

Regional Investment Programme
A27 Worthing-Lancing Improvements
PCF Stage 1 - Traffic Forecasting Report

March 2017

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TRAFFIC FORECASTING REPORT - A27 WORTHING-LANCING IMPROVEMENTS

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1 STUDY OVERVIEW

1.1 CONTEXT

1.1.1 The Roads Investment Strategy announcement on 1 December 2014 included Worthing and Lancing improvements to the capacity of the A27 and junctions along the stretch of single carriageway in Worthing and narrow lane dual carriageway in Lancing.

1.1.2 There are existing capacity constraints due to the single carriageway section through Worthing.

- The current demand exceeds the theoretical capacity of the road at Worthing.
- Future growth will result in the demand further exceeding capacity through Worthing and Lancing, and this section of the A27 will act as a constraint to the planned growth in housing and employment along the corridor.
- The A27 results in severance through Worthing/Lancing.

1.1.3 The A27 is a strategically important corridor on the south coast which is used by both long distance strategic traffic and local traffic alike.

Table 1-1: AADT Values from WebTRIS for Study Area

LOCATION	2016 AADT
A27 between A283 and A2025	49220
A27 west of Busticle Lane near Worthing (east)	43504
A27 between Sompting Road and A24, Worthing	34958

1.1.4 The Road Investment Strategy (RIS) for the period 2015-2021, published in 2014 and is referred to as 'RIS 1', comprises a long term vision for England's motorways and trunk roads. It specifies those locations that are to be the subject of technical study and which should, as a result, be improved through a programme of investment.

1.1.5 The A27 through Worthing and Lancing was identified by RIS 1 as an area for investment (referred to as 'A27 Worthing-Lancing Improvements').

1.1.6 Highways England has commissioned WSP to undertake a technical assessment of the A27 through Worthing and Lancing, and to consider in detail the various technical issues associated with improving these sections of the A27. The assessment has been undertaken in line with the *Project Control Framework (PCF)* operated by Highways England. Specifically, the assessment is at PCF Stage 1; 'Option Identification'. This is the stage where:

- Options are identified to be taken to public consultation
- Options are assessed in terms of environmental impact, traffic forecasts and economic benefits
- Cost estimates are carried out.

1.1.7 A Traffic Data Collection Report, which provides an overview and initial analysis of the traffic data collected for the development of the OD matrix for the model (v1.2.0), was submitted to TAME on 29 June 2016 and has subsequently been agreed and signed off.

1.1.8 Primary data collected throughout the 2015 surveys were used for the purpose of model development and calibration and provides an overview of the existing conditions. This predominantly related to the RSI and non-RSI link counts. Table 1.2 and Table 1.3 outline the data that was utilised during the base year model development.

Table 1-2: RSI Calibration Link Counts (Interview Direction) - All User Classes

SURVEY REF	SITE DESCRIPTION	AM AVERAGE (VEH'S)	IP AVERAGE (VEH'S)	PM AVERAGE (VEH'S)
RSI 1	A27 Arundel Road - Site 1	977	876	901
RSI 2	A27 Old Shoreham Road - Site 2	1,513	1,297	1,391
RSI 3	A259 Crookthorn Lane - Site 3	866	690	768
RSI 4	A259 Brighton Road - Site 4	712	696	882
RSI 5	A29 N Whiteways Lodge Roundabout - Site 5	377	379	585
RSI 6	A280 Long Furlong - Site 6	516	484	896
RSI 7	A24 Findon Road - Site 7	859	831	938
RSI 8	A283 Steyning Road - Site 8	912	703	982
RSI 10	B2139 Whiteways Lodge Roundabout - Site 10	369	277	398

Table 1-3: RSI Calibration Link Counts (Non-Interview Direction) - All User Classes

SURVEY REF	SITE DESCRIPTION	AM AVERAGE (VEH'S)	IP AVERAGE (VEH'S)	PM AVERAGE (VEH'S)
RSI 1	A27 Arundel Road - Site 1	1,075	911	1,079
RSI 2	A27 Old Shoreham Road - Site 2	1,913	1,576	1,854
RSI 3	A259 Crookthorn Lane - Site 3	670	764	1,047
RSI 4	A259 Brighton Road - Site 4	782	628	765
RSI 5	A29 N Whiteways Lodge Roundabout - Site 5	527	310	426
RSI 6	A280 Long Furlong - Site 6	744	485	547
RSI 7	A24 Findon Road - Site 7	936	802	825
RSI 8	A283 Steyning Road - Site 8	1,039	832	1,122
RSI 10	B2139 Whiteways Lodge Roundabout - Site 10	348	254	369

1.1.9 The existing traffic conditions along the scheme sections are also presented in the Local Model Validation Report¹ (LMVR). The LMVR¹ summarises all aspects of the development and validation of the base year model and demonstrate that the model has been calibrated and validated to a level compliant with its intended use for future year demand forecasting and demonstrate it is fit for purposed; further details are presented in Section 2.3.

1.1.10 Due to the proximity of the two locations, a single base year model has been prepared to validate both th A27 Worthing-Lancing Improvements and the A27 Arundel Bypass schemes. This has been agreed with Highways England's TAME (Traffic Appraisal Modelling and Economics) Division and described in the Appraisal Specification Reports for the A27 Arundel (HE551523_WSP-PB_A27A_P002_ASR) and Worthing-Lancing (HE551524_WSP-PB_A27WL_P002_ASR) schemes.

¹ Local Model Validation Report – A27 Arundel Bypass & A27 Worthing-Lancing Improvements by Highways England, January 2017

- 1.1.11 It was agreed with West Sussex County Council (WSCC) that the West Sussex County Traffic Model (WSCTM) would be used. The network was cordoned to the study area for the two schemes, and has been revised and updated by WSP to determine the benefits of the A27 Worthing-Lancing Improvements scheme.
- 1.1.12 Details and a plan of the study area are presented in the LMVR¹. Transport Appraisal Guidance (TAG) advises in Unit M1-1 (January 2014) that models should be based in the current or a 'recent' year, generally taken to be within the last five years. TAME Advice note 1 v1.0 (June 2015) also states that matrices with supporting survey data within a model should be no longer than 10 years old for the assessment of RIS1 schemes up to PCF Stage 1.
- 1.1.13 The WSCTM trip matrices for the base model are primarily based on roadside interview (RSI) data recorded in 2000-2009. The model was updated to 2015 for Highways England to appraise the A27 Arundel and Worthing-Lancing schemes, following a comprehensive data collection and modelling exercise to provide up to date origin-destination data from RSIs. The base model was calibrated and validated, which is detailed in the LMVR.

A single traffic forecasting exercise has been undertaken to assess the options for improvements to sections of the A27 in both Arundel and Worthing-Lancing. This Traffic Forecasting Report describes the methodology and results of the forecasting transport model for the A27 Worthing-Lancing Improvements scheme. The report has been prepared using the following guidance:

- WebTAG Unit M3.1 – Highway Assignment Modelling (2014)
- TAME Advice Note 1 v1.0
- TAG Unit M4 'Forecasting and Uncertainty'
- COBA User Manual.

1.2 STATEMENT OF SCHEME OBJECTIVES

- 1.2.1 The objectives of the A27 Worthing-Lancing Improvements scheme are detailed in their respective Client Scheme Requirements documents and are summarised below. The scheme seeks to deliver the following objectives:
- To enhance the capacity, connectivity, and the resilience provided by the A27 route within the West Sussex Coastal Area and the wider coastal region. This will contribute positively to the economy of Worthing and strengthen the local and regional economic base, as well as facilitate housing allocations within Local Plans. Also to minimise disruption to traffic and to business during the implementation of any scheme.
 - To improve the safety and personal security of travellers along the Worthing-Lancing sections of the A27 route for all road users including vulnerable road users.
 - To improve road safety and reduce dis-benefits to communities and vulnerable road users on the wider local road network that is caused by traffic avoiding congestion on the A27.
 - To reduce the community severance caused by the A27 through Worthing-Lancing and to improve links between local communities, including for vulnerable road users. Also to provide better access to local services and facilities and to the South Downs National Park (SDNP), particularly for more sustainable modes of transport.
 - To deliver a high standard of design for any A27 improvement that reflects the character of the route and the quality of the surrounding landscape, minimises the adverse environmental impact of new construction, improves air quality within the AQMA, and supports the following:
 - planning for climate change
 - working in harmony with the environment to conserve natural resources and encourage bio-diversity

- protecting and enhancing countryside and historic and archaeological environments
 - reducing air and noise pollution
- To recognise that any improvement would have a significant impact on the SDNP, and have regard to the purposes and special qualities of the National Park that the SDNP authority is seeking to preserve in designing and evaluating improvement options.

1.3 DESCRIPTION OF SCHEME

1.3.1 Three of the Scheme Options for the A27 Worthing-Lancing Improvements scheme have been prioritised and taken forward to public consultation and economic assessment. The following section will present all the scheme options for both study areas and will provide the results of the PCF Stage 1 assessment.

1.3.2 As this study has progressed through PCF Stage 1, it has become apparent that some options are better suited to delivering the objectives listed in Section 1.2, and that some options are not suitable to be taken forward to economic assessment. The full list of options that were considered within PCF Stage 1 is detailed below, with the options that have been taken forward to economic assessment identified.

Worthing-Lancing Scheme Proposals

1.3.3 PCF Stage 1 of the Worthing and Lancing improvements study has given consideration to five options. Details for each option are provided below:

- **Option 1** – Junction improvements only (at grade), direct access onto A27 permitted.
- **Option 2** – Junction improvements only (grade separated), direct access onto A27 permitted.
- **Option 3** – Junction improvements (at grade) in conjunction with dualling. Direct access onto A27 permitted.
- **Option 3A** - Junction improvements (at grade) in conjunction with narrow lane dualling. Direct access onto A27 permitted with 2m footway on the north and 3m shared lane on the south side.
- **Option 4** – Junction improvements (grade separated) in conjunction with dualling. Direct access onto A27 permitted.
- **Option 5** – Junction improvements (grade separated) in conjunction with dualling. Service roads to be provided (no direct access to A27 permitted).

1.3.4 The options that include a degree of grade separation are considered to be unsuitable for detailed economic assessment as they are expected to exceed the outline budget allocated to the Worthing-Lancing RIS scheme. Therefore only three of the five options listed above have been taken forward to economic assessment. These are:

- Option 1
- Option 3
- Option 3A.

1.4 PURPOSE OF THIS REPORT

- 1.4.1 The purpose of the Traffic Forecasting Report is to demonstrate that the forecasting procedure undertaken using the SATURN model is in accordance with Highways England's Major Projects – Project Control Framework (PCF).
- 1.4.2 This report describes the process undertaken in preparing the model for use in the forecasting of future traffic conditions on the A27 with the 'with' and 'without' scheme scenarios. The model forecasts will provide the data required for economic and environmental appraisal of the scheme at PCF Stage 1. The model will provide the basis for Highways England to decide whether the schemes offer sufficient value for money to take them forward to PCF Stage 2.
- 1.4.3 This report presents the details of the methodology used in the development for both the "with" and "without" scheme scenarios. The aim is to demonstrate that the forecast model has been developed to represent projected changes in both travel demand and network supply.
- 1.4.4 The report follows the structure recommended in Highways England's PCF, and is divided into the following chapters;
- Chapter 2: Summary of Previous Work
 - Chapter 3: The Uncertainty Log and Forecast Years
 - Chapter 4: Reference Case Forecast Demand and Supply
 - Chapter 5: Demand Forecast
 - Chapter 6: Assignment Results for Economic Assessment
 - Chapter 7: Summary and Conclusion.

2 SUMMARY OF PREVIOUS WORK

2.1 MODELLED TIME PERIODS AND NETWORK STRUCTURE

- 2.1.1 Owing to the proximity of these two locations, a single base year model has been prepared to validate both the A27 Worthing-Lancing Improvements and A27 Arundel Bypass schemes, as agreed with Highways England's Traffic Appraisal Modelling and Economics (TAME) Division and described in the Appraisal Specification Report (ASR) (HE551524_WSP-PB_A27WL_P002_ASR).
- 2.1.2 It was agreed with West Sussex County Council (WSCC) that the West Sussex County Traffic Model (WSCTM) model network would be used to appraise the A27 Arundel Bypass and A27 Worthing-Lancing Improvement schemes. The network was cordoned to the study area for the two schemes, and has been revised and updated by WSP to determine the benefits of the following schemes:
- A27 Arundel Bypass
 - A27 Worthing – Lancing Improvements.
- 2.1.3 A plan illustrating the geographical coverage of the model is presented in Appendix I-1. Fully calibrated and validated base year models have been developed for the following time periods:
- AM Peak Period (07:00 – 10:00)
 - Inter Peak Period (10:00 – 16:00)
 - PM Peak Period (16:00 – 19:00).
- 2.1.4 Origin-destination and trip purpose data for these periods were utilised throughout the model development process to make best use of the RSI survey data and maintain translation to the forecasting and economics stage of the assessment.
- 2.1.5 The core simulation coverage of the cordoned traffic model relates to 'Inset B' outlined in Appendix I-1. The extent of this detailed study area includes key links and junctions. This is representative of the geographical area of the two schemes being assessed as well as the periphery defined within 'Inset A' in Appendix I-2. This includes coverage of Arundel, Worthing-Lancing, Findon and Littlehampton.
- 2.1.6 The SATURN highway network consists of the trunk roads and other key routes providing links into the study area. These consist of the:
- A27
 - A284
 - A29
 - A24
 - A280
 - A283
 - A259
- 2.1.7 SATURN Version 11.3.12U was used to develop the 2015 base year model.

2.2 SPECIFICATION AND JUSTIFICATION OF DEMAND SEGMENTATION

2.2.1 The trip matrices were segmented in accordance with the trip purposes identified and surveyed throughout the road side interviews. These consisted of the following trip purposes:

- Home Based Work
- Home Based Employers' Business
- Home Based Other
- Non-Home Based Employers' Business
- Non-Home Based other.

2.2.2 The segments outlined above were collected for Cars and Light Goods Vehicles (LGV), whilst Heavy Goods Vehicles (HGV) were aggregated in to a single purpose. LGV trip purposes were further aggregated in to 'Personal' and 'Business' use for compliance in TUBA during the scheme economics stage of the assessment.

2.2.3 Table 2-1 portrays the overall structure of the demand matrix used through the assignment procedure.

Table 2-1: Matrix Structure (8 User Classes)

VEHICLE CLASS	USER CLASS	ABBREVIATION USED (WITHIN SATURN)	MATRIX LEVEL
CAR	HOME BASED WORK	HBW	1
CAR	HOME BASED EMPLOYERS' BUSINESS	HBEB	2
CAR	HOME BASED OTHER	HBO	3
CAR	NON-HOME BASED EMPLOYERS' BUSINESS	NHBEB	4
CAR	NON-HOME BASED OTHER	NHBO	5
LGV	PERSONAL (HOME BASED WORK + HOME BASED OTHER + NON-HOME BASED OTHER)	LGV PERSONAL	6
LGV	BUSINESS (HOME BASED EMPLOYERS' BUSINESS + NON-HOME BASED EMPLOYERS' BUSINESS)	LGV BUSINESS	7
HGV	ALL	HGV ALL	8

2.2.4 The resulting trip matrix consisted of 8 levels representing different trip purposes and 3 vehicle types (Cars, LGV and HGV).

2.3 VARIABLE DEMAND MODELLING

2.3.1 It was agreed with Highways England TAME that Variable Demand Modelling (VDM) would not be undertaken at PCF Stage 1. This will be undertaken at Stage 2 using the South East Regional Transport Model.

2.4 ASSIGNMENT TECHNIQUE AND GENERALISED COST PARAMETERS

2.4.1 The A27 SATURN (Version 11.3.12U) model uses a Wardrop equilibrium assignment technique and simulates congestion, queues, and delays. Using an equilibrium assignment allows the travel speed on each network link to be recalculated according to the level of traffic assigned,

minimising the overall generalised cost of travel time (time and distance) between origin and destination zones.

2.4.2 As SATURN treats vehicles in Passenger Car Units (PCU) it was necessary to convert Heavy Good Vehicles (HGV) accordingly. Following from the above guidance, it is recommended that a value of '2.5' be used in converting HGV (vehicle units) to PCU whereas other vehicle classes remain constant (i.e. 1 vehicle unit = 1 PCU for Cars and LGV).

2.4.3 Generalised cost parameters for route assignment in pence per minute (PPM) and pence per kilometre (PPK) were calculated using:

- Values of time
- GDP growth rates, purpose splits and vehicle occupancies
- Vehicle operating costs recommended by the DfT for use in economic appraisals of transport projects in England.

2.4.4 The values for the last two points above were based on the July 2016 WebTAG databook tables and are consistent with the latest guidance contained within WebTAG Unit A1.3. The generalised costs for the 2015 base year model are provided in Table 2-2.

Table 2-2: 2015 Base Year Generalised Cost Parameters

TIME PERIOD	COST	CARS – COMMUTING	CARS – IN WORK	CARS – OTHER	LGV	HGV
AM	PPM	19.50	29.08	13.44	20.48	20.74
	PPK	7.36	13.62	7.36	14.42	45.88
IP	PPM	19.82	29.80	14.31	20.48	20.74
	PPK	7.36	13.62	7.36	14.42	45.88
PM	PPM	19.57	29.50	14.07	20.482	20.74
	PPK	7.36	13.62	7.36	14.42	45.88

2.5 MODEL CALIBRATION AND VALIDATION

CALIBRATION

2.5.1 To provide confidence in the robustness and accuracy of the forecast models, a full audit process was undertaken to calibrate and validate the 2015 base year model in line with current guidance which is detailed in the LMVR¹.

2.5.2 A LMVR (Section 1.1.13) has been prepared which outlines the performance of the base model. The LMVR was issued to Highways England in January 2017.

