that 5 miles (8km) is a distance 'that could easily be cycled by the majority of people'.

2.5.5 This is consistent with the statement in LTN1/20 Cycle Infrastructure Design (in paragraph 2.2.2) that 'Two out of every three personal trips are less than five miles in length – an achievable distance to cycle for most people'. Table 2.1 provides a summary of the local facilities and services within the vicinity of the site.

Table 2.1: Key Local Facilities and Services

Destination:	Distance (m)	Walking Time (min) [1]	Cycling Time (min) [2]
Local public transport			
Old Inn Bus Stops	190	2	1
The Hill Bus Stops	260	3	1
Axminster Rail Station	2640	33	8
Education			
Kilmington primary School	720	9	2
Axe Valley Academy (Secondary School)	3000	38	9
Health			
Morton's Pharmacy	2900	36	9
Axminster Hospital	3000	38	9
Local Shops/Supermarkets			
Londis	364	5	1
Millers Farm Shop	435	5	1
Tesco Superstore	2700	34	8

[1]Based on walking speed of 80m/minute, taken from 'Providing for Journeys on Foot', IHT
[2] Based on cycling speed of 320m/minute (19.2kph), taken from Cycling England Design Guide

2.5.6 Based on a review of the existing services and facilities the site is well served within acceptable walking and cycling distances. These are accessible via a mix of pedestrian footways and cycleways, and on road cycling.

2.5.7 The close proximity of these uses will encourage walking and cycling. This will reduce the reliance on the private car and encourage sustainable, active modes of transport.

3. Proposed Development

3.1 Overview

3.1.1 The development site is undeveloped agricultural land, which is proposed for a residential development. The development will include a new access, either located on George Lane or the A35, and associated residential parking on-site.

3.2 Vehicular Access Strategy

3.2.1 There are currently two access options for the development; Option 1 is to be accessed off George Lane via a simple priority T-junction, and Option 2 is to be accessed of the A35 via a priority junction with a ghost-island right turn lane arrangement. The access options are discussed below.

George Lane

3.2.2 The preliminary general arrangement design of this junction is included as Drawing Number 16610-HYD-XX-XX-DR-TP-0301 P01, attached as Appendix A. The geometry has been designed with corner radii of 6 metres, a 5.5-metre-wide access road width and a footway of 2 metres in width which would continue into site.

3.2.3 Visibility splays have been provided in accordance with Manual for Street (MfS) and Manual for Streets 2 (MfS2). Manual for Streets guidance states that visibility splays of 2.4m x 43m should be achieved for roads with a 30mph design speed.

3.2.4 MfS2 states that:

> *"MfS2 builds on the guidance contained in MfS1, exploring in greater detail how and where its key principles can be applied to busier streets and non-trunk roads, thus helping to fill the perceived gap in design guidance between MfS1 and the Design Manual for Roads and Bridges (DMRB). DMRB is the design standard for Trunk Roads and Motorways in England, Scotland, Wales and Northern Ireland. The strict application of DMRB to non-trunk routes is rarely appropriate for highway design in built up areas, regardless of traffic volume."*

3.2.5 Paragraph 1.3.6 of MfS2 states that:

> *"It is only where actual speeds are above 40mph for significant periods of the day that DMRB parameters for SSD are recommended. Where speeds are lower, MfS parameters are recommended. Where there may be some doubt as to which guidance to adopt, actual speed measurements should be undertaken to determine which is most appropriate".*

3.2.6 To the north, a visibility splay of 2.4m x 40.7m can be achieved to where George Lane forms a junction with Shute Road; therefore, the northern splay is considered appropriate. To the south, a 2.4m x 43m visibility splay has been provided, in accordance with MfS and MfS2 with a 1m offset from the edge of carriageway; additionally, the access benefits from greater visibility to the south achieving 2.4m x 70m. These visibility splays are shown on Drawing Number 16610-HYD-XX-XX-DR-TP-0301 P01.

3.2.7 It is also noted that the development to the south (Ref 14/1905/MFUL) was permitted with achievable visibility splays of 2.4m x 39m, lower than can be achieved for this site.

3.2.8 Therefore, it is considered that the location of the proposed vehicle access onto George Lane poses no safety issues as suitable visibility can be achieved, in line with guidance. Based on this information, it is considered that there are no reasons for objecting a new access onto George Lane due to proximity to its junction with Shute Road / A35.

3.2.9 Officers at Devon County Council were consulted on the potential for a new access and replied;

> *We do not have any major concerns with the proposed access from George Lane, although we note that there are existing vehicle passing places on this narrow road and would not wish for a new access to impede these in any way. Also the slight angle of the proposed access to the existing George Lane could be altered to make the road a little wider towards the existing junction with Shute Road.*

3.2.10 Based on this response and the initial appraisal, it is considered that an acceptable junction can be achieved onto George Lane.

A35

3.2.11 Additionally, an access on the A35 has been considered; Sketch Drawing 16610-HYD-XX-XX-SK-TP-0103 (Appendix B) demonstrates that appropriate visibility splays can be achieved. Visibility splays have been provided in accordance with DMRB for a design speed of 50mph.

3.2.12 Paragraph 2.21 of DMRB Volume 6 Section 2 Part 7 states that:

> *"Normally, an "X" distance of 4.5m shall be provided for a direct access where use in the design year is forecast not to exceed 500 AADT. The choice of setback distance is related to the forecast traffic using the access. For lightly used accesses, for example those serving a single dwelling or a small cul-de-sac of a half a dozen dwellings, the set back "X" may be reduced to 2.4m. The 2.4m set back relates to normally only one vehicle wishing to join the trunk road at one time. The 4.5m covers the situation where two light vehicles may want to accept the same gap in the trunk road traffic."*

3.2.13 The sketch drawing demonstrates that 2.4m x 160m visibility splays and 4.5m x 160m visibility spays can be achieved to both the north west and to the east. Therefore, suitable visibility can be provided from the A35 in line with DMRB guidance.

3.2.14 Feedback has been received from National Highways on the potential for providing an access directly from the A35. In summary, this would require a Departure from Standards to allow the access and, if permitted, would require ghost-island/turning lane arrangement, potentially with widening into the site.

3.3 Pedestrian and Cycle Access

3.3.1 The development proposals will connect to existing local infrastructure where possible to promote the use of walking and cycling trips.