2.5.1 Table 2-3 to Table 2-5 shows the Calibration Link Flow results for the AM, Inter-Peak and PM modelled hours.

Table 2-3: AM Calibration Summary Results

CRITERIA	NUMBER OF LINKS	PASS		PASS RATE	
		Prior	Post	Prior	Post
RSI Links Flows < 700 veh/h	6	6	6	100%	100%
RSI Links Flows 700 - 2,700 veh/h	12	10	9	83%	75%
Turn Analysis Flows < 700 veh/h	175	131	144	75%	82%
Turn Analysis Flows 700 - 2,700 veh/h	57	23	33	44%	58%

Table 2-4: Inter-Peak Calibration Summary Results

CRITERIA	NUMBER OF LINKS	PASS		PASS RATE	
		Prior	Post	Prior	Post
RSI Links Flows < 700 veh/h	9	7	8	78%	89%
RSI Links Flows 700 - 2,700 veh/h	9	9	8	89%	89%
Turn Analysis Flows < 700 veh/h	185	136	161	74%	87%
Turn Analysis Flows 700 - 2,700 veh/h	51	28	41	55%	80%

Table 2-5: PM Calibration Summary Results

CRITERIA	NUMBER OF LINKS	PASS		PASS RATE	
		Prior	Post	Prior	Post
RSI Links Flows < 700 veh/h	6	4	4	67%	67%
RSI Links Flows 700 - 2,700 veh/h	12	11	12	92%	100%
Turn Analysis Flows < 700 veh/h	173	124	145	72%	84%
Turn Analysis Flows 700 - 2,700 veh/h	61	29	41	49%	67%

VALIDATION

- 2.5.2 Validation sites have not been used in the model development and can therefore be considered as an independent check of the model performance.
- 2.5.3 Table 2.6 to Table 2.8 show the summary of validation results for AM peak, Inter-Peak and PM hours.

Table 2-6: AM Validation Summary Results

LINK DESCRIPTION	NO. OF LINKS	FLOW CRITERIA		GEH STATISTIC		EITHER CRITERIA	
		PASS	% PASS	PASS	% PASS	PASS	% PASS
INDIVIDUAL LINKS WITH FLOW LESS THAN 700 VEH/H	3	3	100%	2	67%	3	100%
INDIVIDUAL LINKS WITH FLOW BETWEEN 700 – 2,700 VEH/H	10	9	90%	9	90%	9	90%
ALL LINKS	13	12	92%	11	85%	12	92%

Table 2-7: Inter-Peak Calibration Summary Results

LINK DESCRIPTION	NO. OF LINKS	FLOW CRITERIA		GEH STATISTIC		EITHER CRITERIA	
		PASS	% PASS	PASS	% PASS	PASS	% PASS
INDIVIDUAL LINKS WITH FLOW LESS THAN 700 VEH/H	4	4	100%	4	100%	4	100%
INDIVIDUAL LINKS WITH FLOW BETWEEN 700 – 2,700 VEH/H	9	9	100%	9	100%	9	100%
ALL LINKS	13	13	100%	13	100%	13	100%

Table 2-8: PM Validation Summary Results

LINK DESCRIPTION	NO. OF LINKS	FLOW CRITERIA		GEH STATISTIC		EITHER CRITERIA	
		PASS	% PASS	PASS	% PASS	PASS	% PASS
INDIVIDUAL LINKS WITH FLOW LESS THAN 700 VEH/H	3	2	67%	1	33%	2	67%
INDIVIDUAL LINKS WITH FLOW BETWEEN 700 – 2,700 VEH/H	10	10	100%	10	100%	10	100%
ALL LINKS	13	12	92%	11	85%	12	92%

3 THE UNCERTAINTY LOG AND FORECAST YEARS

3.1 DEMAND FORECASTING FOR SPECIFIC DEVELOPMENTS

3.1.1 The base year and forecast years were identified within the ASRs and are presented below:

- 2015 Base Year
- Opening Year
 - 2022 Opening Year for Arundel
 - 2023 Opening Year for Worthing-Lancing
- Intermediate Year
 - 2037 Intermediate Year for Arundel
 - 2038 Intermediate Year for Worthing-Lancing
- 2041 Horizon Year (as determined at the SMP Modelling Technical Board Meeting on 5th October 2015 and as specified in the guidance TAME Advice Note 1 v1.0).

3.1.2 However, following consultation with both colleagues in highway design and Benchmark Estimating Limited, the quantity surveyors employed by Highways England, it was agreed that a number of options would require a three year build programme for Arundel. Therefore an Opening Year of 2023 was assumed for both schemes. This would also result in the same intermediate year of 2038. Finally as the intermediate year of 2038 was very near to the horizon year of 2041, it was decided to forecast only to the worst case of 2041.

3.1.3 Therefore the base year, and the two future years generalised costs have been calculated for are summarised below.

- 2015 Base Year
- 2023 Opening Year
- 2041 Horizon Year.

3.1.4 Data was provided by Local Authorities using the current Local Plans to determine the anticipated level of development surrounding the A27 and proposed scheme:

- West Sussex County Council
- Adur and Worthing Councils
- Arun District Council.

The local authorities provided information for potential residential and employment development sites in their respective areas. This information was analysed and the development sites were entered into an Uncertainty Log.

3.1.5 The Uncertainty Log was then shared with the local authorities and following consultation the project team got their agreement on the level of certainty for each development identified. This was undertaken in accordance with the guidance in WebTAG Unit 4M 'Forecasting and Uncertainty'.

3.1.6 The Uncertainty Log outlines the developments which are to be explicitly modelled as part of the core scenario and the evidence behind this inclusion.

3.1.7 The Uncertainty Log presents the developments included and excluded from the forecasting model and a justification (provided by the local authorities) which shows the likelihood category assigned to them. Based on this 'likelihood category' provided by the local authority this determined whether the development was to be included in the forecast modelling. Table 3-1 presents the definition of uncertainty.

Table 3-1: Definition of Uncertainty

UNCERTAINTY ASSUMPTION (ALTERNATIVE SCENARIO OPTIONS)	DEFINITION OF DEVELOPMENT TYPE	STATUS
Near Certain	The outcome will happen, or there is a high probability that it will happen	<ul style="list-style-type: none"> ■ Intent announced by proponent to regulatory agencies ■ Approved development proposals ■ Projects under construction
More than Likely	The outcome is likely to happen, but there is some uncertainty	<ul style="list-style-type: none"> ■ Submission of planning or consent application imminent ■ Development application within the consent process
Reasonably Foreseeable	The outcome may happen, but there is significant uncertainty	<ul style="list-style-type: none"> ■ Identified within a development plan ■ Not directly associated with the transport strategy/scheme, but may occur if the transport strategy/scheme is implemented ■ Development conditional on the transport strategy/scheme proceeding ■ A committed policy goal, subject to tests (e.g. of deliverability) whose outcomes are subject to significant uncertainty
Hypothetical	There is considerable uncertainty whether the outcome will ever happen	<ul style="list-style-type: none"> ■ Conjecture based on currently available information ■ Discussed on a conceptual basis ■ One of a number of possible inputs in an initial consultation process ■ A policy aspiration

3.1.8 Trip generation totals for site-specific developments were calculated using the TRICS database and added to the forecast trip matrices, as appropriate and controlled to NTEM V6.2.

4 REFERENCE CASE FORECAST DEMAND AND SUPPLY

4.1 OVERVIEW OF DEMAND FORECASTING PROCEDURE

- 4.1.1 The forecasting methodology has been developed in accordance with *TAME Advice Note 1 v1.0 – 09/06/2015: Roads Investment Strategy 1 – PCF Stage 1 Modelling Requirements*. This provides a number of relaxations compared with usual WebTAG compliant approaches.
- 4.1.2 There are three options for Worthing and Lancing as outlined in Section 1.
- 4.1.3 Growth factors were derived from NTEM V6.2 datasets accessed via the TEMPRO V6.2 program for Car User Classes while NTM was used for LGV and HGV growth. The use, in Stage 1, of the NTEM V6.2 datasets was agreed with Highways England TAME.
- 4.1.4 For each modelled peak hour the base year matrix was used as a starting point. TEMPRO growth factors were assigned to each base year model zone with the origin and destination totals for each base year zone increased appropriately. These forecast year origin and destination totals were then used to Furness the base year matrix to generate a matrix for the forecast year peak hour which represented background growth in traffic. Furnessing is a process by which the matrix is balanced in order to meet targets totals for origins and destinations. Since both trip ends are factored, the process is referred to as being doubly-constrained. The combined fuel and income adjustment factor was then applied to the background growth matrix, and finally the committed development trips were added to create the final core scenario matrices. The following sections describe this process in more detail.
- 4.1.5 A single Core growth scenario has been produced for this assessment with the developments included within this as Near Certain and More than Likely shown in Table 3.2. Low and high growth forecasts were omitted to meet programme requirements in agreement with Highways England TAME.

4.2 DEMAND FORECASTING WITH NTEM

- 4.2.1 The NTEM V6.2 dataset provides forecasts for Car Drivers and are accessed through the TEMPRO 6.2 (Trip End Model Presentation Program) program. TAG Unit M4 outlines the DfT's technical guidance for forecasting and uncertainty in developing traffic models.
- 4.2.2 As land use developments are a source of uncertainty, the total growth predicted by the forecast model is to reflect the total growth predicted by TEMPRO in order to be consistent with national and regional planning policy. Table 4-1 shows the equivalence between the TEMPRO time periods and the model time periods and Table 4.1 shows the equivalence between the TEMPRO user classes and the model user classes.

Table 4-1: TEMPRO Time Period Equivalence

MODEL TIME PERIOD	MODEL TIME PERIOD NAME	TEMPRO TIME PERIOD
01	AM (average hour)	Weekday AM peak period (0700-0959)
02	IP (average hour)	Weekday Inter peak period (1000-1559)
03	PM (average hour)	Weekday PM peak period (1600-1859)

Table 4-2: TEMPRO User Class Equivalence

MODEL USER CLASS	MODEL USER CLASS NAME	TEMPRO USER CLASS	OD OR PA
1	Cars – Commuting	HB Work	OD
2	Cars Employers Business	HB Employers Business, NHB Employers Business	OD
3	Cars Other	HB Shopping, HB Personal Business, HB Recreation / Sport, HB Visiting friends and relatives, HB Holiday / Day trip, NHB Work, NHB Education, NHB Shopping, NHB Personal Business, NHB Recreation / Sport, NHB Holiday / Day trip	OD
4	LGV	- (NTM Growth)	-
5	HGV	- (NTM Growth)	-

4.2.3 Unadjusted TEMPRO factors, which were effectively used as a constraint on the forecast matrix, were derived for study areas. The definitions of the study areas used are detailed in Table 4-3. The SATURN model zone system has a UK coverage, therefore model zones were each assigned to a relevant study area.

Table 4-3: TEMPRO Study Areas

TEMPRO STUDY AREA	STUDY AREA DESCRIPTION
1	Adur
2	Arun
3	Worthing
4	Chichester, Crawley, Horsham, Mid Sussex (Rest of West Sussex)
5	Berkshire, Buckinghamshire, Isle of Wight, Kent, Oxfordshire, Surrey, East Sussex (Rest of South East England)
6	Brighton & Hove
7	East Midlands
8	East of England
9	London
10	North East England, North West England, Yorkshire & Humber
11	South West England
12	Wales
13	West Midlands

4.2.4 The unadjusted TEMPRO growth factors derived for each of the study areas is provided in Appendix III.

4.3 LGV & HGV GROWTH WITH NTM

4.3.1 The National Transport Model (NTM) developed by the DfT provides a systematic means of comparing the national consequences of widely applied transport policies, against a range of background scenarios which take into account the major factors affecting future patterns in travel.

4.3.2 The DfT has produced the 'Road Traffic Forecasts 2015' (RTF15) that presents forecasts for:

→ Road traffic growth

- Vehicle pipe emissions
- Congestion
- Journey time

4.3.3 For the A27 modelling, forecast developments are controlled by the NTM in accordance with WebTAG. The NTM is used to provide goods vehicle growth factors, which cannot be derived from local traffic data, owing to the strategic nature of HGV traffic.

4.3.4 LGV and HGV growth was derived from the NTM Road Traffic Forecasts 2015 (RTF15) Scenario 1. The factors derived were based on extrapolating the growth in traffic mileage to create pro-rata growth factors between the years modelled in RTF15 for the South East of England. Growth factors were then calculated for the years between the 2015 base year and modelled forecast years, detailed in Table 4-4.

Table 4-4: National Transport Model – LGV and HGV growth rates

PERIOD	LGV	HGV
2015 to 2023	22.2%	8.8%
2015 to 2041	66.9%	32.0%

4.4 BACKGROUND AND DEVELOPMENT TRAFFIC MATRICES

MODEL TIME PERIODS AND YEARS

4.4.1 The forecast year modelling has been undertaken for the same time periods as the base model. These are;

- AM Peak Average Hour: 07:00 – 10:00
- IP Average Hour: 10:00 – 16:00
- PM Peak Average Hour: 16:00 – 19:00

4.4.2 The network has been modelled for 2023 and 2041.

4.4.3 The development of the background traffic matrices is described in Section 4 for each of the forecast modelling years.

4.5 CONSTRUCTION OF CORE SCENARIO (DO MINIMUM) MATRICES

4.5.1 The level of growth was determined using the developments identified in the ‘Uncertainty Log’ detailed in section 3.

4.5.2 Table 4-5 compares the level of housing and jobs included in the Uncertainty Log (Near Certain and More than Likely) to the increase in households and jobs in the planning data within NTEM 6.2.

Table 4-5: Overview of Core Scenario Developments

COUNCIL	UNCERTAINTY LOG - HOUSING (DWELLINGS)	UNCERTAINTY LOG - TOTAL JOBS	NTEM 6.2 – HOUSING 2015 TO 2023	NTEM 6.2 – JOBS 2015 TO 2023	NTEM 6.2 – HOUSING 2015 TO 2041	NTEM 6.2 – JOBS 2015 TO 2041
Adur	0	0	587	764	1,982	1,520
Arun	2,305	2,055	5,112	1,184	16,001	1,498
Worthing	700	0	1,579	1,241	5,010	2,099

4.5.3

Adjustments were made to the planning data within TEMPRO using the Alternative Planning Assumptions tool to derive adjusted car traffic growth factors. These factors represent the background growth in car traffic. Table 4-6 and Table 4-7 compare the growth in housing and jobs in TEMPRO compared to the Uncertainty Log for 2015-2023 and 2015-2041.

Table 4-6: TEMPRO planning data differences - 2023

STUDY AREA	COUNCIL	TEMPRO HOUSEHOLD GROWTH	TEMPRO JOB GROWTH	UNCERTAINTY LOG HOUSEHOLD GROWTH	UNCERTAINTY LOG JOB GROWTH	DIFFERENCE IN HOUSEHOLD GROWTH	DIFFERENCE IN JOB GROWTH
1	Adur	587	764	0	0	587	764
2	Arun	5,112	1,184	2,305	2,055	2,807	-872
3	Worthing	1,579	1,241	700	0	879	1,241
	District Total			3,005	2,055	4,274	1,134
4	Rest of West Sussex	11,179	4,793	N/A	N/A	8,174	2,736

Table 4-7: TEMPRO planning data differences - 2041

STUDY AREA	COUNCIL	TEMPRO HOUSEHOLD GROWTH	TEMPRO JOB GROWTH	UNCERTAINTY LOG HOUSEHOLD GROWTH	UNCERTAINTY LOG JOB GROWTH	DIFFERENCE IN HOUSEHOLD GROWTH	DIFFERENCE IN JOB GROWTH
1	Adur	1,982	1,520	0	0	1,982	1,520
2	Arun	16,001	1,498	3,300	2,055	12,701	-557
3	Worthing	5,010	2,099	700	0	4,310	2,099
	District Total			4,000	2,055	18,993	3,062
4	Rest of West Sussex	34,205	7,612	N/A	N/A	30,205	5,557

- 4.5.4 Table 4-6 shows the level of housing growth in the Uncertainty Log in 2023 is lower in Adur, Arun and Worthing compared to the growth included with NTEM with a greater number of jobs in Arun District than that contained within NTEM. The Alternative Planning Assumptions tool within the TEMPRO V6.2 program was used to adjust the planning data.
- 4.5.5 The revised background factors derived from the Alternative Planning Assumptions tool within TEMPRO are detailed in Appendix III.
- 4.5.6 Section 3 of the report outlines the uncertainty log and the developments that are included in the core forecast modelling. The trip distribution for the committed developments identified to be used in the forecast model was derived based on existing distribution from a neighbouring SATURN zone with similar land use.
- 4.5.7 As discussed in previous sections, the Core scenario has been constrained to TEMPRO 6.2. Unadjusted TEMPRO growth factors were applied to the base year matrix which created a constraint target for each car user class within the matrix. The adjusted TEMPRO growth factors were then applied to the base year matrix, representing background growth in traffic. Trips related to the developments in the Uncertainty Log were then added to the matrix. The matrix was then constrained to ensure the final matrix total equalled the constraint target for each user class i.e. the matrix total if only unadjusted TEMPRO V6.2 growth factors were applied. The development trips were preserved during this process, but the remainder of the matrix was constrained to the growth in TEMPRO V6.2. A summary of the matrix totals is presented in Appendix IV.
- 4.5.8 Table 4-8 outlines how the car matrix totals compare when constrained to TEMPRO to when it is not constrained to TEMPRO, i.e. unconstrained. This shows there is a significant difference in terms of the planning assumptions within TEMPRO compared to what has been advised by the local planning authorities.

Table 4-8: Matrix totals

STAGE OF MATRIX DEVELOPMENT	CONSTRAINED CAR MATRIX	UNCONSTRAINED CAR MATRIX	DIFFERENCE
AM 2023	23,838	26,144	-8.82%
AM 2041	25,646	28,164	-8.94%
IP 2023	21,188	23,247	-8.86%
IP 2041	23,855	26,331	-9.40%
PM 2023	28,052	30,537	-8.14%
PM 2041	30,478	33,360	-8.64%

FUEL AND INCOME FACTORS

- 4.5.9 WebTAG Unit M4 7.4.13 stipulates in the absence of a Variable Demand Model (VDM) *“the trip matrix should be multiplied by two factors, one for growth in income, the other for growth in fuel”*. Factors were derived from the WebTAG Databook v1.5 (July 2016), M 4.2.1 using the formulas defined in Box 3 of WebTAG Unit M4 7.4.13.
- 4.5.10 Table 4-9 details the combined fuel and income factors which were applied to the car matrix after it has been constrained to TEMPRO.

Table 4-9: Fuel & Income Factor Adjustments

PERIOD	INCOME FACTOR ADJUSTMENT	FUEL COST FACTOR ADJUSTMENT	FINAL COMBINED FACTOR
2015 to 2023	1.017	1.022	1.039
2015 to 2041	1.072	1.032	1.104

4.5.11 A summary of the increase in matrix totals for the three modelled periods is presented below. Table 4-10 shows the percentage growth in matrix totals for the Core scenario as compared to the 2015 Base scenario.

Table 4-10: Growth in Matrix Totals over 2015

PERIOD	2023	2041
AM	10.5%	30.0%
IP	11.8%	36.4%
PM	10.3%	30.1%

4.6 COMMITTED NETWORK IMPROVEMENTS

4.6.1 West Sussex County Council (WSSC) were contacted to ascertain the committed highways schemes that will have a bearing on the network performance in the future. Table 4.11 contains an uncertainty log for highway infrastructure.

Table 4-11: Uncertainty Log for highway infrastructure

Scheme	Authority	Uncertainty	2023	2041
→ A284 Lyminster Bypass/ Fitzalan Link Road (Opening Year 2018): This scheme is split into two sections. The northern section of a new road from south of the A27 at Crossbush to East Street in Littlehampton town centre, with a new roundabout on the A259 Worthing Road. This will enhance the link between Littlehampton and the A27 and will form part of the West Sussex strategic road network. The southern section between Toddington Nurseries and the A259 and the extension to the Littlehampton Academy access will be delivered by private developers. The proposed bypass will improve north-south access to Littlehampton by removing the delays associated with the existing A284 Lyminster Road and the Wick level crossing.	WSSC	More than likely	✓	✓
→ A259 Corridor Improvements (Opening Year currently unknown but assumed it will be before 2023): This scheme provides a continuous strategic corridor comprising approximately 5.1km of dual carriageway between the new A259/A284 roundabout in the west and the A259/A280 roundabout in the east. This scheme is an online improvement, mostly within the existing highway boundary, and also includes a number of junction improvements.	WSSC	More than likely	✓	✓
→ Bognor Regis Relief Road (Opening Year 2016): This scheme connects the A29 at Shripney to the A259 at Felpham, through a viaduct and forms part of the Bognor	WSSC	More than likely	✓	✓

Scheme	Authority	Uncertainty	2023	2041
Regis Northern Relief Road.				
<p>→ A27 Chichester Bypass Improvement Scheme: Advice from Highways England is that an Uncertainty Log should contain Highways England Road Investment Strategy (RIS) schemes however on 28 February 2017, the Secretary of State wrote to Highways England instructing them to stop work on the A27 Chichester Bypass major improvement scheme</p>	Highways England	Hypothetical	x	x

- 4.6.2 The More than Likely schemes were included in the Core scenario (Do Minimum) 2023 and 2041 forecasting models. Figure 3 outlines the locations of the Core (Do Minimum) schemes included Core (Do Minimum) 2023 and 2041 forecasting models. The Core scenario (Do Minimum) models thus comprises the three WSCC More than Likely schemes but with no A27 Chichester Bypass Improvement Scheme as it is classified as Hypothetical in the Uncertainty Log.
- 4.6.3 The Do Something models consist of the options identified in Section 1. For the Do Something option assessments, we have assumed two study areas as shown in Figure 4:
- 4.6.4 The following three options have been taken forward to economic assessment for the Worthing-Lancing study area. These are:
- Option 1
 - Option 3
 - Option 3A.
- 4.6.5 The three Worthing-Lancing options were assessed individually assuming no improvements at Arundel. The report presents the performance of each option and identifies which performs better for each study area. All options are also compared against the Core (Do Minimum) 2023 and 2041 forecasting models to provide an indication of impact on the overall network performance.

5 DEMAND FORECAST

5.1.1 This section of the report outlines the performance of the options under assessment; five for Worthing and Lancing. Option descriptions are presented in Section 1.3.

5.1.2 This section presents the impact of each option to determine if they improve the existing traffic issues within the study area.

5.2 GENERALISED COSTS

5.2.1 Generalised cost parameters for route assignment in pence per minute (PPM) and pence per kilometre (PPK) were calculated using:

- Values of time
- GDP growth rates, purpose splits and vehicle occupancies
- Vehicle operating costs recommended by the DfT for use in economic appraisals of transport projects in England.

5.2.2 With advice and agreement with Highways England TAME the values for the last two points above were based on the November 2016 WebTAG databook tables and are consistent with the latest guidance contained within WebTAG Unit A1.3. Following advice within WebTAG Unit A1.3 the Value of Time for HGV has been calculated at twice the WebTAG Unit A1.3 values as these values do not take into account the influence of owners on the routing of HGV. The generalised costs for the 2023 and 2041 core scenario models are provided in Table 5.1 and Table 5.2 respectively.

Table 5-1: 2023 forecast year Generalised Cost Parameters

TIME PERIOD	COST	CARS – COMMUTING	CARS – IN WORK	CARS – OTHER	LGV	HGV
AM	PPM	22.60	33.70	15.59	23.82	48.37
	PPK	5.55	12.35	5.55	12.87	49.21
IP	PPM	22.97	34.54	16.61	23.82	48.37
	PPK	5.55	12.35	5.55	12.87	49.21
PM	PPM	22.68	34.19	16.33	23.82	48.37
	PPK	5.55	12.35	5.55	12.87	49.21

Table 5-2: 2041 forecast year Generalised Cost Parameters

TIME PERIOD	COST	CARS – COMMUTING	CARS – IN WORK	CARS – OTHER	LGV	HGV
AM	PPM	32.41	48.33	22.36	34.16	69.36
	PPK	5.26	12.00	5.26	13.04	53.10
IP	PPM	32.94	49.52	23.82	34.16	69.36
	PPK	5.26	12.00	5.26	13.04	53.10
PM	PPM	32.52	49.03	23.82	34.16	69.36
	PPK	5.26	12.00	5.26	13.04	53.10

5.3 VARIABLE DEMAND MODELLING

5.3.1 It was agreed with Highways England TAME that Variable Demand Modelling (VDM) would not be undertaken at PCF Stage 1. This will be undertaken at Stage 2 using the South East Regional Transport Model.

5.4 MODEL CONVERGENCE

5.4.1 Model convergence is needed to ensure traffic flows remain stable between successive iterations of the model. In accordance with criteria set out in the WebTAG Unit M3.1, the parameters %Flow and Delta (δ) have been monitored to determine the level of convergence. %Flow measures the proportion of links in the network with flows changing by less than 5% from the previous iteration and δ is the difference between costs on chosen routes and costs on minimum cost paths. %GAP is a generalisation of the δ function to include the interaction effects within the simulation. The convergence criteria used to assess when a model is considered to have converged is shown in table 5.3.

Table 5-3: Convergence criteria

MEASURE OF CONVERGENCE	ACCEPTABLE VALUE
'Delta' and %GAP	→ Less than 0.1% or at least stable with convergence fully documented and all other criteria met
Percentage of links with flow change < 1%	→ Four consecutive iterations greater than 98%
Percentage of links with cost change < 1%	→ Four consecutive iterations greater than 98%
Percentage change in total user costs	→ Four consecutive iterations less than 0.1%

Source: WebTAG Unit M3.1, Section 3, Table 4, January 2014

5.4.2 A level of convergence which is sufficient to ensure that scheme benefits can be estimated robustly above model 'noise' is essential and a lower value of %GAP than the 0.1% guideline may need to be achieved. The Core (Do Minimum) 2023 and 2041 forecast year models have an ISTOP value of 98% (RSTOP value of 97.5%) with a %GAP of 0.05 set as the convergence criteria with both needing to be reached for four successive iterations before convergence is reached.

5.4.3

Table 5.4 indicates that satisfactory convergence has been achieved. TAG Unit 3.10.4 suggests that delta (δ) values of less than 0.1% are reasonable targets. As Appendix III shows, all delta values are less than 0.2% therefore the Core (Do Minimum) scenario models (2023 and 2041) the required convergence standards.

Table 5-4: Core (Do Minimum) scenario: Convergence criteria

	PEAK HOUR	ITERATION	DELTA (Δ)	%FLOW	&GAP
CORE (DO MINIMUM) SCENARIO: 2023	AM PEAK	16	0.0014	97.6	0.0061
		17	0.0015	98.7	0.0015
		18	0.0011	98.2	0.0029
		19	0.001	99.0	0.0015
	INTER PEAK	9	0.0008	97.9	0.0025
		10	0.0014	98.2	0.00054
		11	0.0004	97.9	0.0015
		12	0.0003	98.9	0.00031
	PM PEAK	23	0.0216	98.6	0.040
		24	0.0162	98.9	0.044
		25	0.0175	98.8	0.037
		26	0.0167	98.6	0.041
CORE (DO MINIMUM) SCENARIO: 2041	AM PEAK	44	0.0208	99.1	0.010
		45	0.0153	99.6	0.0099
		46	0.0098	99.5	0.0087
		47	0.0093	99.4	0.0091
	INTER PEAK	18	0.0102	98.8	0.026
		19	0.0101	97.9	0.020
		20	0.0084	98.6	0.016
		21	0.0074	98.6	0.016
	PM PEAK	49	0.0182	98.7	0.048
		50	0.0170	99.0	0.037
		51	0.0235	99.1	0.039
		52	0.0150	99.4	0.045

5.5 MODEL SUMMARY STATISTICS: CORE (DO MINIMUM) MODEL

5.5.1 The modelling approach for the study involved the production of three modelled time periods for two forecast years. The results from each modelled period will be considered individually in terms of Do Minimum against Do Something. The results reported include:

- Traffic volumes – defined in terms of Passenger Car Units (PCUs) per hour
- Total travel time – defined as the sum of time spent on the modelled network by all vehicles during the modelled period
- Total delay – defined as the sum of time spent in transient queues, over capacity queues and experiencing link delay
- Total travel distance – defined as the sum of distance travelled on the modelled network by all vehicles during the modelled period
- Overall average speed – the total travel distance divided by the total travel time.

5.5.2 Table 5.5 shows how the Core (Do Minimum) network performance changes over the forecast period with core growth in demand.

Table 5-5: Network Statistics for base and DM models

BASE YEAR (PER HOUR)	INDICATOR			CHANGE RELATIVE TO BASE		
	AM peak	Inter peak	PM peak			
TOTAL TRAVEL TIME (PCU HRS)	5,624	4,642.8	6,563.6			
TOTAL DELAY (PCU HRS)	435.6	334	485.1			
TOTAL TRAVEL DISTANCE (PCU KM)	313,074.7	262,890.3	34,4122.8			
AVERAGE SPEED (KM/H)	55.7	56.6	52.4			
TOTAL TRIPS	27,784.1	24,103.9	31,380			
2023 Do MINIMUM (PER HOUR)						
TOTAL TRAVEL TIME (PCU HRS)	6,746.2	5,581.6	7,322.1	19.95%	20.22%	11.56%
TOTAL DELAY (PCU HRS)	1,003.1	741.2	1,124.9	130.28%	121.92%	131.89%
TOTAL TRAVEL DISTANCE (PCU KM)	345,376.7	297,907.6	367,562.2	10.32%	13.32%	6.81%
AVERAGE SPEED (KM/H)	51.2	53.4	50.2	-8.08%	-5.65%	-4.20%
TOTAL TRIPS	30,673.7	26,935.1	33,643.8	10.40%	11.75%	7.21%
2041 Do MINIMUM (PER HOUR)						
TOTAL TRAVEL TIME (PCU HRS)	8,565.4	7,298.1	9,408.8	52.30%	57.19%	43.35%
TOTAL DELAY (PCU HRS)	1,482.5	1,190.3	1,625.8	240.34%	256.38%	235.15%
TOTAL TRAVEL DISTANCE (PCU KM)	411,963.1	365,629.9	427,279.7	31.59%	39.08%	24.16%
AVERAGE SPEED (KM/H)	48.1	50.1	45.4	-13.64%	-11.48%	-13.36%
TOTAL TRIPS	36,138.3	32839.4	39,684.8	30.07%	36.24%	26.47%

5.5.3 Table 5.5 shows the comparison between the base year model and the two forecast Core (Do Minimum) 2023 and 2041 forecast year models. The statistics from the overall model results provide an indication on the operation and success of the Core (Do Minimum) 2023 and 2041 forecast year models. As expected, with increased demand following traffic growth for the forecast assessment years, the model has significant increases in travel time, delay, and distance travelled.

6 ASSIGNMENT RESULTS FOR ECONOMIC ASSESSMENT

6.1 INTRODUCTION

6.1.1 This section of the report reports of the assignment results for economic assessment in terms of the level of model convergence reached, network statistics and changes in traffic flows.

OPTION MODELS

6.1.2 The three Worthing-Lancing options were assessed individually assuming no improvements at Arundel. The report presents the performance of each option and identifies which performs better for each study area. All options are also compared against the Core (Do Minimum) 2023 and 2041 forecast year model to provide an indication of impact on the overall network performance. The option drawings are presented in Appendix V.

6.1.3 The following sections outlines the overall convergence statistics, modelling statistics and traffic flows for the option models in the 2023 and 2041 forecast years.

6.2 WORTHING-LANCING OPTIONS

MODEL CONVERGENCE

6.2.1 Appendix IV shows the convergence statistics for all Worthing-Lancing options:

- Option 1
- Option 3
- Option 3A

6.2.2 The information shown indicates that satisfactory convergence has been achieved. TAG Unit 3.10.4 suggests that delta (δ) values of less than 0.1% are reasonable targets. As Appendix III shows, all delta values are less than 0.2% therefore the option models (2023 and 2041) meet the required convergence standards.

6.2.3 Table 6.1 presents the network statistics for the Worthing-Lancing options. The results show that all three options have similar impact on the network. Figure 6 shows the location of Worthing-Lancing Options.

Table 6-1: Worthing-Lancing Network Statistics

	AM	IP	PM	AM	IP	PM	AM	IP	PM
	2023 Opt 1			2023 Opt 3			2023 Opt 3A		
Total Travel Time (pcu hrs)	6,694.5	5,619.9	7,274.4	6,688.2	5,616.6	7,264.5	6,691.7	5,621.4	7,314.0
Total Delay (pcu hrs)	1,018.1	780.1	1,148.7	1,007.7	774.3	1,130.7	1,011.6	778.1	1,154.4
Total Travel Distance (pcu km)	384,466.9	298,674.8	369,342.9	348,639.2	298,865.9	369,651.3	348,617.2	298,848.6	366,936.8
Average Speed (km/h)	52.1	53.1	50.8	52.1	53.2	50.9	52.1	53.2	50.2
Total Trips (pcu)	30,673.7	26,935.0	33,643.8	30,673.7	26,935.0	33,643.8	30,673.7	26,935.0	33,643.8
	2041 Opt 1			2041 Opt 3			2041 Opt 3A		
Total Travel Time (pcu hrs)	8,418.4	7,288.7	9,352.8	8,431.3	7,308.4	9,331.5	8,452.8	7,327.5	9,343.2
Total Delay (pcu hrs)	1,490.3	1,225.8	1,697.8	1,492.7	1,256.3	1,671.5	1,515.0	1,252.6	1,685.4
Total Travel Distance (pcu km)	414,540.1	367,444.2	431,792.2	414,454.8	368,612.3	432,245.0	414,484.2	366,869.6	431,961.0
Average Speed (km/h)	49.2	50.4	46.2	49.2	50.4	46.3	49.0	50.1	46.2
Total Trips (pcu)	36,138.5	32,839.3	38,684.8	36,138.5	32,839.3	39,684.8	36,138.5	32,839.3	39,684.8

- 6.2.4 Option 3 and Option 3A has the greatest travel time and delay in the 2041 assessment year, apart from the PM peak where Option 1 has the greatest travel time and delay. Therefore, based on overall network statistics Option 1 has the best performance in the Worthing-Lancing study area.
- 6.2.5 Appendix VI presents the traffic flow diagrams for the Worthing-Lancing options and the traffic flow comparison diagrams. The diagrams provide an indication of impact on traffic flows for each of the assessment periods for each of the options. This provides a more detailed review of the true impact of the proposed options through the analysis of the traffic impact in the local area.
- 6.2.6 The locations of these key points are presented in Figure 6. Table 6.2 to Table 6.7 presents the network flow for key points in the AM peak (2023 and 2041), Inter peak (2023 and 2041) and the PM peak (2023 and 2041) scenario for the Worthing-Lancing options.
- 6.2.7 These key points are three major junctions on the A27/A24 section near Worthing-Lancing that will undergo changes should any of the options be implemented. The 2041 PM peak scenario shows the largest traffic flow through the network for any scenario.
- 6.2.8 The table shows that all three options show increased flow along the stretch of A27/A24 when compared to the DM model. Option 1 increases in flow the most but only marginally compared to the other options. The changes are seen over all junctions apart from the west of A27 Old Shoreham roundabout on the A27 eastbound which decreases in flow, probably due to a rerouting and diverting of traffic around that area in all the options due to congestion. Westbound traffic increases marginally more than eastbound traffic.