4. Summary and Conclusions

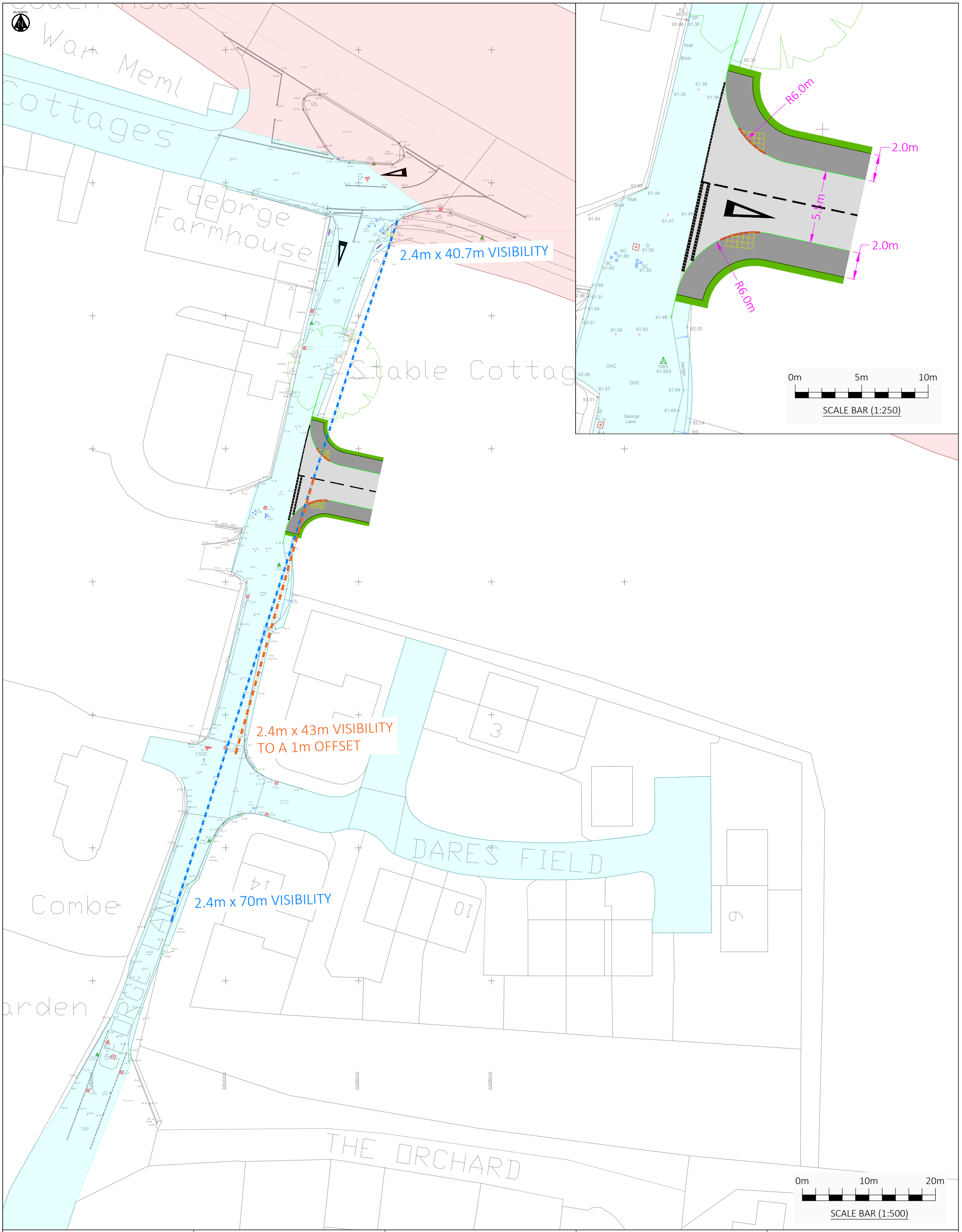
4.1.1 This Transport Appraisal concludes that the site is accessible based on a review of the existing services and facilities within acceptable walking and cycling distances via a mix of existing footways and cycleways, and on road cycling. In addition, the site benefits from public transport facilities/services located within close proximity to the site.

4.1.2 In terms of vehicular access, there are two potential access options; Option 1 is to be accessed off George Lane via a simple priority T-junction, and Option 2 is to be accessed of the A35 via a priority junction with a ghost-island right turn lane arrangement.

4.1.3 It is considered that the location of the proposed vehicle access onto George Lane is appropriate as suitable visibility can be achieved in line with guidance. Based on this information, it is considered that there are no reasons for objecting a new access onto George Lane due to proximity to its junction with Shute Road / A35.

4.1.4 Consideration could also be given to the provision of an access onto the A35, albeit this would require further design assessment to establish its extent and scale, informing its acceptability to National Highways.

Appendix A George Lane Access Design



KEY PLAN

PUBLIC HIGHWAY OWNERSHIP
(INTERPRETED FROM DEVON CC DATA)

PUBLIC HIGHWAY OWNERSHIP
(INTERPRETED FROM HIGHWAYS ENGLAND DATA)

NOTES

REVISIONS

Rev	Date	Description	By	Ckd	App
P01	16/11/2021	First Issue.	AC	NB	JM

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PROJECT
GEORGE LANE,
KILMINGTON