Table 6-2: Network flow (for key points as presented in Figure 6) in the 2023 AM peak scenario for the Worthing-Lancing options

2023 AM PEAK	FLOWS				
	Base (2016 only)	DM	Option 1	Option 3	Option 3A
West of Crockhurst Hill Roundabout – A27 eastbound	1,084	1,238	1,262	1,227	1,209
West of Crockhurst Hill Roundabout – A27 westbound	1,027	1,175	1,290	1,318	1,312
East of Crockhurst Hill Roundabout – A24 eastbound	1,449	1,459	1,878	1,889	1,859
East of Crockhurst Hill Roundabout – A24 westbound	1,539	1,628	1,818	1,836	1,814
North of Grove Lodge Roundabout – A24 northbound	1,539	1,628	1,818	1,836	1,814
North of Grove Lodge Roundabout – A24 southbound	1,449	1,459	1,878	1,889	1,859
East of Grove Lodge Roundabout – A27 eastbound	1,486	1,483	1,582	1,583	1,582
East of Grove Lodge Roundabout – A27 westbound	1,425	1,419	1,605	1,634	1,621
West of A27 Old Shoreham Road Roundabout – A27 eastbound	1,773	1,749	1,612	1,612	1,612
West of A27 Old Shoreham Road Roundabout – A27 westbound	1,803	1,737	1,739	1,764	1,764
East of A27 Old Shoreham Road Roundabout – A27 eastbound	1,917	2,009	2,115	2,115	2,115
East of A27 Old Shoreham Road Roundabout – A27 westbound	1,575	1,610	1,495	2,520	2,521

Table 6-3: Network flow (for key points as presented in Figure 6) in the 2041 AM peak scenario for the Worthing-Lancing options

2041 AM PEAK	FLOWS				
	Base (2016 only)	DM	Option 1	Option 3	Option 3A
West of Crockhurst Hill Roundabout – A27 eastbound	1,084	1,303	1,490	1,364	1,326
West of Crockhurst Hill Roundabout – A27 westbound	1,027	1,194	1,505	1,349	1,365
East of Crockhurst Hill Roundabout – A24 eastbound	1,449	1,485	2,116	2,114	2,071
East of Crockhurst Hill Roundabout – A24 westbound	1,539	1,671	2,054	2,027	2,014
North of Grove Lodge Roundabout – A24 northbound	1,539	1,671	2,054	2,027	2,014
North of Grove Lodge Roundabout – A24 southbound	1,449	1,485	2,116	2,114	2,071
East of Grove Lodge Roundabout – A27 eastbound	1,486	1,500	1,797	1,806	1,797
East of Grove Lodge Roundabout – A27 westbound	1,425	1,467	1,813	1,864	1,838
West of A27 Old Shoreham Road Roundabout – A27 eastbound	1,773	1,743	1,807	1,850	1,832
West of A27 Old Shoreham Road Roundabout – A27 westbound	1,803	1,775	2,152	2,001	1,994
East of A27 Old Shoreham Road Roundabout – A27 eastbound	1,917	2,154	2,460	2,469	2,451
East of A27 Old Shoreham Road Roundabout – A27 westbound	1,575	1,638	2,893	2,908	2,906

Table 6-4: Network flow (for key points as presented in Figure 6) in the 2023 Inter peak scenario for the Worthing-Lancing options

2023 INTER PEAK	FLOWS				
	Base (2016 only)	DM	Option 1	Option 3	Option 3A
West of Crockhurst Hill Roundabout – A27 eastbound	960	1,079	1,094	1,051	1,046
West of Crockhurst Hill Roundabout – A27 westbound	1,019	1,313	1,250	1,292	1,276
East of Crockhurst Hill Roundabout – A24 eastbound	1,309	1,361	1,484	1,472	1,465
East of Crockhurst Hill Roundabout – A24 westbound	1,334	1,577	1,525	1,541	1,526
North of Grove Lodge Roundabout – A24 northbound	1,334	1,577	1,525	1,541	1,526
North of Grove Lodge Roundabout – A24 southbound	1,309	1,361	1,484	1,472	1,465
East of Grove Lodge Roundabout – A27 eastbound	1,330	1,381	1,329	1,288	1,283
East of Grove Lodge Roundabout – A27 westbound	1,206	1,310	1,362	1,440	1,418
West of A27 Old Shoreham Road Roundabout – A27 eastbound	1,355	1,398	1,258	1,258	1,258
West of A27 Old Shoreham Road Roundabout – A27 westbound	1,496	1,549	1,401	1,431	1,416
East of A27 Old Shoreham Road Roundabout – A27 eastbound	1,476	1,649	1,662	1,662	1,662
East of A27 Old Shoreham Road Roundabout – A27 westbound	1,520	1,570	2,062	2,078	2,070

Table 6-5: Network flow (for key points as presented in Figure 6) in the 2041 Inter peak scenario for the Worthing-Lancing options

2041 INTER PEAK	FLOWS				
	Base (2016 only)	DM	Option 1	Option 3	Option 3A
West of Crockhurst Hill Roundabout – A27 eastbound	960	1,314	1,340	1,287	1,326
West of Crockhurst Hill Roundabout – A27 westbound	1,019	1,377	1,542	1,194	1,365
East of Crockhurst Hill Roundabout – A24 eastbound	1,309	1,437	1,786	1,872	2,071
East of Crockhurst Hill Roundabout – A24 westbound	1,334	1,610	1,845	1,645	2,014
North of Grove Lodge Roundabout – A24 northbound	1,334	1,610	1,845	1,645	2,014
North of Grove Lodge Roundabout – A24 southbound	1,309	1,437	1,786	1,872	2,017
East of Grove Lodge Roundabout – A27 eastbound	1,330	1,485	1,560	1,616	1,797
East of Grove Lodge Roundabout – A27 westbound	1,206	1,442	1,643	1,667	1,838
West of A27 Old Shoreham Road Roundabout – A27 eastbound	1,355	1,573	1,475	1,535	1,832
West of A27 Old Shoreham Road Roundabout – A27 westbound	1,496	1,693	1,725	1,684	1,994
East of A27 Old Shoreham Road Roundabout – A27 eastbound	1,476	1,901	1,961	2,022	2,451
East of A27 Old Shoreham Road Roundabout – A27 westbound	1,520	1,596	2,464	2,444	2,906

Table 6-6: Network flow (for key points as presented in Figure 6) in the 2023 PM peak scenario for the Worthing-Lancing options

2023 PM PEAK	FLOWS				
	Base (2016 only)	DM	Option 1	Option 3	Option 3A
West of Crockhurst Hill Roundabout – A27 eastbound	1,120	1,290	1,334	1,188	1,127
West of Crockhurst Hill Roundabout – A27 westbound	1,258	1,407	1,562	1,594	1,631
East of Crockhurst Hill Roundabout – A24 eastbound	1,477	1,442	1,738	1,707	1,587
East of Crockhurst Hill Roundabout – A24 westbound	1,489	1,600	1,741	1,785	1,785
North of Grove Lodge Roundabout – A24 northbound	1,489	1,600	1,741	1,785	1,785
North of Grove Lodge Roundabout – A24 southbound	1,477	1,442	1,738	1,707	1,587
East of Grove Lodge Roundabout – A27 eastbound	1,500	1,478	1,553	1,542	1,544
East of Grove Lodge Roundabout – A27 westbound	1,411	1,450	1,781	1,834	1,828
West of A27 Old Shoreham Road Roundabout – A27 eastbound	1,774	1,715	1,466	1,468	1,437
West of A27 Old Shoreham Road Roundabout – A27 westbound	1,722	1,729	1,839	1,874	1,873
East of A27 Old Shoreham Road Roundabout – A27 eastbound	1,819	1,872	2,015	2,016	1,984
East of A27 Old Shoreham Road Roundabout – A27 westbound	1,576	1,580	2,649	2,670	2,543

Table 6-7: Network flow (for key points as presented in Figure 6) in the 2041 PM peak scenario for the Worthing-Lancing options

2041 PM PEAK	FLOWS				
	Base (2016 only)	DM	Option 1	Option 3	Option 3A
West of Crockhurst Hill Roundabout – A27 eastbound	1,120	1,395	1,474	1,293	1,252
West of Crockhurst Hill Roundabout – A27 westbound	1,258	1,392	1,724	1,759	1,772
East of Crockhurst Hill Roundabout – A24 eastbound	1,477	1,417	1,840	1,845	1,718
East of Crockhurst Hill Roundabout – A24 westbound	1,489	1,611	1,971	2,065	2,005
North of Grove Lodge Roundabout – A24 northbound	1,489	1,611	1,971	2,065	2,005
North of Grove Lodge Roundabout – A24 southbound	1,477	1,417	1,840	1,845	1,718
East of Grove Lodge Roundabout – A27 eastbound	1,500	1,487	1,666	1,689	1,736
East of Grove Lodge Roundabout – A27 westbound	1,411	1,494	1,933	2,052	2,061
West of A27 Old Shoreham Road Roundabout – A27 eastbound	1,774	1,736	1,633	1,634	1,632
West of A27 Old Shoreham Road Roundabout – A27 westbound	1,722	1,733	2,059	2,160	2,161
East of A27 Old Shoreham Road Roundabout – A27 eastbound	1,819	2,022	2,278	2,277	2,276
East of A27 Old Shoreham Road Roundabout – A27 westbound	1,576	1,610	3,048	3,076	3,078

7 SUMMARY AND CONCLUSION

7.1 CONCLUSION

7.1.1 This report presents the traffic forecasting methodology and assessment for the proposed options for the Worthing-Lancing study area.

7.1.2 The report outlines the development of the forecast matrices and outlines the significant difference between the level of development outlined in the 'Uncertainty Log' and the details in TEMPRO V6.2. Following Highways England guidance, the forecast matrices for all assessment periods has been constrained to TEMPRO growth.

7.1.3 The modelling results demonstrate that, in terms of overall network summary statistics, Option 1 has the best performing network for Worthing-Lancing.

7.2 DISCUSSION OF WHERE THE MODEL IS LESS ROBUST WITH STATEMENT ON HOW THIS IMPACTS ON THE MODEL'S PERFORMANCE

7.2.1 The network coding is detailed on and near the A27, and less detailed at the edges of the model. The zoning system has the purpose of loading the traffic onto the network and distributing it to the A27, which is the main focus of the model and other key routes in the study area. Therefore, the level of performance on the A27 is acceptable, whereas less attention has been given to the less detailed, local network away from the A27 other than on the feeder routes for the A27 corridor. This is consistent with the approach to the base year model and detailed in the LMVR, and is also applicable to the forecasting models.

7.2.2 The junction coding for the traffic signals in the Do Something scheme for Worthing-Lancing has not been optimised for the entire A27 route. Optimisation at individual junctions has instead been carried out in isolation.

7.2.3 There is traffic growth on the local network which increases traffic levels exiting from some zones. This is leading to junction capacity issues in the forecasts on unmitigated sections of the network, which may be a function of the general coding convention adopted. These issues therefore mean revisions to the coding of these junctions may be required, which would lead to subsequent revisions of the base model.

7.3 DISCUSSION OF WHERE THE MODEL'S REPRESENTATION OF TRAFFIC AND TRAVEL COULD BE FURTHER IMPROVED IN THE FUTURE

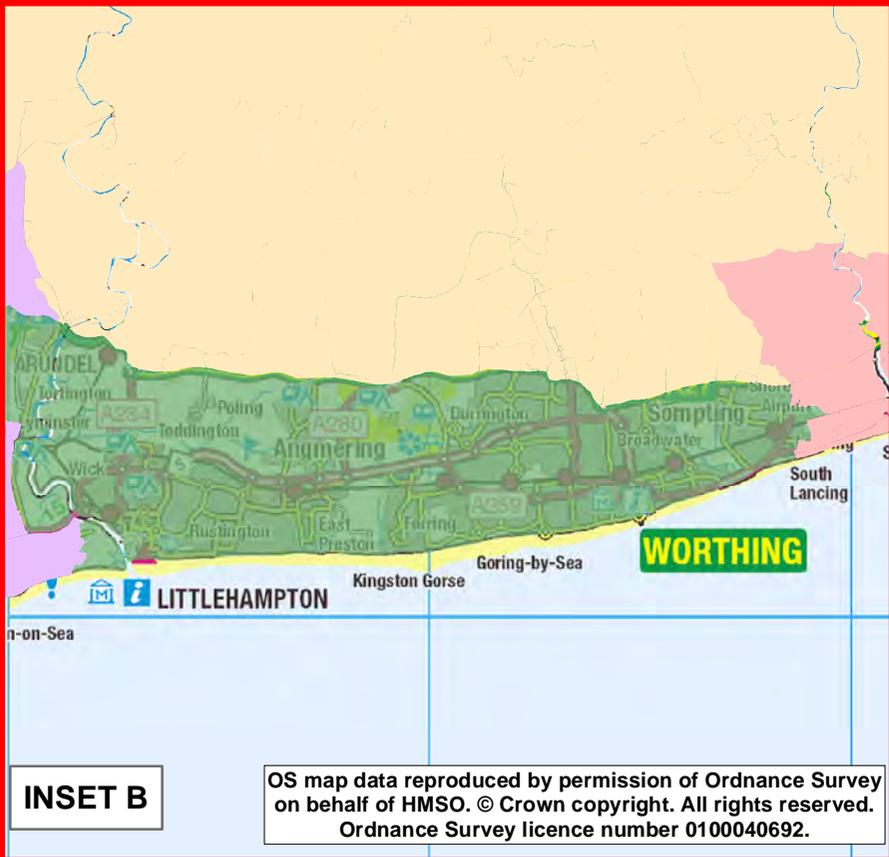
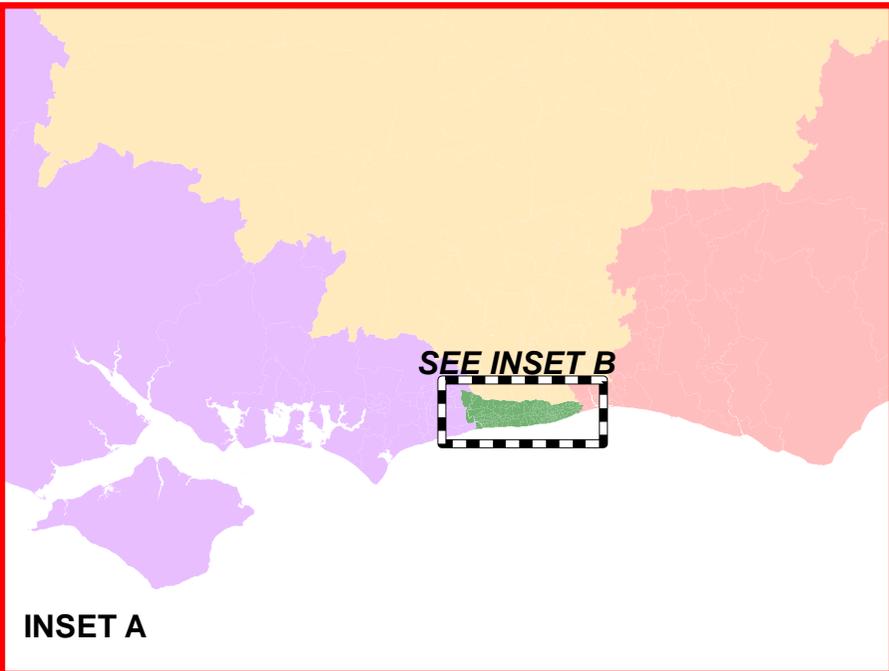
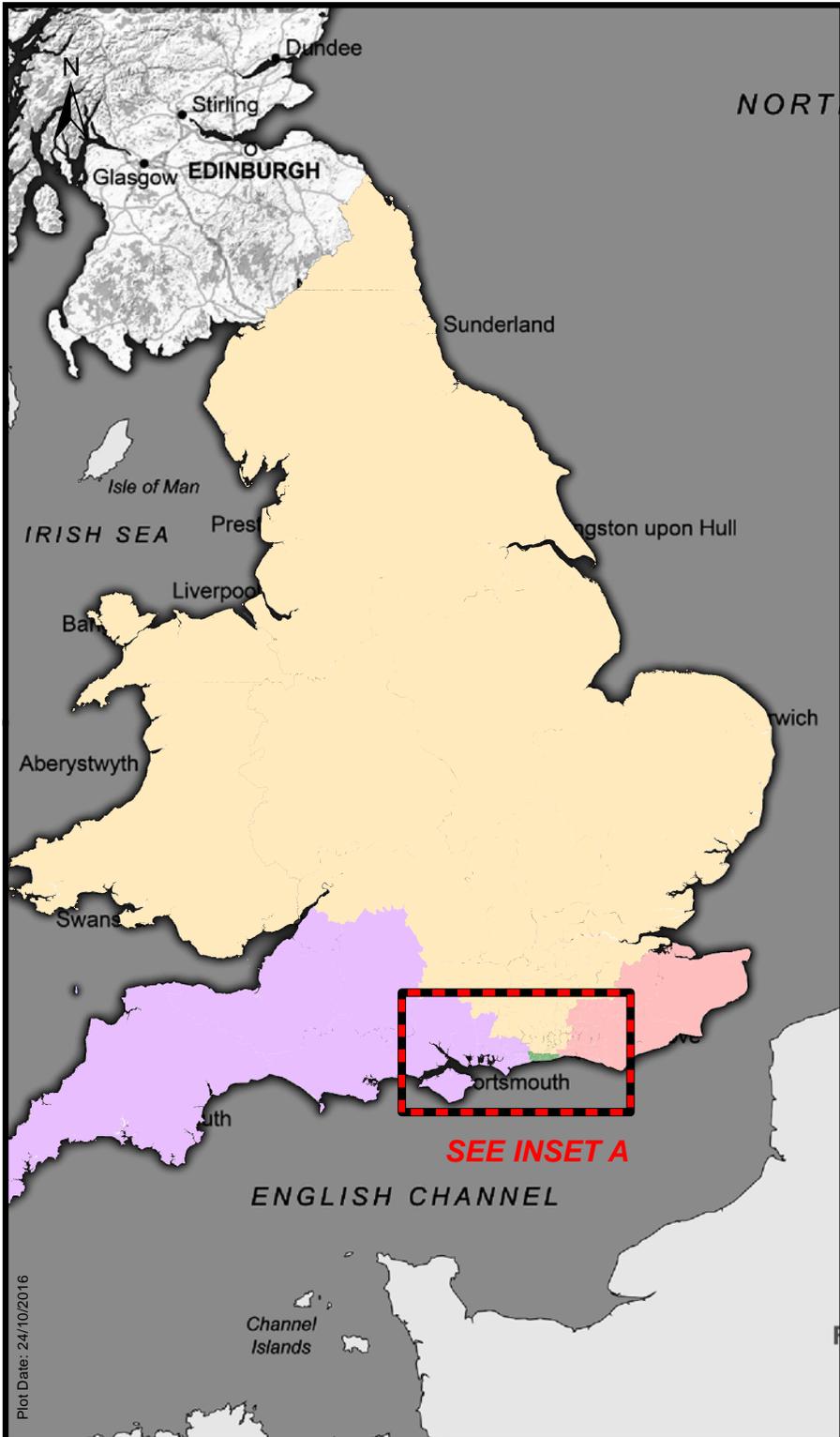
7.3.1 The PCF Stage 2 work will build on the modelling undertaken at PCF Stage 1. The results of the PCF Stage 1 model will be used to verify the output from the new South East Regional Transport Model and amend the approach to matrix building in the base year to incorporate new data, specifically Mobile Phone Data.

Appendix I

APPENDIX I-1

MODEL COVERAGE

APPENDIX I-2
SECTOR / ZONE PLAN



Legend

- North
- West
- East
- Internal

Sector #	Sector Ref	Zone Coverage
1	Internal	1 - 176
2	West	177 - 233
3	East	234 - 292
4	North	293 - 384



70 Chancery Lane
London
WC2A 1AF
Tel: 44-(0)207 - 314 - 5000



Client:
Site/Project:
A27 Arundel / Worthing - Lancing

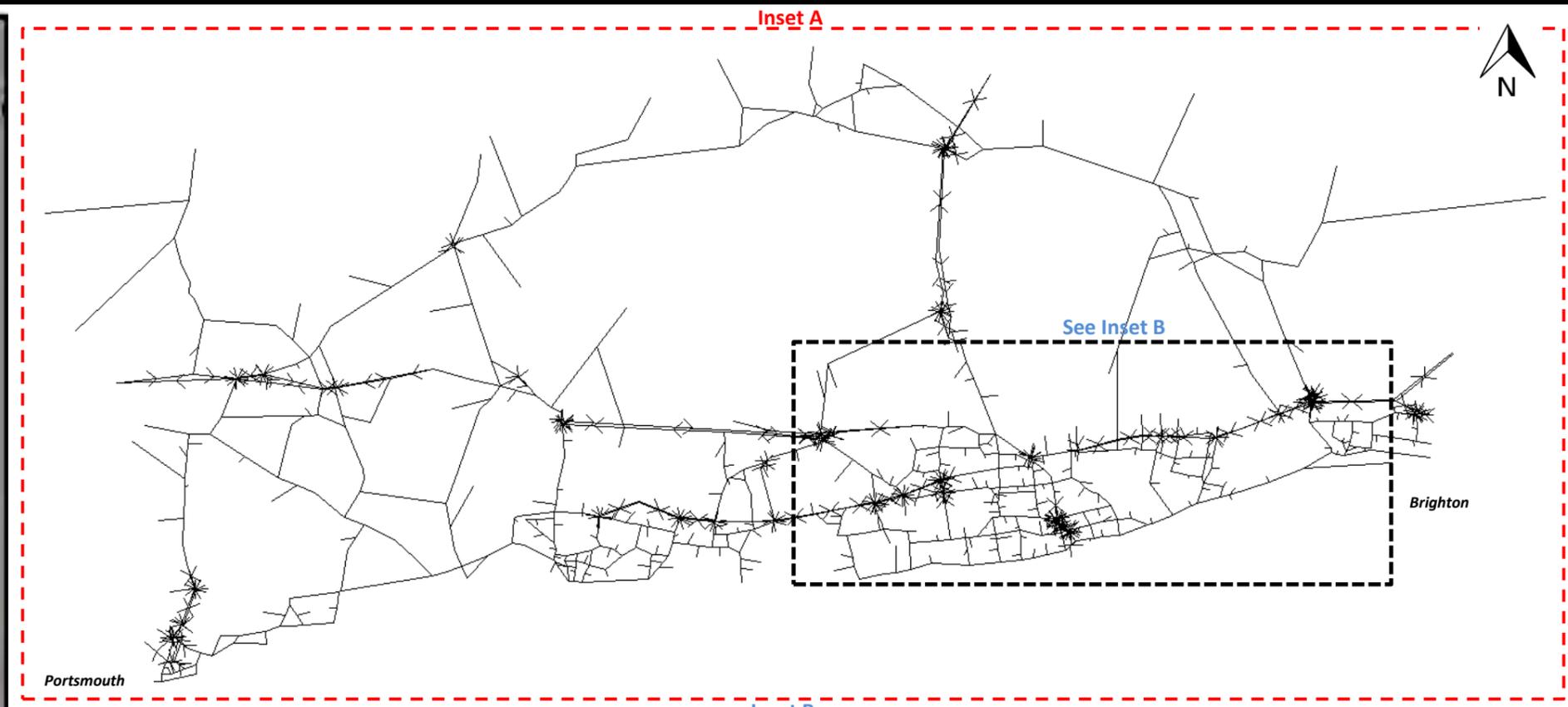
Title:
SATURN Model Sector Structure

Drawn: SV	Checked: Michael Rolfe
Date: 24/10/2016	Approved: Andrew Stoneman
Project Number:	Scale: NTS
70019688	Appendix A-1
70019103	

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APPENDIX I-3

SATURN NETWORK COVERAGE & DETAILS



NOTES:

Network Summary:
 961 Simulated Junctions
 620 Priority Junctions
 40 Traffic Signals
 70 Roundabouts (With U-Turns)
 0 Buffer Nodes

Key

— Simulation Network

- North
- West
- East
- Internal

1 Capital Quarter
 Tyndall Street
 Cardiff
 CF10 4BZ
 +44(0) 2920 769 200
 www.wsp-pb.co.uk

Client: Working on behalf of highways england

Project Title Road Investment Strategy Local Model Validation Report - A27 Arundel Bypass & Worthing-Lancing			
Drawing Title A27 Cordoned WSCSTM SATURN Network			
Scale NTS	Drawn Sayijan Verikumar	Checked Michael	Approved Andrew Stoneman ***
Origin Size N/A	Date 24/10/16	Date 24/10/16	Date 24/10/16
Drawing Number Appendix A-2			Version A

Appendix II

UNADJUSTED AND ADJUSTED TEMPRO FACTORS

UNADJUSTED TEMPRO FACTORS

UNADJUSTED DEVELOPMENT TOTALS

LOCALITY	2015 HOUSEHOLDS	2015 JOBS	2023 HOUSEHOLDS	2023 JOBS	2041 HOUSEHOLDS	2041 JOBS
Adur District	27,942	27,991	28,530	28,755	29,924	29,511
Arun	71,204	58,107	76,316	59,290	87,205	59,605
Worthing	49,105	52,290	50,684	53,531	54,115	54,389
Rest of W. Sussex	216,040	289,843	227,219	294,636	250,245	297,455

CAR DRIVER - 2023

BASE YEAR:	2015
Trip end Type:	Origin / Destination
Future Year:	2023

NAME	AM	AM	IP	IP	PM	PM
	Origin	Destination	Origin	Destination	Origin	Destination
Adur	1.0294	1.0458	1.055	1.054	1.0444	1.0341
Arun	1.0629	1.052	1.0839	1.0828	1.0602	1.0679
Worthing	1.0437	1.0388	1.0511	1.0511	1.0403	1.0428
Chichester, Crawley, Horsham, Mid Sussex (Rest of West Sussex)	1.0363	1.0383	1.0568	1.0567	1.0416	1.0411
Berkshire, Buckinghamshire, Isle of Wight, Kent, Oxfordshire, Surrey, East Sussex (Rest of South East England)	1.0493	1.0524	1.0683	1.0681	1.0545	1.0529
Brighton & Hove	1.0614	1.05	1.0565	1.0579	1.05	1.0555
East Midlands	1.0543	1.0543	1.0794	1.0794	1.0583	1.0583
East of England	1.0628	1.0723	1.0953	1.0948	1.0739	1.0684
London	1.0722	1.0592	1.0783	1.0792	1.0613	1.0682
North East England, North West England, Yorkshire & Humber	1.0523	1.0523	1.0657	1.0657	1.0539	1.0539
South West England	1.0488	1.0488	1.0781	1.0781	1.0539	1.0539

CAR DRIVER - 2041

BASE YEAR:	2015
Trip end Type:	Origin / Destination
Future Year:	2041

NAME	AM		IP		PM	
	Origin	Destination	Origin	Destination	Origin	Destination
Adur	1.0848	1.1281	1.1746	1.1715	1.129	1.1021
Arun	1.1707	1.1399	1.258	1.2539	1.1709	1.1925
Worthing	1.1171	1.1027	1.1637	1.1628	1.1127	1.1214
Chichester, Crawley, Horsham, Mid Sussex (Rest of West Sussex)	1.1038	1.1037	1.176	1.1763	1.1187	1.1211
Berkshire, Buckinghamshire, Isle of Wight, Kent, Oxfordshire, Surrey, East Sussex (Rest of South East England)	1.142	1.1493	1.2112	1.2102	1.1591	1.1557
Brighton & Hove	1.1783	1.1388	1.1705	1.1753	1.1422	1.161
East Midlands	1.1602	1.1602	1.2529	1.2529	1.1763	1.1763
East of England	1.19	1.2159	1.301	1.2993	1.2248	1.2098
London	1.2208	1.1866	1.2498	1.2526	1.1921	1.2091
North East England, North West England, Yorkshire & Humber	1.1642	1.1642	1.2092	1.2092	1.1699	1.1699
South West England	1.1526	1.1526	1.2467	1.2467	1.1695	1.1695

ADJUSTED TEMPRO FACTORS

ADJUSTED DEVELOPMENT TOTALS

LOCALITY	2015 HOUSEHOLDS	2015 JOBS	2023 HOUSEHOLDS	2023 JOBS	2041 HOUSEHOLDS	2041 JOBS
Adur District	27,942	27,991	28,530	28,755	29,924	29,511
Arun	71,204	58,107	74,011	58,107	83,905	58,107
Worthing	49,105	52,290	49,984	53,531	53,415	54,389
Rest of W. Sussex	216,040	289,843	227,219	293,764	250,245	296,898

CAR DRIVER - 2023

BASE YEAR:	2015
Trip end Type:	Origin / Destination
Future Year:	2023

NAME	AM	AM	IP	IP	PM	PM
	Origin	Destination	Origin	Destination	Origin	Destination
Adur	1.0294	1.0459	1.0551	1.0540	1.0445	1.0342
Arun	1.0327	1.0291	1.0566	1.0553	1.0353	1.0384
Worthing	1.0319	1.0367	1.0444	1.0440	1.0360	1.0322
Chichester, Crawley, Horsham, Mid Sussex (Rest of West Sussex)	1.0357	1.0356	1.0550	1.0550	1.0393	1.0402

CAR DRIVER - 2041

BASE YEAR:	2015
Trip end Type:	Origin / Destination
Future Year:	2041

NAME	AM	AM	IP	IP	PM	PM
	Origin	Destination	Origin	Destination	Origin	Destination
Adur	1.0848	1.1282	1.1747	1.1715	1.1291	1.1021
Arun	1.1290	1.1085	1.2179	1.2137	1.1362	1.1512
Worthing	1.1053	1.1005	1.1565	1.1552	1.1083	1.1107
Chichester, Crawley, Horsham, Mid Sussex (Rest of West Sussex)	1.1034	1.1019	1.1748	1.1752	1.1172	1.1205

Appendix III

MATRIX TOTALS AND CONVERGENCE

MATRIX TOTALS

AM 2023

USER CLASS	BASE MATRIX	TEMPRO CONSTRAINT	BACKGROUND GROWTH	DEVELOPMENT TRIPS	UNCONSTRAINED	TOTAL
UC1	14,817.29	15,496.52	15,350.58	1,817.03	17,167.62	15,496.55
UC2	1,144.73	1,197.85	1,185.8	0	1,185.8	1,197.85
UC3	5,946.11	6,220.92	6,155.4	719.42	6,874.82	6,220.93
UC4	413	431.36	428.98	0	428.98	431.37
UC5	469.77	490.97	486.48	0	486.48	490.97
TOTAL	22,790.89	23,837.62	23,607.26	2,536.45	26,143.7	23,837.67

AM 2041

USER CLASS	BASE MATRIX	TEMPRO CONSTRAINT	BACKGROUND GROWTH	DEVELOPMENT TRIPS	UNCONSTRAINED	TOTAL
UC1	14,817.29	16,670.05	16,487.06	2,011.44	18,498.51	16,670.09
UC2	1,144.73	1,289.71	1,274.56	0	1,274.56	1,289.71
UC3	5,946.11	6,695.02	6,611.31	796.39	7,407.7	6695
UC4	413	463.86	460.99	0	460.99	463.86
UC5	469.77	527.67	521.99	0	521.99	527.67
TOTAL	22,790.89	25,646.32	25,355.91	2,807.83	28,163.74	25,646.33

IP 2023

USER CLASS	BASE MATRIX	TEMPRO CONSTRAINT	BACKGROUND GROWTH	DEVELOPMENT TRIPS	UNCONSTRAINED	TOTAL
UC1	3,421.57	3,634.24	3,594.53	1,645.64	5,240.17	3,634.24
UC2	822.66	875.47	864.04	0	864.04	875.47
UC3	13,231.26	14,065.17	13,904.45	651.55	14556	14,065.17
UC4	928.26	986.34	976.42	0	976.42	986.34
UC5	1,530.67	1,627.07	1,609.94	0	1,609.94	1,627.07
TOTAL	19,934.41	21,188.29	20,949.37	2,297.19	23,246.56	21,188.29

IP 2041

USER CLASS	BASE MATRIX	TEMPRO CONSTRAINT	BACKGROUND GROWTH	DEVELOPMENT TRIPS	UNCONSTRAINED	TOTAL
UC1	3,421.57	4,087.09	4,037.92	1,984.33	6,022.25	4,087.08
UC2	822.66	987.82	973.92	0	973.92	987.82
UC3	13,231.26	15,838.85	15,638.03	785.65	16,423.68	15,838.82
UC4	928.26	1,109.13	1099	0	1,099	1,109.13
UC5	1,530.67	1,831.72	1,812.11	0	1,812.11	1,831.72
TOTAL	19,934.41	23,854.61	23,560.98	2,769.98	26,330.96	23,854.57

PM 2023

USER CLASS	BASE MATRIX	TEMPRO CONSTRAINT	BACKGROUND GROWTH	DEVELOPMENT TRIPS	UNCONSTRAINED	TOTAL
UC1	13,438.33	14,088.79	13,954.87	1,986.46	15,941.33	14,088.83
UC2	1,367.28	1,435.21	1,418.4	0	1,418.4	1,435.21
UC3	10,084.9	10,581.94	10,461.68	786.49	11,248.17	10,581.97
UC4	560.9	588.76	584.17	0	584.17	588.76
UC5	1,293.96	1356.75	1345	0	1345	1,356.75
TOTAL	26,745.37	28,051.45	27,764.12	2,772.96	30,537.08	28,051.52

PM 2041

USER CLASS	BASE MATRIX	TEMPRO CONSTRAINT	BACKGROUND GROWTH	DEVELOPMENT TRIPS	UNCONSTRAINED	TOTAL
UC1	13,438.33	15,298.6	15,128.43	2,327.89	17,456.31	15,298.55
UC2	1,367.28	1,560.93	1,539.67	0	1,539.67	1,560.93
UC3	10,084.9	11,502.78	11,348.15	921.67	12,269.82	11,502.8
UC4	560.9	641.1	635.43	0	635.43	641.09
UC5	1,293.96	1,474.29	1,459.13	0	1,459.13	1,474.29
TOTAL	26,745.37	30,477.7	30,110.8	3,249.56	33,360.36	30,477.66

Worthing – Lancing Option 1: Convergence

	PEAK HOUR	ITERATION	DELTA (Δ)	%FLOW	&GAP	
WORTHING – LANCING OPTION 1: 2023	AM PEAK	14	0.0025	98.0	0.0023	
		15	0.018	98.1	0.0023	
		16	0.0016	98.2	0.0063	
		17	0.0015	98.6	0.0018	
	INTER PEAK	9	0.0007	98.0	0.0013	
		10	0.0006	99.1	0.00094	
		11	0.0007	99.4	0.00048	
		12	0.0003	99.6	0.00057	
	PM PEAK	45	0.0167	99.4	0.031	
		46	0.0136	99.3	0.018	
		47	0.0090	99.3	0.034	
		48	0.0096	99.3	0.020	
	WORTHING – LANCING OPTION 1: 2041	AM PEAK	30	0.0188	97.5	0.024
			31	0.0165	98.8	0.033
			32	0.0154	97.7	0.021
			33	0.0425	98.6	0.023
INTER PEAK		12	0.0569	97.6	0.033	
		13	0.0181	98.2	0.035	
		14	0.0257	98.7	0.031	
		15	0.0152	99.1	0.026	
PM PEAK		33	0.0290	98.6	0.048	
		34	0.0420	98.6	0.037	
		35	0.0326	99.3	0.045	
		36	0.0470	98.7	0.048	

Worthing – Lancing Option 3: Convergence

	PEAK HOUR	ITERATION	DELTA (Δ)	%FLOW	&GAP
WORTHING – LANCING OPTION 3: 2023	AM PEAK	17	0.0012	98.7	0.0047
		18	0.0011	99.4	0.0018
		19	0.0009	99.3	0.0031
		20	0.0009	99.0	0.0017
	INTER PEAK	27	0.0272	97.5	0.027
		28	0.0185	98.4	0.033
		29	0.0108	97.8	0.040
		30	0.0119	97.8	0.019
	PM PEAK	46	0.0198	98.7	0.024
		47	0.0209	99.2	0.023
		48	0.0103	99.4	0.040
		49	0.0137	98.8	0.023
WORTHING – LANCING OPTION 3: 2041	AM PEAK	50	0.0095	99.0	0.014
		51	0.0329	98.9	0.013
		52	0.0220	98.9	0.011
		53	0.0086	98.7	0.014
	INTER PEAK	46	0.0198	98.7	0.024
		47	0.0209	99.2	0.023
		48	0.0103	99.4	0.040
		49	0.0137	98.8	0.023
	PM PEAK	37	0.0218	99.2	0.041
		38	0.0207	99.6	0.044
		39	0.0472	98.9	0.047
		40	0.0228	99.1	0.039