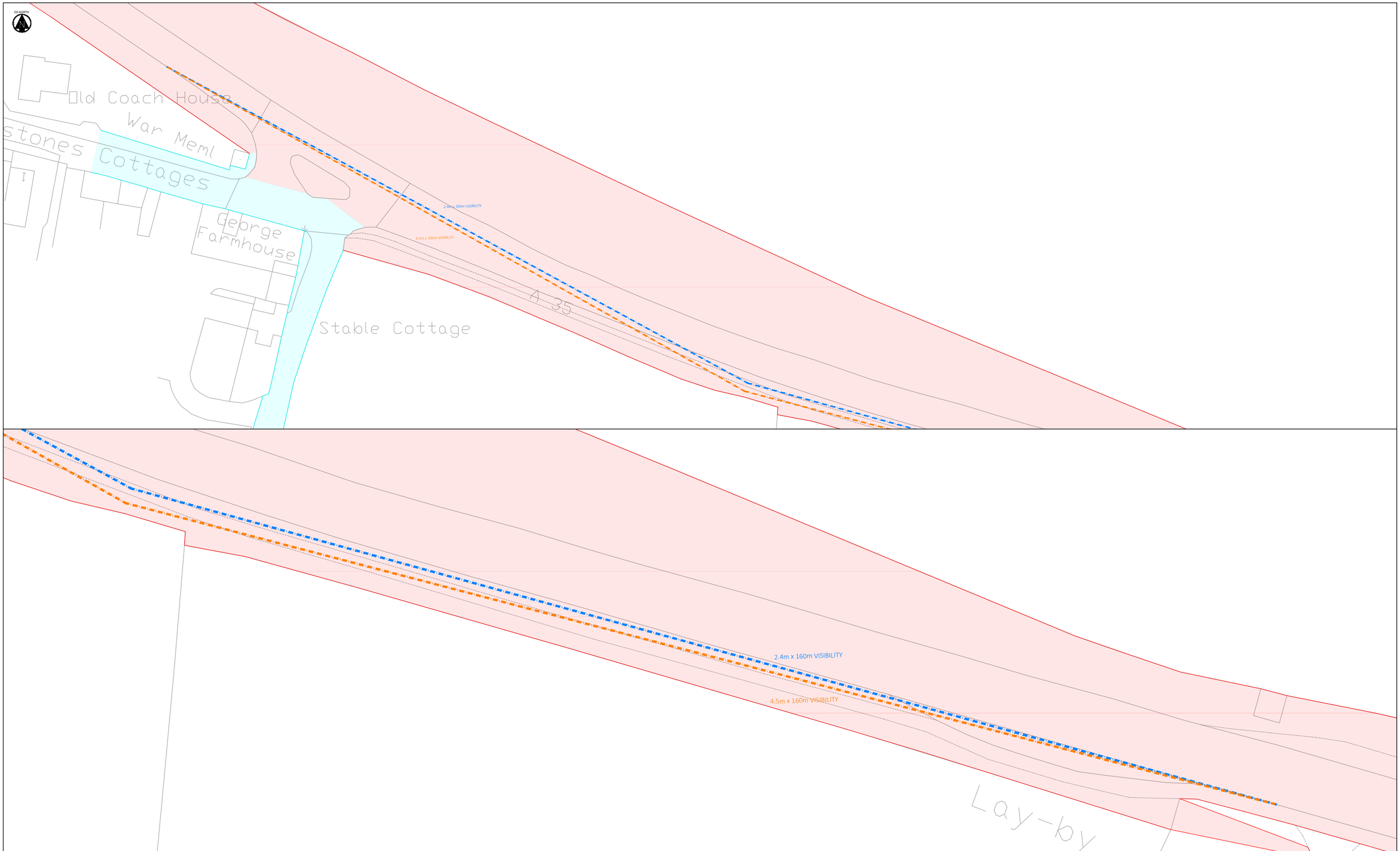
TITLE
VISIBILITY SPLAYS -
GEORGE LANE ACCESS

HYDROCK PROJECT NO.	SCALE @ A3
16610-TGEN	SEE SCALE BARS

STATUS DESCRIPTION	STATUS
INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
16610-HYD-XX-XX-DR-TP-0301	P01

Appendix B A35 Access Visibility Splays



KEY PLAN

PUBLIC HIGHWAY OWNERSHIP
(INTERPRETED FROM DEVON CC DATA)

PUBLIC HIGHWAY OWNERSHIP
(INTERPRETED FROM HIGHWAYS ENGLAND DATA)

NOTES

NOTES *(CONTINUED)*

REVISIONS *(CONTINUED)*

REVISIONS

Rev	Date	Description	By	Ckd	App
P02	22/10/2020	Second Issue.	AC	NB	NB
P01	04/08/2020	First Issue.	AC	NB	NB

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PROJECT
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KILMINGTON

TITLE
VISIBILITY SPLAYS REQUIRED
FOR 50MPH ROAD (DMRB)-
A35 ACCESS

HYDROCK PROJECT NO.
16610-TGEN

SCALE @ A3
NOT TO SCALE

STATUS DESCRIPTION
INFORMATION

STATUS
S2

DRAWING NO. (PROJECT CODE-ORGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)
16610-HYD-XX-XX-SK-TP-0103

REVISION
P02

Technical design note

Project name	Land East of George Lane, Kilmington		
Design note title	Drainage Strategy		
Document reference	27120-HYD-XX-XX-TN-D-0001		
Author	[redacted]		
Revision	P02		
Date	16 January 2023	Approved	✓

1. Introduction

1.1 This Technical Note supports representations by Place Land Limited to the East Devon Local Plan and the allocation of land east of George Lane for residential development under Policy KILM_09. The Technical Note demonstrates that the site can be effectively drained in terms of both foul and surface water.

1.2 The findings and proposals contained within this Technical Note are based on desk based investigations and will require further site work to confirm the conclusions.

2. Surface Water

2.1 Existing

2.1.1 The site is currently undeveloped 'greenfield' and is used for arable agricultural.

2.1.2 It is bounded to the north by the A35 Gammons Hill, to the west by George Lane, to the south by residential development and to the east by fields and public open space and the Old Inn public house.

2.1.3 Site location plans and site referencing information are shown below.

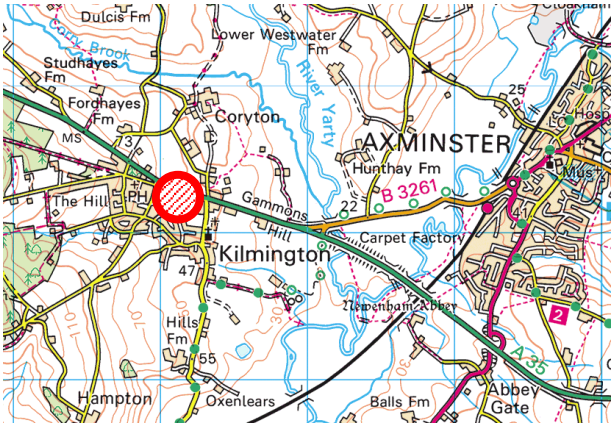


Figure 1 – Site Location

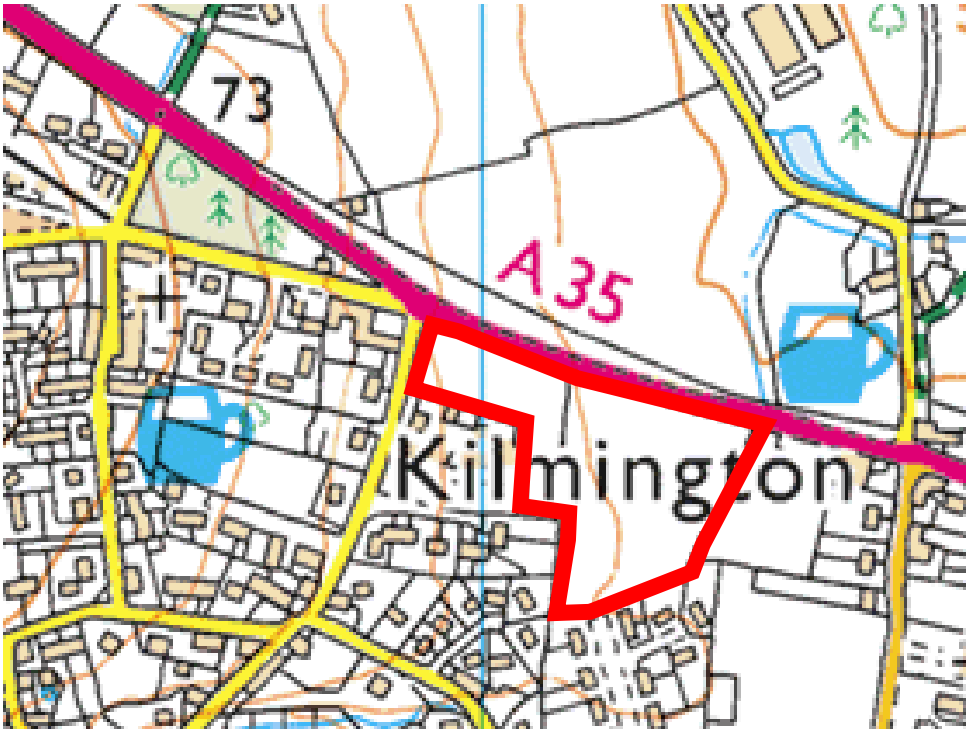


Figure 2 – Site Location

Site Referencing Information	
Site address	George Lane Kilmington East Devon EX13 7DL
Grid reference	E. 326981, N. 98287 SY269982 / SY2698198287

Table 1 – Site Referencing Details

2.1.4 The topography of the site falls generally from west to east at an average gradient of 1 in 33 to a low point in the north-east corner of the site, adjacent to the A35.

2.1.5 As the site is greenfield, it is anticipated that there are no formal drainage systems serving the site. A copy of the South West Water sewer records, included in Appendix B, has been obtained which confirms that there are no public surface water sewers within the site boundary.

An existing public sewer network is shown in the adjacent residential development to the west serving Dares Field. There is no apparent outfall point and it is assumed that the system discharges to a soakaway.

2.1.6 There are no watercourses recorded within the site boundary although a site inspection has revealed a culvert under the A35 adjacent to the north-east corner.

2.1.7 Referring to the on-line GOV.UK mapping service for flood risk from surface water, shows the whole of the site to be at 'very low' risk however, there is a length of medium risk immediately adjacent to the southern side of the A35 flowing to the east, see Figure 3 below.

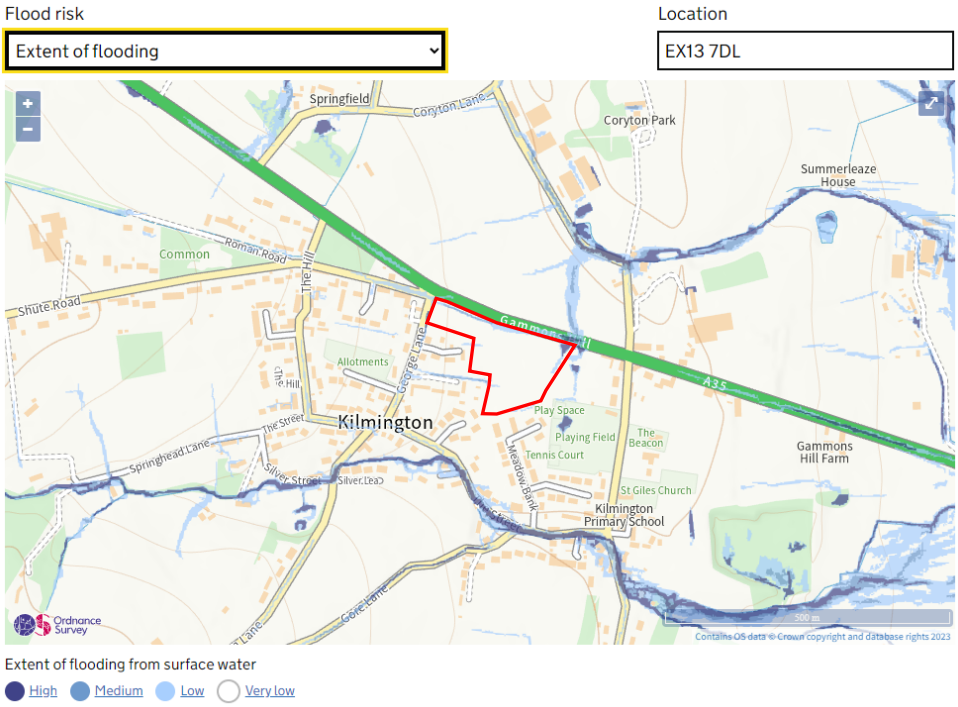


Figure 3: Surface Water Mapping

The mapping also shows that the site is entirely located within Flood Zone 1 which is a low risk of flooding (≤0.1% AEP of fluvial flooding in any given year), see Figure 4 below.

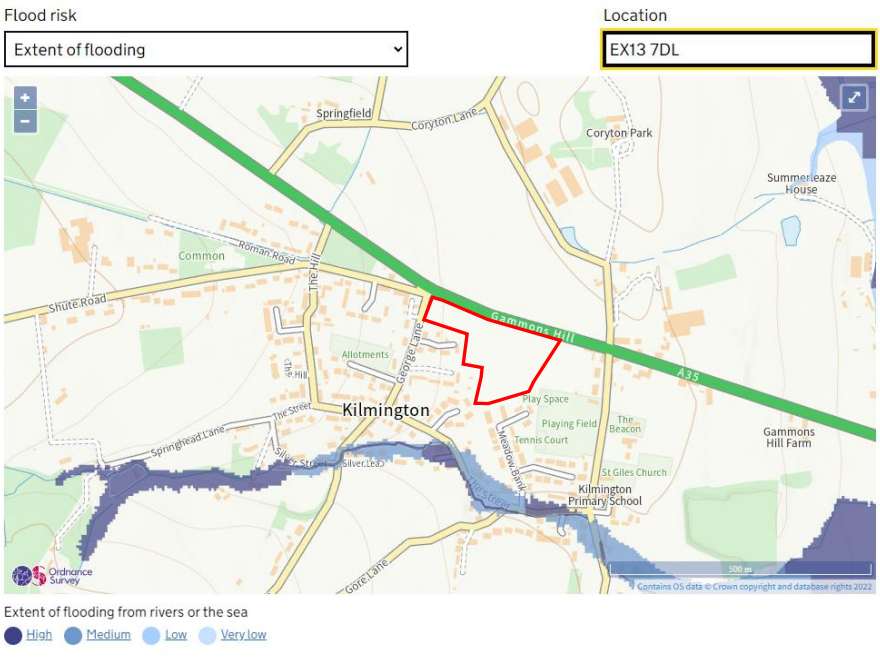


Figure 4: Flood Zone Mapping

2.2 Post Development

2.2.1 The proposal is for 37 residential dwellings together with associated access, parking and open space.

A copy of the proposed site layout plan is included in Appendix A.

2.2.2 The site lies within the responsibility of Devon County Council as Lead Local Flood Authority. Reference has been made to their document "Sustainable Drainage Systems – Guidance for Devon" dated January 2017'.

2.2.3 In accordance with the National Planning Policy Framework (NPPF), surface water runoff from the proposed development is to be captured and managed utilising sustainable methods where possible. As such, the following surface water drainage management strategies will be assessed in direct relation to the site, based on preferential order in accordance with the NPPF, National Planning Policy Guidance (NPPG), Building Regulations and Sewerage Sector Guidance (SSG).

- Infiltration
- Discharge to local watercourse
- Discharge to public surface water sewer
- Discharge to public combined sewer

2.2.4 No ground investigation work has been undertaken at the time of writing however, reference has been made to the on-line British Geological Society mapping information. This indicates that the site is underlain by a bedrock of mudstone with superficial deposits of silt, sand and gravel in the western part of the site and sand and gravel in the eastern part.

On the basis of the above, it is anticipated that the use of soakaways will be practical for the disposal of surface water runoff. This assumption Is supported by the apparent disposal of surface water from the Dares Field development to the west to ground.

2.2.5 An infiltration rate of 1.0 x 10^{-5} m/s has been assumed as a conservative value for the purposes of estimating soakaway sizes. It is possible that each plot can be provided with its own soakaway manhole however, this will be dependent on the final layout and being able to achieve 5m offsets to all structures.

For the purposes of this assessment, it is assumed that this is not possible and that all buildings and roads will need to be drained to an infiltration basin located in the north-east corner of the site as a 'worst case' option.

2.2.6 An assumed impermeability factor of 55% has been taken for the proposed development areas and an urban creep factor of +10% applied to determine a likely total drained area of 0.775 ha.

2.2.7 Applying the above design criteria an infiltration basin design has been carried out using the Source Control module in Micro Drainage. This shows that a basin with a maximum storage depth of 1.3m. and an overall footprint of 836m^2 will contain runoff generated by a 1 in 100 year storm event with an allowance of +45% for climate change.

The half drain down time is 972 minutes.

2.2.8 A copy of the calculations and a drawing showing the size and location of the basin is included in Appendix C.

2.2.9 Should infiltration prove not to be practical, surface water runoff will be discharged to the culvert under the A35 and discharge rates restricted to the greenfield QBAR value.

Using the Source Control module in Micro Drainage which estimates a QBAR rate of 6.6 l/s/ha. The total impermeable area, ignoring the urban creep factor, is 0.734 ha therefore the allowable discharge rate will be 4.8 l/s.