Worthing – Lancing Option 3A: Convergence

	PEAK HOUR	ITERATION	DELTA (Δ)	%FLOW	&GAP
WORTHING – LANCING OPTION 3A: 2023	AM PEAK	24	0.0016	98.9	0.0012
		25	0.0020	99.2	0.0013
		26	0.0013	98.9	0.00084
		27	0.0014	99.5	0.0011
	INTER PEAK	10	0.0012	98.6	0.00087
		11	0.0005	99.0	0.0010
		12	0.0004	99.4	0.00087
		13	0.0004	99.4	0.00068
	PM PEAK	49	0.0199	97.7	0.038
		50	0.0156	97.8	0.043
		51	0.0169	97.9	0.035
		52	0.0156	98.1	0.047
	WORTHING – LANCING OPTION 3A: 2041	AM PEAK	62	0.0102	98.8
63			0.0257	98.9	0.016
64			0.0144	98.5	0.011
65			0.0075	98.7	0.014
INTER PEAK		54	0.0049	98.9	0.075
		55	0.0133	98.9	0.011
		56	0.0069	98.6	0.021
		57	0.0051	99.1	0.0076
PM PEAK		35	0.0250	99.0	0.040
		36	0.0216	99.2	0.044
		37	0.0229	98.7	0.042
		38	0.0401	99.0	0.036

Appendix IV

OPTIONS DRAWINGS

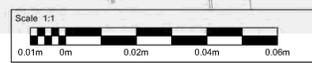
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Millimetres

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Construction
(Enter "None" if applicable)

Maintenance / Cleaning
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Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chkd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS**

Suitability: **S0**

Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**



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NTS	---	---	---	---

Client: **Working on behalf of**

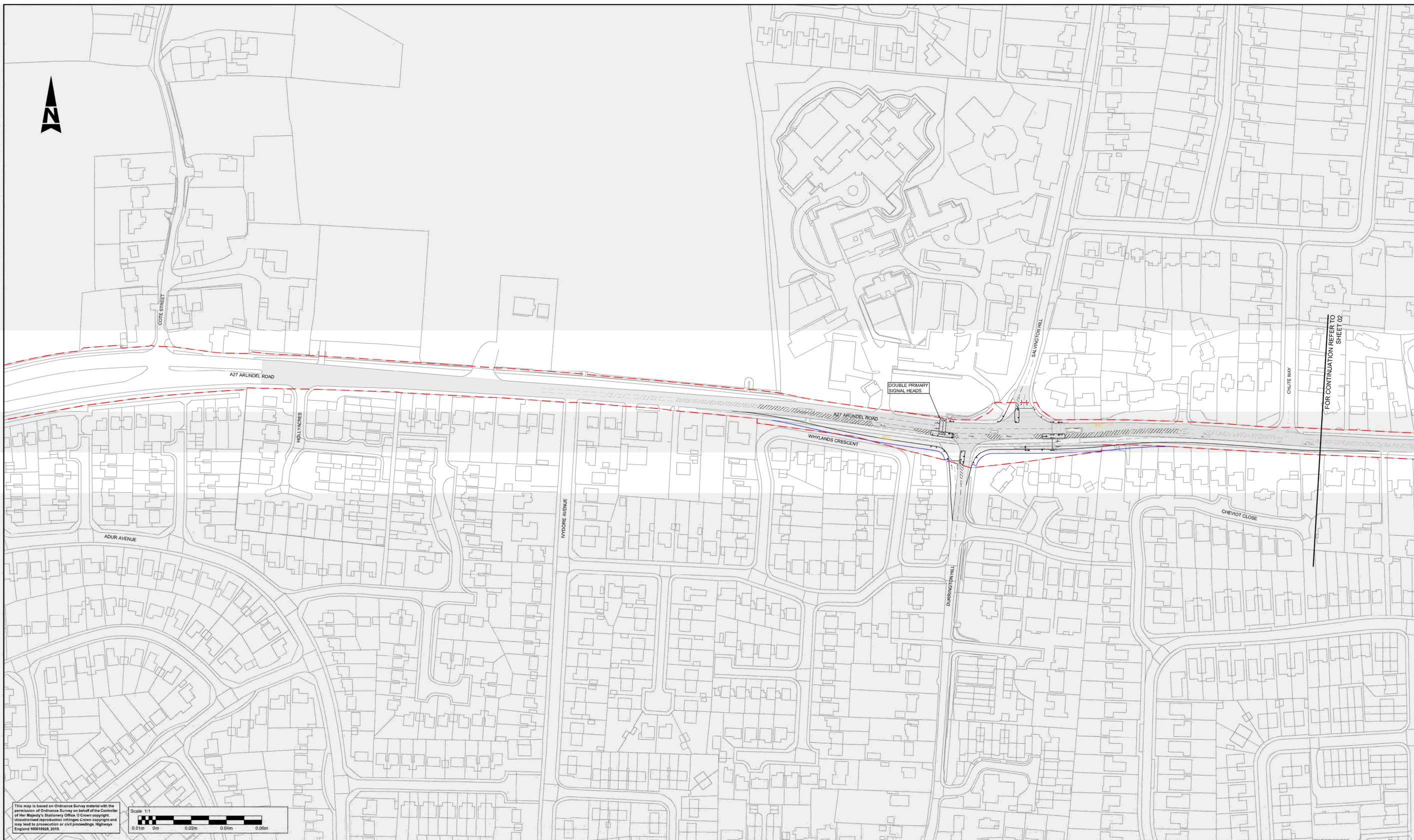
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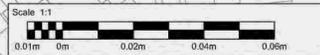
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HE551524 - WSP - HGN - A27WL - DR - D - 0001	Originator Volume A27WL - DR - D - 0001	3514447F Revision P01.1

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 - EXISTING HIGHWAY CARRIAGEWAY
 - EXISTING ROAD MARKINGS
 - PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED RETAINING WALL
 - PROPOSED ROAD MARKINGS
 - DIRECTLY IMPACTED WITH DEMOLITION REQUIRED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
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Construction (Enter "None" if applicable)			
Maintenance / Cleaning (Enter "None" if applicable)			
Use (Enter "None" if applicable)			
Decommissioning / Demolition (Enter "None" if applicable)			

Rev.	Date	Description	By	Chk'd	App'd
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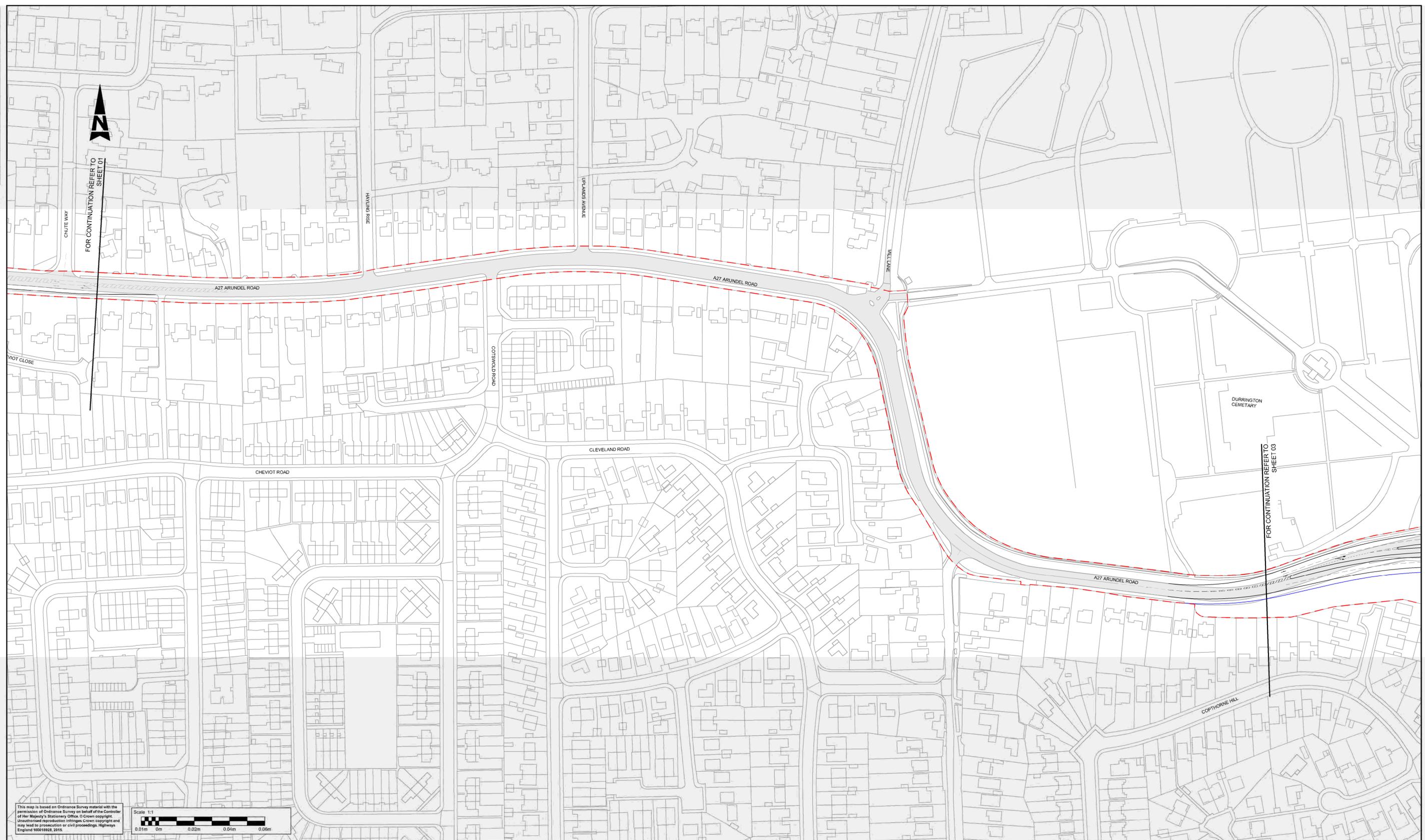
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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
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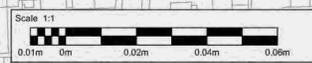
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

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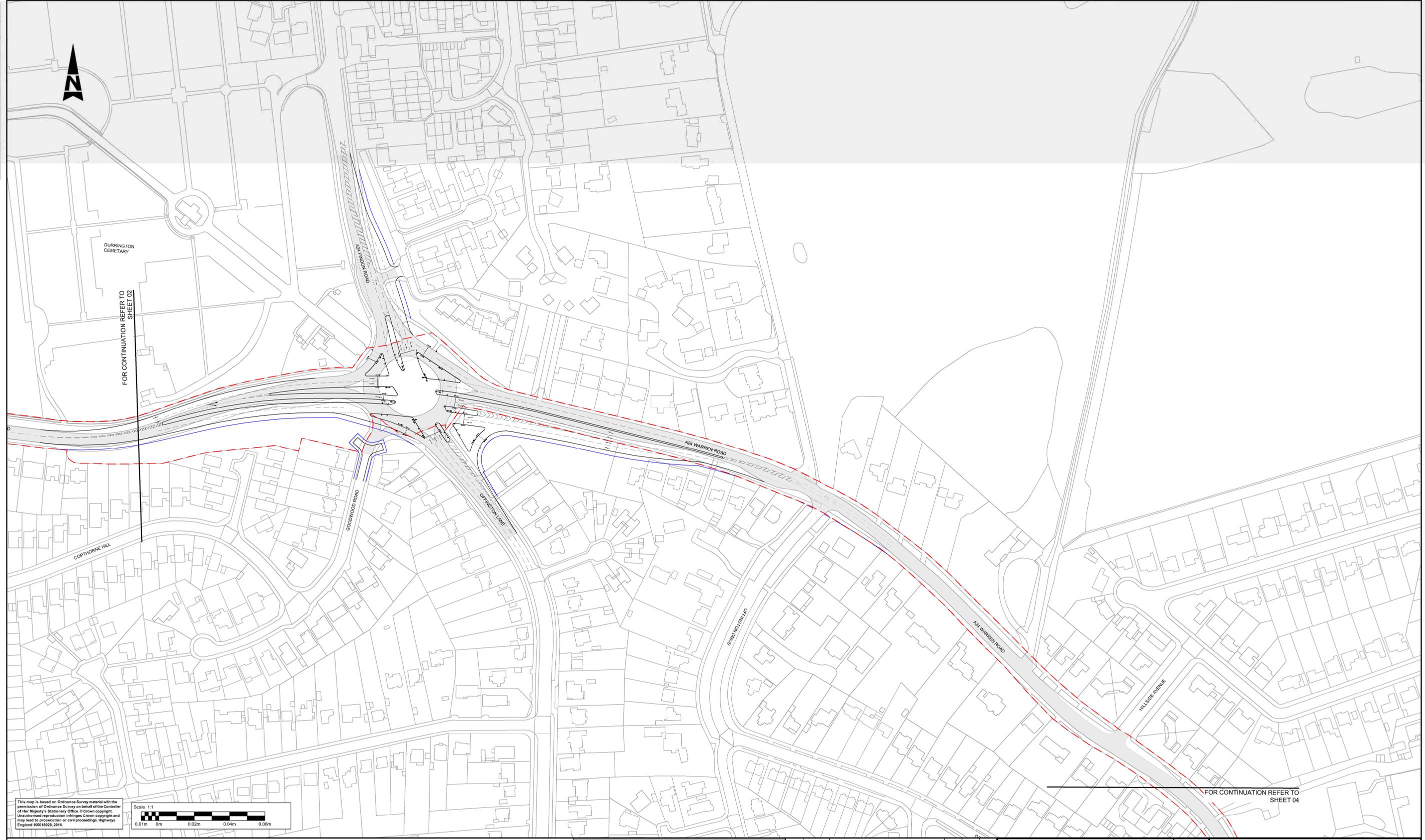
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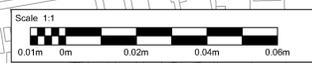
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
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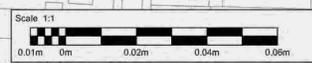
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

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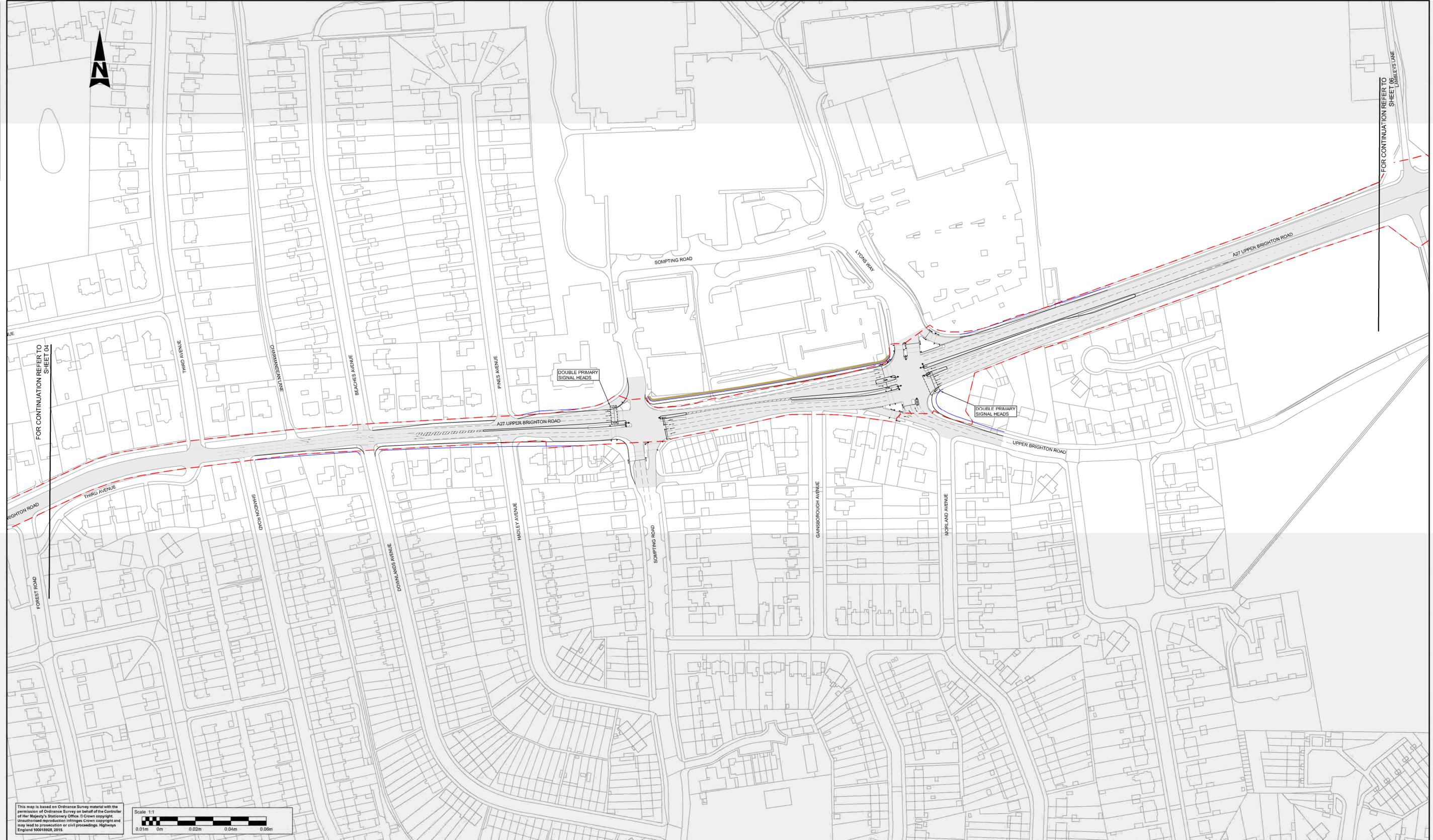
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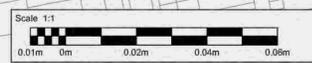
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction
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Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