The Micro Drainage calculation shows that the storage requirement is very similar to that of the infiltration basin option with a maximum depth of 1.3m and a maximum volume of 551m^3.

Copies of the above calculations are included in Appendix C.

3. Foul Water

3.1 Existing

3.1.1 As the site is greenfield, it is anticipated that there are no formal drainage systems serving the site. However, a copy of the South West Water sewer records, included in Appendix B, has been obtained which shows that there is an existing 150mm diameter public combined sewer crossing the western part of the site, flowing approximately from north to south.

3.1.2 The sewer records also indicate that there is a foul sewer connection from the existing residential development, Dares Field, to the west.

3.1.3 It will be necessary to accommodate this combined sewer within the proposed site layout, either by providing a protected route or diverting it as necessary. Any diversion works will require the approval of South West Water.

3.1.4 The head of a 150mm diameter public combined sewer is located in the A35, immediately outside the Old Inn public house to the north-east of the site.

3.2 Post Development

3.2.1 The topography of the site is such that it is possible to drain the western part of the site by gravity to the existing combined sewer which passes through the development area.

The remainder of the development to the east will gravitate to the north-east corner of the site and can be connected to the existing combined sewer in the A35 via a new off-site sewer. Should this prove not to be possible it will be necessary to provide a new pumping station in order to pump flows back towards the western combined sewer.

3.2.2 The development proposal is for up to 40 residential dwellings. The anticipated peak flow for the development is 1.8 l/second for 40 units based on an allowance of 4,000 litres/dwelling/day in accordance with the recommendations of clause B3.1.1(b) of the Water UK Sewerage Sector Guidance Appendix C.

3.2.3 It is anticipated that all new foul drainage sewers will be offered to South West Water for adoption under a Section104 Agreement. It will be necessary to submit a Pre-Development Enquiry to South West Water at the time of any planning application in order to determine the recommended points of connection and if any off-site reinforcement works are required.

3.2.4 A notional foul drainage layout is included in Appendix C.

4. Conclusions

4.1 The site is currently undeveloped and therefore is assumed to have no formal drainage connections.

4.2 The only existing public surface water sewer in the immediate vicinity of the site shown on the South West Water mapping is in the existing residential development immediately to the west, served by Dares Field. This sewer network appears to have no positive discharge point and therefore it is assumed that this is likely to discharge to a soakaway.

4.3 The British Geological Society mapping indicates the site to be underlain by superficial deposits of sands, silts and gravels and it is assumed at this stage that surface water runoff from the development can be disposed of to soakaways.

An infiltration basin located in the north-east corner of the site could serve the development, as shown by the ablutions included in Appendix D.

Should infiltration prove not to be practical, a storage basin of the same size as the infiltration basin with a restricted discharge and a connection to the existing culvert under the A35 can be utilised.

4.4 The South West Water sewer records show a combined sewer passing through the site and in the A35 to the north-east of the site. It is proposed that foul flows from the development be discharged to one or both of these sewers, subject to discussions with South West Water.

APPENDIX A

Sketch Concept Layout - 21121

Key

- Site Boundary (2.46ha)
- Existing Key Trees
- Listed Buildings (Grade II & II*)
- Existing Bus Stop
- Ecological or Landscape Buffer (5 - 10m from Boundary)
- Potential SUDS Pond
- Potential SUDS Swales
- Shared Surface
- Private Drive
- Parking Court
- Ped/Cycle link
- Footpath
- Proposed Native Trees
- Proposed Semi-ornamental/ Street Trees
- Proposed Orchard Trees
- Proposed Mixed Native Hedge/Hedgebank

N

0m 10m 20m 30m 40m 50m

SCALE 1:500

REV	DATE	COMMENTS	AUTHOR / CHECKED
P1	09.01.23	First Issue to Client	AV / PO

PROJECT TITLE
Kilmington

DETAIL
Illustrative Masterplan

DRAWING NUMBER
(PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)
KIL - LHC - 00 - 00 - DR - UD - 0106

STATUS	STATUS DESCRIPTION	
S2	FOR INFORMATION	
REVISION	DATE	SCALE
P1	JANUARY 2023	1:500 @A1

CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE - ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM - DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT BEFORE PROCEEDING

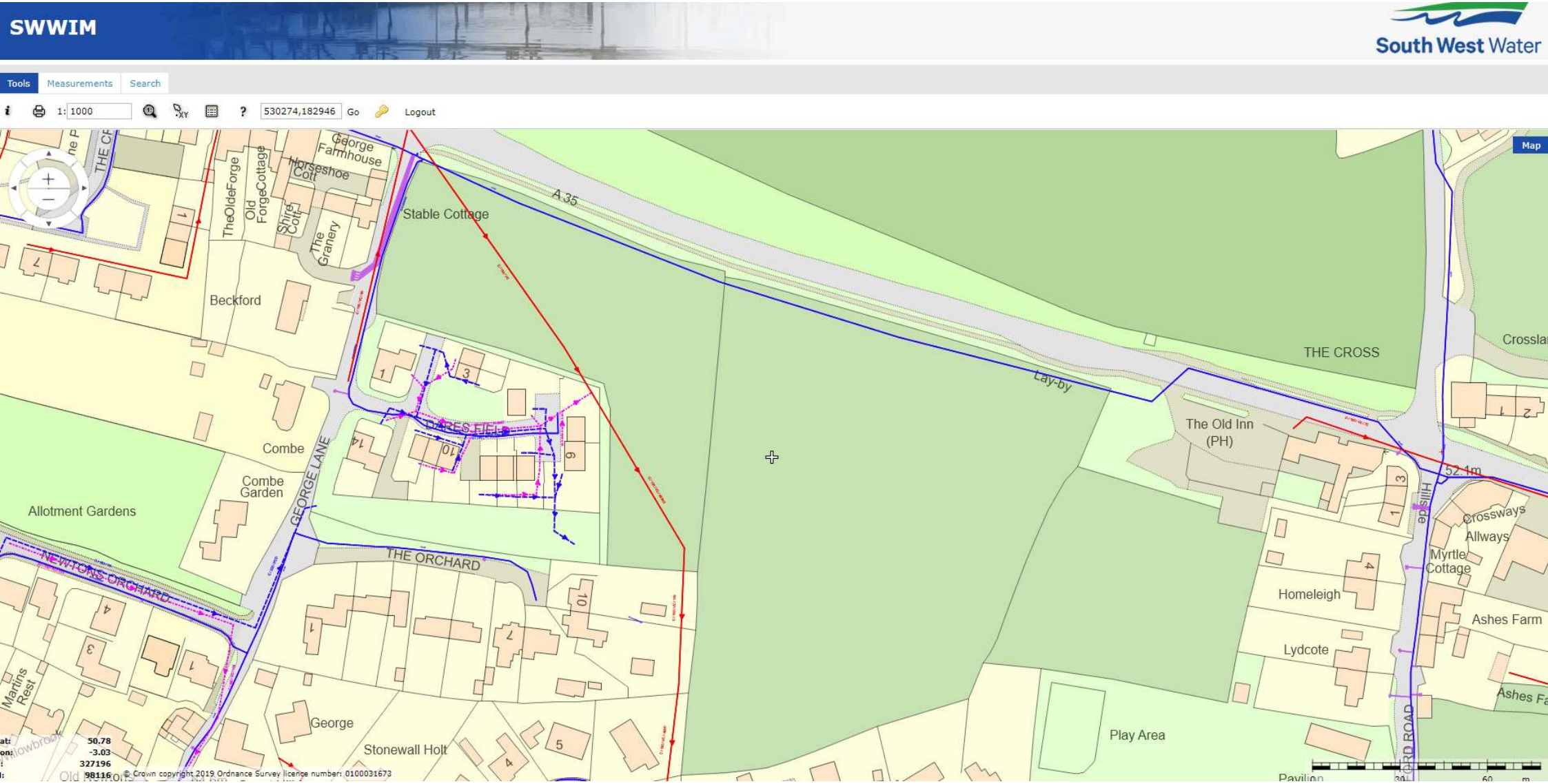
LHC PROJECT NUMBER
21121

lhc design

lhc.net

APPENDIX B

South West Water Sewer Record Plan


SWWIM
South West Water
Tools
Measurements
Search
1: 1000
530274,182946
Go
Logout
Map
A 35
Lay-by
THE CROSS
Stable Cottage
George Farmhouse
Horseshoe Cott
The Older Forge
Old Forge Cottage
Shire Cott
The Granery
Beckford
Combe
Combe Garden
Allotment Gardens
GEORGE LANE
THE ORCHARD
NEWTONS ORCHARD
DARES FIELD
The Old Inn (PH)
52.1m
Crossways
Allways
Myrtle Cottage
Homeleigh
Ashes Farm
Lydcote
Play Area
Martins Rest
George
Stonewall Holt
50.78
-3.03
327196
98116
© Crown copyright 2019 Ordnance Survey licence number: 0100031673

APPENDIX C

Infiltration Basin Calculation

Greenfield Runoff Rate Calculation

Storage Basin Calculation

Drainage Strategy Plan

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 972 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.537	0.537	2.9	163.6	O K
30 min Summer	8.682	0.682	3.5	225.0	O K
60 min Summer	8.827	0.827	4.0	294.2	O K
120 min Summer	8.965	0.965	4.6	367.6	O K
180 min Summer	9.036	1.036	4.9	408.4	O K
240 min Summer	9.078	1.078	5.0	433.7	O K
360 min Summer	9.129	1.129	5.2	464.7	O K
480 min Summer	9.157	1.157	5.4	482.4	O K
600 min Summer	9.171	1.171	5.4	491.8	O K
720 min Summer	9.179	1.179	5.5	496.5	O K
960 min Summer	9.188	1.188	5.5	502.6	O K
1440 min Summer	9.191	1.191	5.5	504.7	O K
2160 min Summer	9.176	1.176	5.4	495.1	O K
2880 min Summer	9.151	1.151	5.3	478.8	O K
4320 min Summer	9.091	1.091	5.1	441.5	O K
5760 min Summer	9.034	1.034	4.8	406.9	O K
7200 min Summer	8.982	0.982	4.6	376.9	O K
8640 min Summer	8.934	0.934	4.4	350.3	O K
10080 min Summer	8.890	0.890	4.3	326.6	O K
15 min Winter	8.586	0.586	3.1	183.5	O K
30 min Winter	8.742	0.742	3.7	252.4	O K
60 min Winter	8.897	0.897	4.3	330.5	O K
120 min Winter	9.045	1.045	4.9	413.7	O K
180 min Winter	9.122	1.122	5.2	460.4	O K
240 min Winter	9.168	1.168	5.4	489.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	115.250	0.0	34
30 min Summer	79.580	0.0	48
60 min Summer	52.627	0.0	78
120 min Summer	33.624	0.0	134
180 min Summer	25.459	0.0	192
240 min Summer	20.722	0.0	250
360 min Summer	15.446	0.0	368
480 min Summer	12.532	0.0	484
600 min Summer	10.645	0.0	600
720 min Summer	9.310	0.0	670
960 min Summer	7.526	0.0	782
1440 min Summer	5.564	0.0	1038
2160 min Summer	4.102	0.0	1452
2880 min Summer	3.298	0.0	1860
4320 min Summer	2.420	0.0	2688
5760 min Summer	1.943	0.0	3472
7200 min Summer	1.640	0.0	4264
8640 min Summer	1.428	0.0	5032
10080 min Summer	1.271	0.0	5840
15 min Winter	115.250	0.0	34
30 min Winter	79.580	0.0	48
60 min Winter	52.627	0.0	76
120 min Winter	33.624	0.0	132
180 min Winter	25.459	0.0	190
240 min Winter	20.722	0.0	246

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	9.225	1.225	5.6	526.7	O K
480 min Winter	9.257	1.257	5.8	548.6	O K
600 min Winter	9.276	1.276	5.9	561.3	O K
720 min Winter	9.286	1.286	5.9	568.3	O K
960 min Winter	9.291	1.291	5.9	572.0	O K
1440 min Winter	9.291	1.291	5.9	572.2	O K
2160 min Winter	9.266	1.266	5.8	555.0	O K
2880 min Winter	9.228	1.228	5.7	529.2	O K
4320 min Winter	9.143	1.143	5.3	473.5	O K
5760 min Winter	9.061	1.061	5.0	423.1	O K
7200 min Winter	8.987	0.987	4.6	379.8	O K
8640 min Winter	8.920	0.920	4.4	342.8	O K
10080 min Winter	8.860	0.860	4.1	311.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.446	0.0	360
480 min Winter	12.532	0.0	474
600 min Winter	10.645	0.0	584
720 min Winter	9.310	0.0	692
960 min Winter	7.526	0.0	880
1440 min Winter	5.564	0.0	1102
2160 min Winter	4.102	0.0	1564
2880 min Winter	3.298	0.0	2016
4320 min Winter	2.420	0.0	2868
5760 min Winter	1.943	0.0	3704
7200 min Winter	1.640	0.0	4536
8640 min Winter	1.428	0.0	5288
10080 min Winter	1.271	0.0	6064

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.775

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.155	4	8	0.155	8	12	0.155	12	16	0.155	16	20	0.155

Model Details

Storage is Online Cover Level (m) 10.000

Infiltration Basin Structure

Invert Level (m) 8.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.03600 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.03600

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	214.0	1.200	657.0	2.400	836.0	3.600	836.0	4.800	836.0
0.200	282.0	1.400	744.0	2.600	836.0	3.800	836.0	5.000	836.0
0.400	349.0	1.600	836.0	2.800	836.0	4.000	836.0		
0.600	420.0	1.800	836.0	3.000	836.0	4.200	836.0		
0.800	495.0	2.000	836.0	3.200	836.0	4.400	836.0		
1.000	574.0	2.200	836.0	3.400	836.0	4.600	836.0		

ICP SUDS Mean Annual Flood

Input

Return Period (years) 100 SAAR (mm) 991 Urban 0.000
Area (ha) 1.000 Soil 0.450 Region Number Region 8