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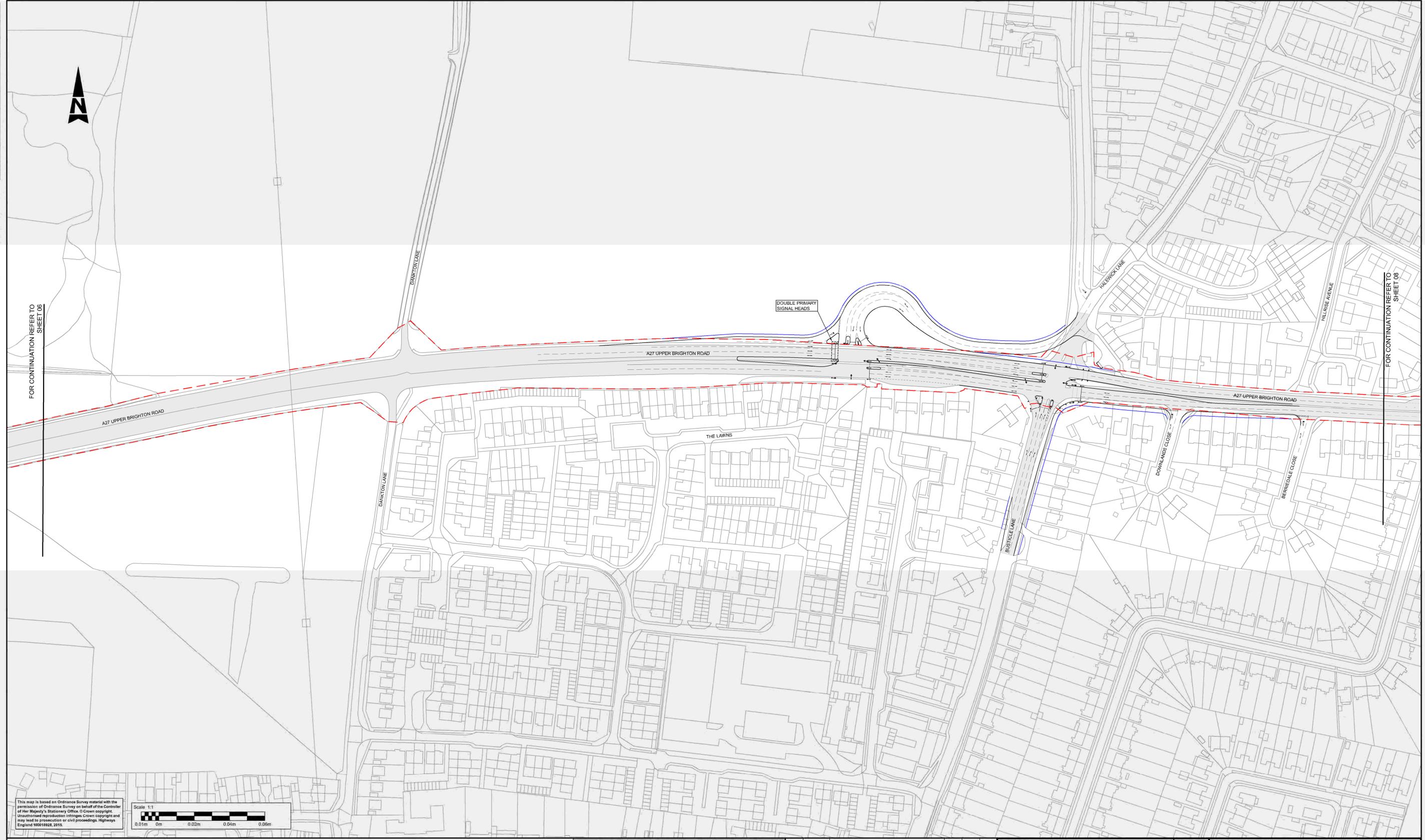
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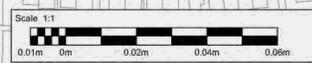
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

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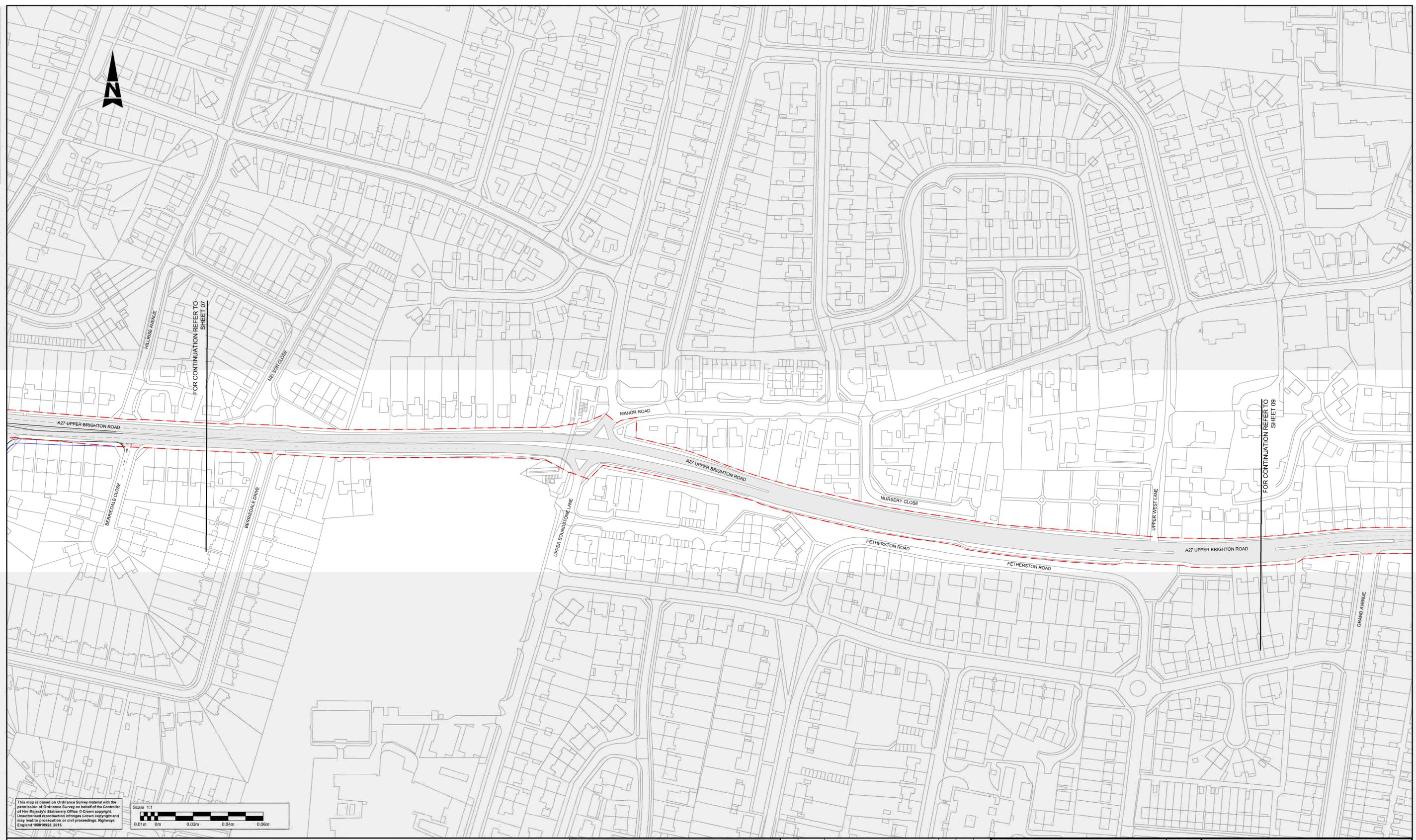
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Drawing Number	HE551524 - WSP - HGN - A27WL - DR - D - 0008	Project	Originator	Volume	3514447F	Revision	P01.1		

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 - PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED RETAINING WALL
 - PROPOSED ROAD MARKINGS
 - DIRECTLY IMPACTED WITH DEMOLITION REQUIRED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
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Construction (Enter "None" if applicable)			
Maintenance / Cleaning (Enter "None" if applicable)			
Use (Enter "None" if applicable)			
Decommissioning / Demolition (Enter "None" if applicable)			
Rev.	Date	Description	By
P01.1	---	First Issue	---

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

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Client: **Working on behalf of highways england**

Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 1 SHEET 8 OF 9**

Scale	Drawn	Checked	Approved	Authorised
1:1250	---	---	---	---

Original Size	Date	Date	Date	Date
A1	---	---	---	---

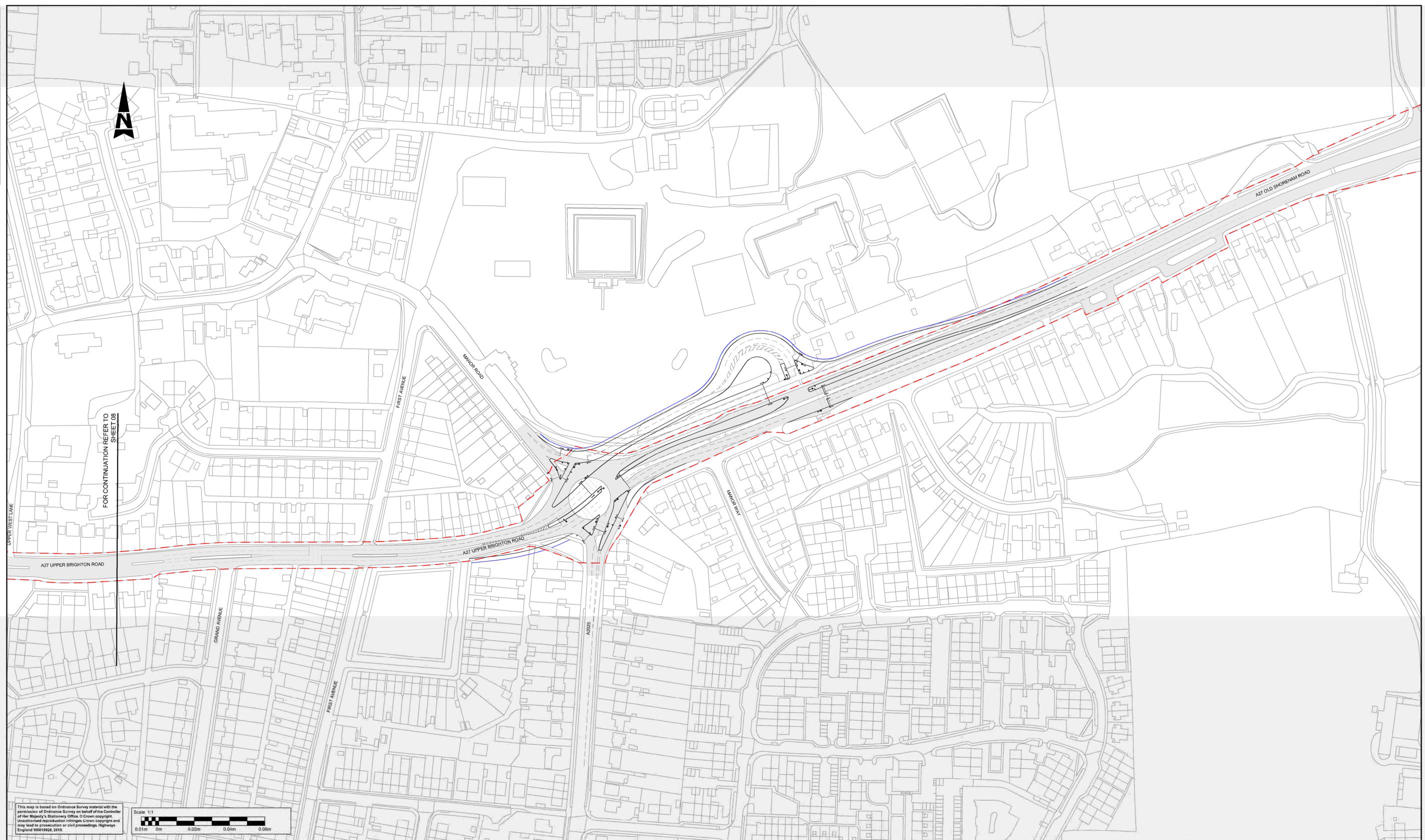
Drawing Number	Project	Originator	Volume	Project Ref. No.
HE551524 - WSP - HGN - A27WL - DR - D - 0009	---	---	---	3514447F

Location	Type	Role	Number	Revision
---	---	---	---	P01.1

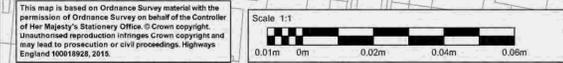
DO NOT SCALE

Millimetres

0 10 100



UPPER WEST LANE
FOR CONTINUATION REFER TO SHEET 08



- KEY:**
- EXISTING HIGHWAYS ENGLAND BOUNDARY
 - EXISTING HIGHWAY CARRIAGEWAY
 - EXISTING ROAD MARKINGS
 - PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED RETAINING WALL
 - PROPOSED ROAD MARKINGS
 - DIRECTLY IMPACTED WITH DEMOLITION REQUIRED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Client: **Working on behalf of**
highways england

Project Title: REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 1 SHEET 9 OF 9					
Scale: 1:1250	Drawn: ---	Checked: ---	Approved: ---	Authorised: ---	Original Size: A1
Project Number: HE551524 - WSP - HGN - A27WL - DR - D - 0010	Volume:	Originator:	Date: ---	Date: ---	Project Ref. No.: 3514447F
Location:	Type:	Role:	Number:	Revision: P01.1	

DO NOT SCALE

Millimetres

0 10 100



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Client: **Working on behalf of**

Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

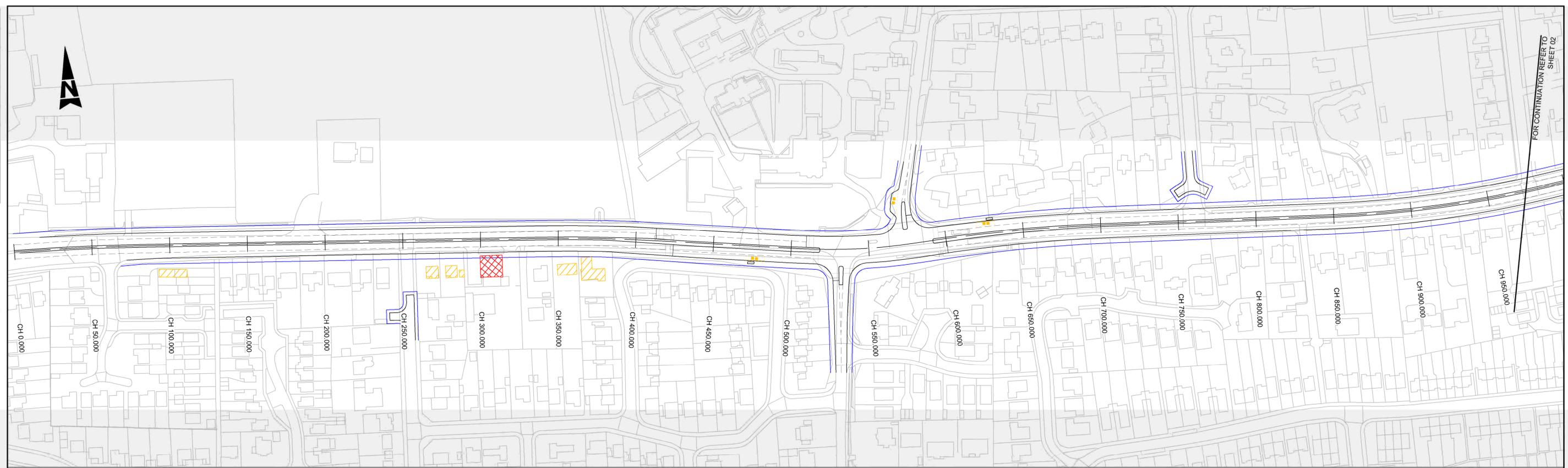
Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 OVERVIEW PLAN**

Scale	Drawn	Checked	Approved	Authorised
NTS				
Original Size	Date	Date	Date	Date
A1	---	---	---	---
Drawing Number	Originator	Volume	Project Ref. No.	
HE551524 - WSP - HGN - A27WL - DR - D - 0021			3514447F	
Location	Type	Role	Number	Revision
				P01.1

DO NOT SCALE

Millimetres

0 10 100



FOR CONTINUATION REFER TO SHEET 02

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- KEY**
- PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).	
Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

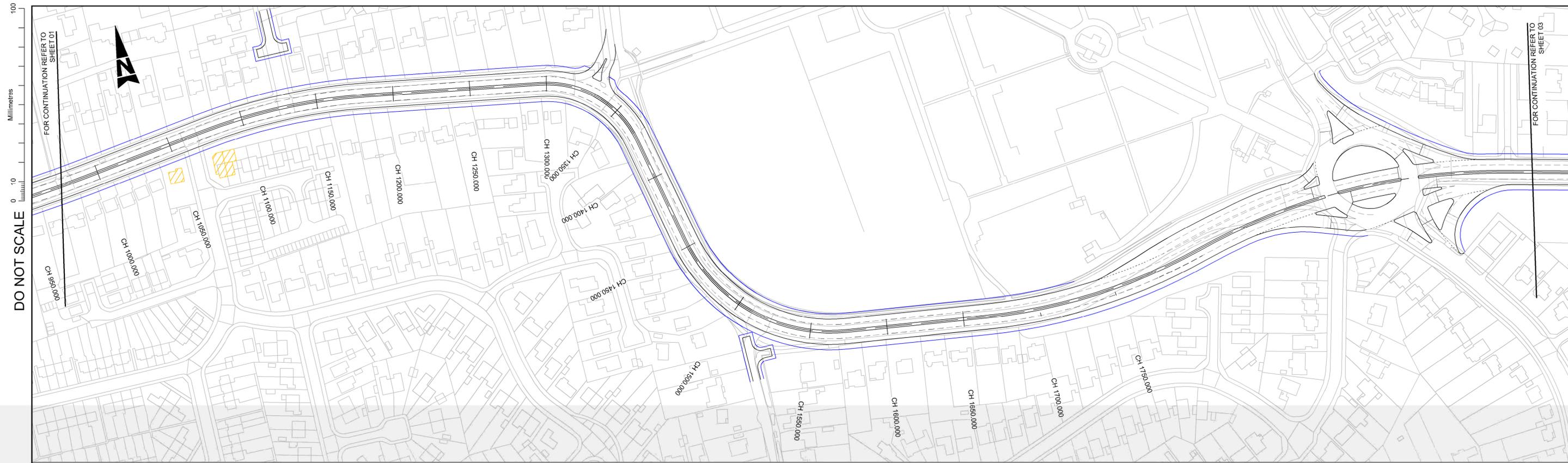
Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING				
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 1 OF 9				
Scale	Drawn	Checked	Approved	Authorised
1:1250				
Original Size	Date	Date	Date	Date
A1	---	---	---	---
Drawing Number	Project	Originator	Volume	Project Ref. No.
	HE551524 - WSP - HGN - A27WL - DR - D - 0022			3514447F
Location	Type	Role	Number	Revision
				P01.1