Results l/s

QBAR Rural 6.6
QBAR Urban 6.6

Q100 years 16.0

Q1 year 5.1
Q30 years 12.6
Q100 years 16.0

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	8.529	0.529	4.8	160.3	O K
30 min Summer	8.675	0.675	4.8	221.5	O K
60 min Summer	8.820	0.820	4.8	290.4	O K
120 min Summer	8.954	0.954	4.8	361.4	O K
180 min Summer	9.022	1.022	4.8	400.0	O K
240 min Summer	9.061	1.061	4.8	423.2	O K
360 min Summer	9.106	1.106	4.8	450.5	O K
480 min Summer	9.129	1.129	4.8	465.0	O K
600 min Summer	9.140	1.140	4.8	471.5	O K
720 min Summer	9.142	1.142	4.8	473.0	O K
960 min Summer	9.136	1.136	4.8	469.0	O K
1440 min Summer	9.115	1.115	4.8	456.0	O K
2160 min Summer	9.078	1.078	4.8	433.5	O K
2880 min Summer	9.039	1.039	4.8	410.0	O K
4320 min Summer	8.955	0.955	4.8	361.9	O K
5760 min Summer	8.868	0.868	4.8	315.0	O K
7200 min Summer	8.773	0.773	4.8	267.3	O K
8640 min Summer	8.651	0.651	4.8	211.0	O K
10080 min Summer	8.549	0.549	4.8	168.1	O K
15 min Winter	8.579	0.579	4.8	180.4	O K
30 min Winter	8.735	0.735	4.8	249.5	O K
60 min Winter	8.890	0.890	4.8	327.0	O K
120 min Winter	9.036	1.036	4.8	408.2	O K
180 min Winter	9.110	1.110	4.8	453.2	O K
240 min Winter	9.155	1.155	4.8	481.0	O K
360 min Winter	9.207	1.207	4.8	515.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	115.250	0.0	166.0	34
30 min Summer	79.580	0.0	229.3	48
60 min Summer	52.627	0.0	305.1	78
120 min Summer	33.624	0.0	390.0	136
180 min Summer	25.459	0.0	442.9	194
240 min Summer	20.722	0.0	480.6	252
360 min Summer	15.446	0.0	537.1	368
480 min Summer	12.532	0.0	580.8	486
600 min Summer	10.645	0.0	616.3	604
720 min Summer	9.310	0.0	646.3	720
960 min Summer	7.526	0.0	694.4	846
1440 min Summer	5.564	0.0	719.2	1102
2160 min Summer	4.102	0.0	857.7	1504
2880 min Summer	3.298	0.0	919.5	1920
4320 min Summer	2.420	0.0	1011.4	2744
5760 min Summer	1.943	0.0	1084.1	3576
7200 min Summer	1.640	0.0	1143.8	4400
8640 min Summer	1.428	0.0	1195.1	5032
10080 min Summer	1.271	0.0	1240.3	5744
15 min Winter	115.250	0.0	186.0	34
30 min Winter	79.580	0.0	256.6	48
60 min Winter	52.627	0.0	341.8	76
120 min Winter	33.624	0.0	436.7	134
180 min Winter	25.459	0.0	495.9	190
240 min Winter	20.722	0.0	538.1	248
360 min Winter	15.446	0.0	601.3	362

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
480 min Winter	9.237	1.237	4.9	534.9	O K
600 min Winter	9.253	1.253	4.9	545.7	O K
720 min Winter	9.260	1.260	4.9	550.7	O K
960 min Winter	9.259	1.259	4.9	550.1	O K
1440 min Winter	9.232	1.232	4.9	531.6	O K
2160 min Winter	9.184	1.184	4.8	500.1	O K
2880 min Winter	9.128	1.128	4.8	464.2	O K
4320 min Winter	9.003	1.003	4.8	389.1	O K
5760 min Winter	8.868	0.868	4.8	315.1	O K
7200 min Winter	8.686	0.686	4.8	226.6	O K
8640 min Winter	8.508	0.508	4.8	152.0	O K
10080 min Winter	8.368	0.368	4.8	101.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
480 min Winter	12.532	0.0	649.8	476
600 min Winter	10.645	0.0	688.8	590
720 min Winter	9.310	0.0	720.6	702
960 min Winter	7.526	0.0	751.8	918
1440 min Winter	5.564	0.0	731.9	1158
2160 min Winter	4.102	0.0	960.6	1624
2880 min Winter	3.298	0.0	1029.8	2084
4320 min Winter	2.420	0.0	1132.4	2988
5760 min Winter	1.943	0.0	1214.3	3864
7200 min Winter	1.640	0.0	1281.1	4616
8640 min Winter	1.428	0.0	1338.6	5200
10080 min Winter	1.271	0.0	1389.3	5760

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.775

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.155	4	8	0.155	8	12	0.155	12	16	0.155	16	20	0.155

Model Details

Storage is Online Cover Level (m) 10.000

Tank or Pond Structure

Invert Level (m) 8.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	214.0	1.200	657.0	2.400	836.0	3.600	836.0	4.800	836.0
0.200	282.0	1.400	744.0	2.600	836.0	3.800	836.0	5.000	836.0
0.400	349.0	1.600	836.0	2.800	836.0	4.000	836.0		
0.600	420.0	1.800	836.0	3.000	836.0	4.200	836.0		
0.800	495.0	2.000	836.0	3.200	836.0	4.400	836.0		
1.000	574.0	2.200	836.0	3.400	836.0	4.600	836.0		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0101-4800-1200-4800
Design Head (m)	1.200
Design Flow (l/s)	4.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	101
Invert Level (m)	8.000
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	4.8	Kick-Flo®	0.748	3.9
Flush-Flo™	0.359	4.8	Mean Flow over Head Range	-	4.2

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.3	0.800	4.0	2.000	6.1	4.000	8.4	7.000	11.0
0.200	4.5	1.000	4.4	2.200	6.4	4.500	8.9	7.500	11.4
0.300	4.8	1.200	4.8	2.400	6.6	5.000	9.4	8.000	11.7
0.400	4.8	1.400	5.2	2.600	6.9	5.500	9.8	8.500	12.1
0.500	4.7	1.600	5.5	3.000	7.4	6.000	10.2	9.000	12.4
0.600	4.5	1.800	5.8	3.500	7.9	6.500	10.6	9.500	12.7

OS NORTH

POTENTIAL DIVERSION ROUTE FOR EXISTING COMBINED SEWER

PROPOSED INFILTRATION OR STORAGE BASIN

EXISTING CULVERT

OFFSITE FOUL SEWER ROUTE

CONNECTION TO EXISTING COMBINED SEWER

THE CROSS

Hillside

Key

- Existing public surface water sewer
- Existing public foul water sewer
- Existing public combined sewer
- Proposed foul water sewer
- Existing water main
- Existing culvert
- Proposed attenuation/infiltration basin

REVISIONS

Rev	Date	Description	By	Ckd	App
P02	16/01/23	Updated planning layout.	RJH		
P01	09/01/23	First Issue.	RJH		

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e: bristol@hydrock.com

CLIENT

PLACE LAND SW LIMITED

PROJECT

LAND EAST OF GEORGE LANE
KILMINGTON
EAST DEVON

TITLE

SCHEMATIC FOUL AND SURFACE WATER DRAINAGE STRATEGY PLAN

HYDROCK PROJECT NO.	SCALE @ A1
21720-IOCB	1 : 500

STATUS DESCRIPTION	STATUS
INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
21720-HYD-XX-XX-DR-D-2001	P02

Land east of George Lane, Kilmington, Devon (Kilm09):

Heritage Appraisal

NGR: SY 27081 98233

Prepared by:

[redacted]

MCIfA

Document No: ACW1512/1/0

Date: January 2023

AC archaeology

KILMINGTON ALLOCATION (Kilm 09) HERITAGE APPRAISAL

INTRODUCTION

This statement has been prepared in support of a representation to East Devon Local Plan to allocate land at Kilmington, known as Kilm 09, for residential development. The presence of designated heritage assets in the vicinity is recognised as a material consideration by the Strategic Planning Committee and by the Parish Council in the adopted Neighbourhood Plan.

DESIGNATED HERITAGE ASSETS

The prospective allocation site lies outside the Kilmington Conservation Area; at a distance of c.120m at its nearest point. The Conservation Area Appraisal does not identify any key views from within, through or into the Conservation Area, which could be adversely affected by the development of this site. The setting of this designated asset, and hence its heritage significance, would therefore be considered to be unaffected by the development of this site.

There are three Grade II Listed Buildings within c 50m of the allocation site. Two lie to the west of George Lane, on Shute Road, and comprise the George Farmhouse (List Entry Number 1098466) and the War Memorial (List Entry Number 1425397). Both possess quite intimate settings associated with their roadside positions which would be unaffected by development of the allocation site; these are not considered further.

The Old Inn

The third designated heritage asset, The Old Inn, a Grade II Listed Building (List Entry Number 1333544) lies c. 30m to the east of the boundary of the allocation site. The Historic England Listing description states:

Public house. Circa C16/17 with C18 wing. Roughcast and white-washed stone rubble. Thatched roof with hipped ends. Two storeys. Long four/five window range. Two and three light casement on first floor with chamfered mullions and leaded panes. One C20 casement on ground floor. C20 glazed doors and C20 thatched porch in the angle with circa C18 wing projecting to lefthand, the gable to road with bowed sash on each floor with glazing bars. Plank door to left. Rebuilt brick ridge stacks and stack over gable of wing. Interior: one jointed cruck truss. Stopped chamfer ceiling beams.

An early cartographic depiction of the building, the 1838 Tithe Map, shows the Old Inn and outbuildings within a restricted curtilage (Plot 278), described in the accompanying apportionment as *Old Inn, yards and garden.* Subsequent extension to create the modern car park to the west, into a former meadow field (Plot 277) is of twentieth century date and known to have been present at the time of listing in 1967; it is therefore considered to be its modern curtilage in respect of its listed status.

Significance

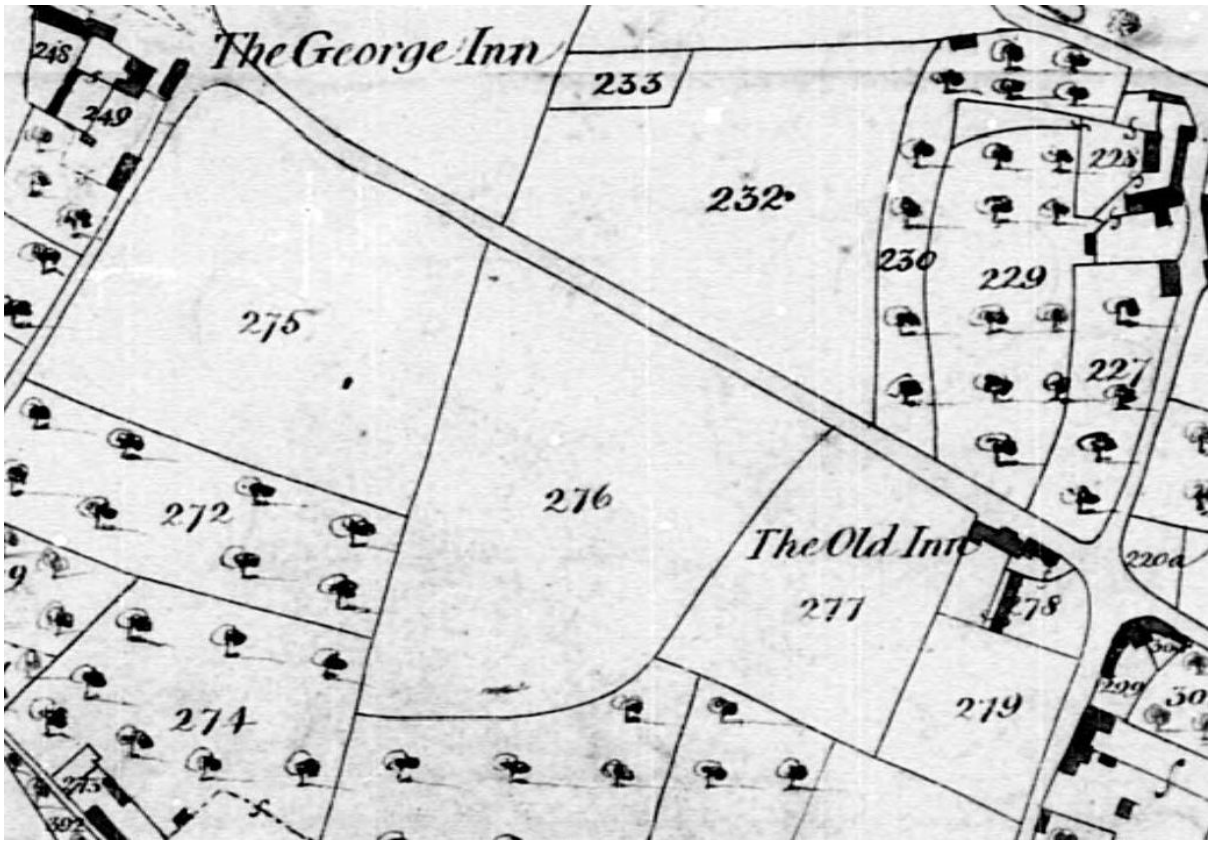
The Old Inn derives its heritage significance principally from its architectural and historical interests. Although its early history is poorly documented it is believed to have functioned as a wayside inn for many centuries, a function that continues to this day. It is therefore additionally considered to have communal values.

Setting

The key aspects of the building's setting comprise its historic roadside position on the modern A35. It is a prominent, landmark building in the approach to the village from the west in the final few

hundred metres, prior to which it is obscured by trees. The appreciation of its external architecture, particularly its rough-cast walls and thatched rooves, is more immediately visible in close proximity and from views from within the car park where its principal facades can be experienced. The visual prominence of this building as a historic roadside inn adds to the significance of the asset. There is no evidence that existing views from the building are designed or intended, and certainly not towards the allocation site; nor has the building and the allocation site shared any functional relationship in the past.

The western boundary of the car park is well-vegetated and provides an effective screen between the Listed Building and the allocation site; any intervisibility is both restricted and entirely incidental to the experience of the heritage asset.



Extract from 1838 Tithe Map

NON-DESIGNATED HERITAGE ASSETS

The allocation site is recorded in the Devon County Council Historic Environment Record as being the potential site of former (possibly Romano-British or medieval) ironworking, by virtue of its field name *Ashen Field* recorded on the 1838 Tithe Apportionment (ref MDV107136). Sites of this type are likely to be considered of local archaeological significance, the management of their archaeological interest can be achieved by reference to policies for non-designated heritage assets in Chapter 16 of the NPPF.

CONCLUSION

The allocation site does not lie within the setting of the Old Inn, a Grade II Listed Building. Residential development can be achieved without harm to the setting or significance of this designated heritage asset.

The allocation land may contain archaeological interest, the significance of which could be affected by development, but for which appropriate mitigation can be achieved through planning condition(s).

Approach to the Old Inn from the northwest

Winter view towards the Old Inn through the allocation site

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