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- KEY**
- PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

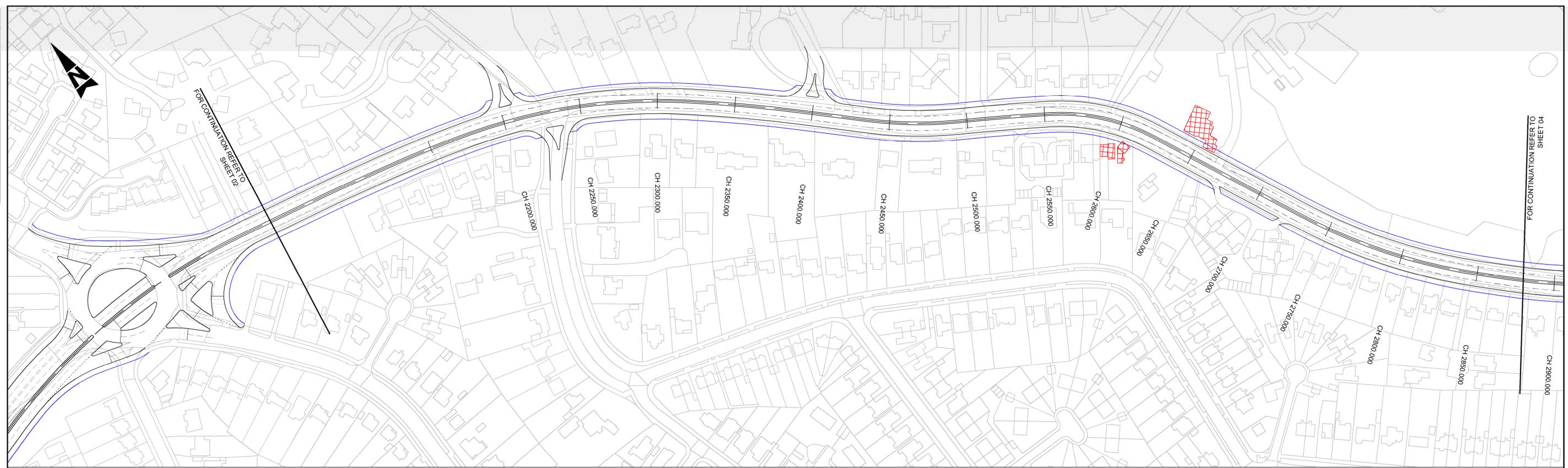
Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status	WORK IN PROGRESS	Suitability	S0	Project Title	REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
Westbrook Mills Borough Road Godalming Surrey GU7 2AZ Tel: +44 (0)1483 528400 Fax: +44 (0)1483 528989 www.wsp-pb.com Copyright © WSP Group (2016)				Drawing Title INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 2 OF 9						
Client	Working on behalf of				Scale	1:1250	Drawn	Checked	Approved	Authorised
					Original Size	A1	Date	Date	Date	Date
					Drawing Number				Project Ref. No.	3514447F
					Project	HE551524 - WSP - HGN - A27WL - DR - D - 0023			Revision	P01.1
					Location	Type	Role	Number		

DO NOT SCALE

Millimetres
0 10 100



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- KEY**
- PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - ⊠ DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - ▨ DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).	
Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Project Title		Scale		Drawn	Checked	Approved	Authorised
REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING		1:1250	---	---	---	---	---
Drawing Title		Original Size	Date	Date	Date	Date	Date
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 3 OF 9		A1	---	---	---	---	---
Drawing Number	Project	Originator	Volume	Project Ref. No.	Revision		
	HE551524 - WSP - HGN - A27WL - DR - D - 0024			3514447F	P01.1		
Location	Type	Role	Number				

DO NOT SCALE

Millimetres

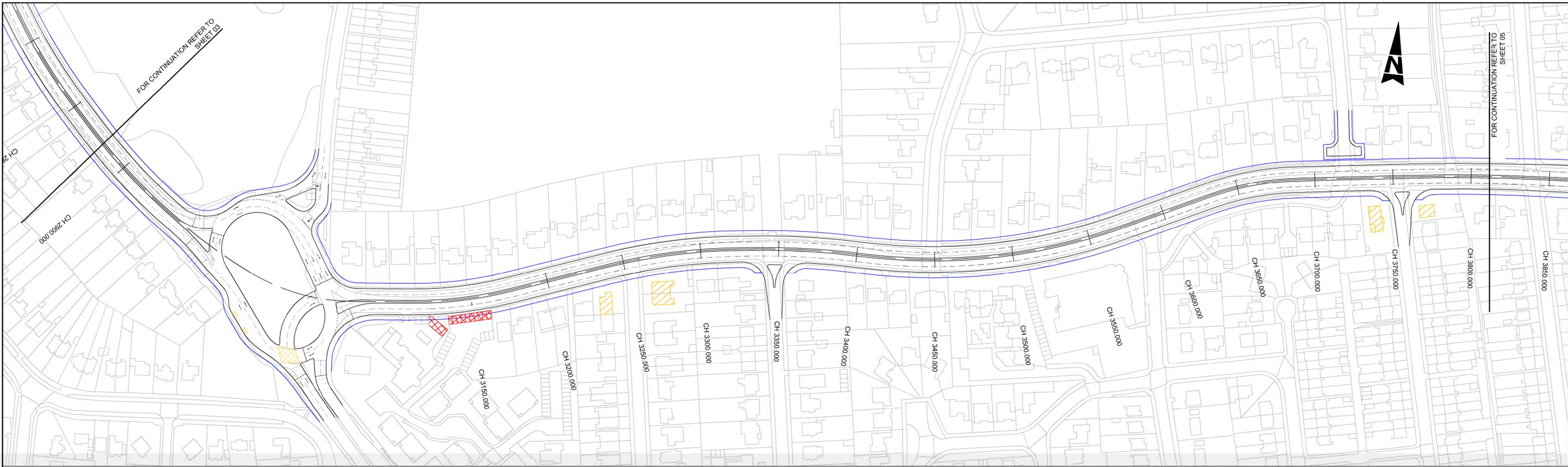
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10

100

FOR CONTINUATION REFER TO SHEET 05

FOR CONTINUATION REFER TO SHEET 05



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- KEY**
- PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

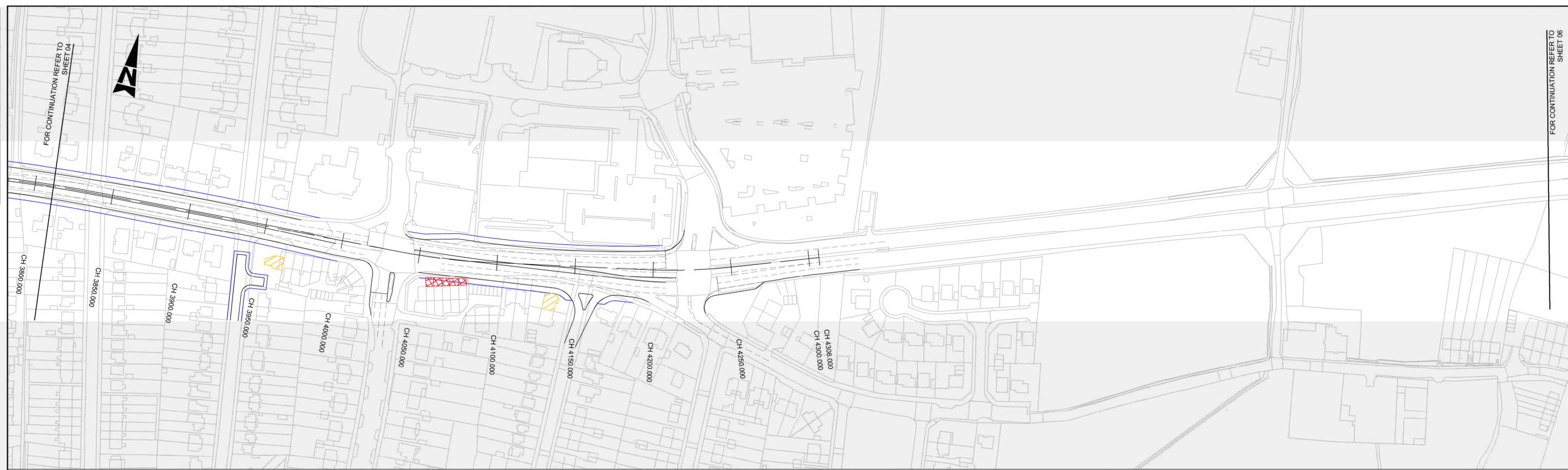
Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status	WORK IN PROGRESS	Suitability	S0	Project Title	REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
Client	Westbrook Mills Borough Road Godalming Surrey GU7 2AZ Tel: +44 (0)1483 528400 Fax: +44 (0)1483 528989 www.wsp-pb.com 				Drawing Title	INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 4 OF 9				
Scale	1:1250	Drawn	---	Checked	---	Approved	---	Authorised	---	
Original Size	A1	Date	---	Date	---	Date	---	Date	---	
Drawing Number	HE551524 - WSP - HGN -		Project Ref. No.	3514447F		Project Ref. No.		3514447F		
Project	A27WL - DR - D - 0025		Revision	P01.1		Project Ref. No.		3514447F		
Location	Type	Role	Number							

100
0
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Millimetres
DO NOT SCALE



FOR CONTINUATION REFER TO SHEET 06

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- KEY:**
- PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - - - PROPOSED ROAD MARKINGS
 - ▣ DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - ▨ DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).	
Construction	(Enter "None" if applicable)
Maintenance / Cleaning	(Enter "None" if applicable)
Use	(Enter "None" if applicable)
Decommissioning / Demolition	(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING	
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 5 OF 9	
Scale: 1:1250	Original Size: A1
Drawn: ---	Date: ---
Checked: ---	Date: ---
Approved: ---	Date: ---
Authorised: ---	Date: ---
Project: HE551524 - WSP - HGN - A27WL - DR - D - 0026	Project Ref. No.: 3514447F
Location: ---	Revision: P01.1



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- KEY:**
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 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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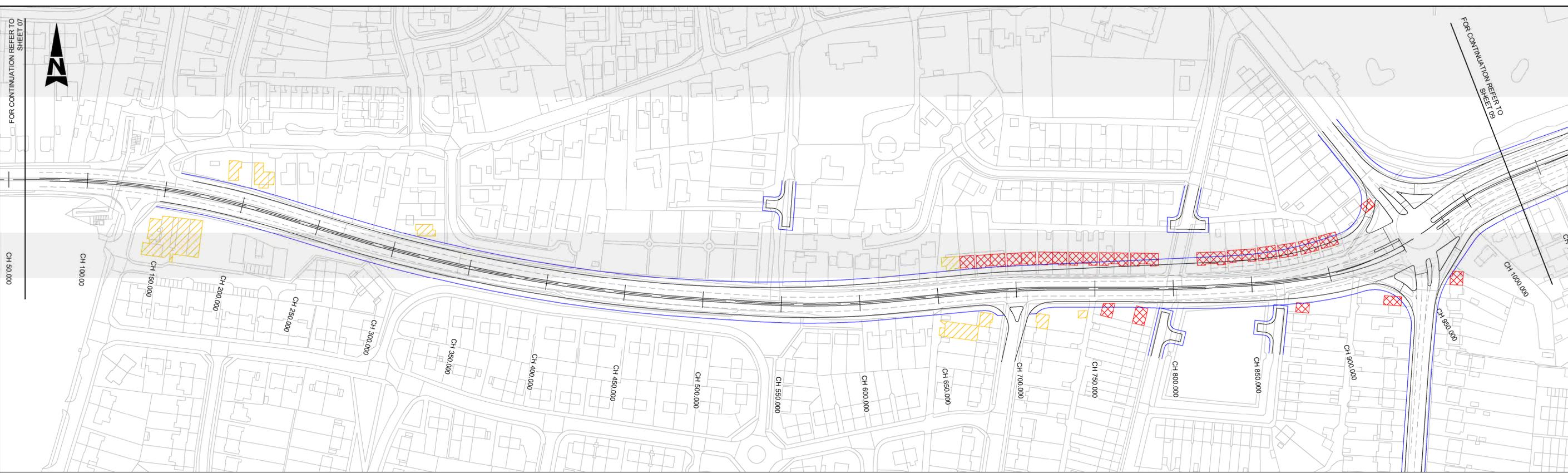
Client: **Working on behalf of**

Project Title: REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING				
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 7 OF 9				
Scale: 1:1250	Drawn	Checked	Approved	Authorised
Original Size: A1	Date	Date	Date	Date
Drawing Number: HE551524 - WSP - HGN - A27WL - DR - D - 0028	Project	Volume	Project Ref. No. 3514447F	
Location	Type	Role	Number	Revision: P01.1

DO NOT SCALE

Millimetres

0 10 100



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- KEY:**
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 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Project Title		Scale		Drawn	Checked	Approved	Authorised
REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING		1:1250					
Drawing Title		Original Size	Date	Date	Date	Date	Date
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 8 OF 9		A1					
Drawing Number	Project	Originator	Volume	Project Ref. No.		Revision	
				HE551524 - WSP - HGN - A27WL - DR - D - 0029	3514447F	P01.1	
Location	Type	Role	Number				

DO NOT SCALE

Millimetres
0 10 100



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 - PROPOSED ROAD MARKINGS
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Project Title		Scale		Drawn	Checked	Approved	Authorised
REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING		1:1250					
Drawing Title		Original Size	Date	Date	Date	Date	Date
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 9 OF 9		A1	---	---	---	---	---
Drawing Number	Project	Originator	Volume	Project Ref. No.		Revision	
	HE551524 - WSP - HGN - A27WL - DR - D - 0030			3514447F		P01.1	
Location	Type	Role	Number				

DO NOT SCALE

Millimetres

0 10 100



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Client: **Working on behalf of**

Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

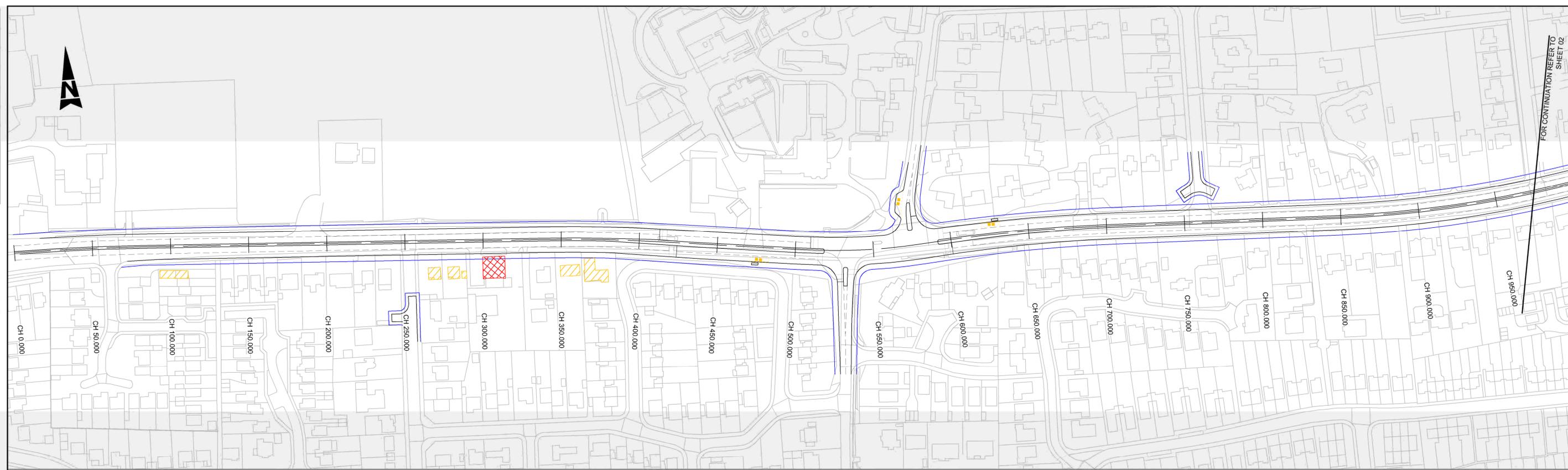
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 OVERVIEW PLAN				
Scale: NTS	Drawn: ---	Checked: ---	Approved: ---	Authorised: ---
Original Size: A1	Date: ---	Date: ---	Date: ---	Date: ---
Drawing Number: HE551524 - WSP - HGN - A27WL - DR - D - 0021	Project: HE551524 - WSP - HGN - A27WL - DR - D - 0021	Volume: ---	Project Ref. No.: 3514447F	Revision: P01.1
Location: ---	Type: ---	Role: ---	Number: ---	

DO NOT SCALE

Millimetres

0 10

100



FOR CONTINUATION REFER TO SHEET 02

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- KEY**
- PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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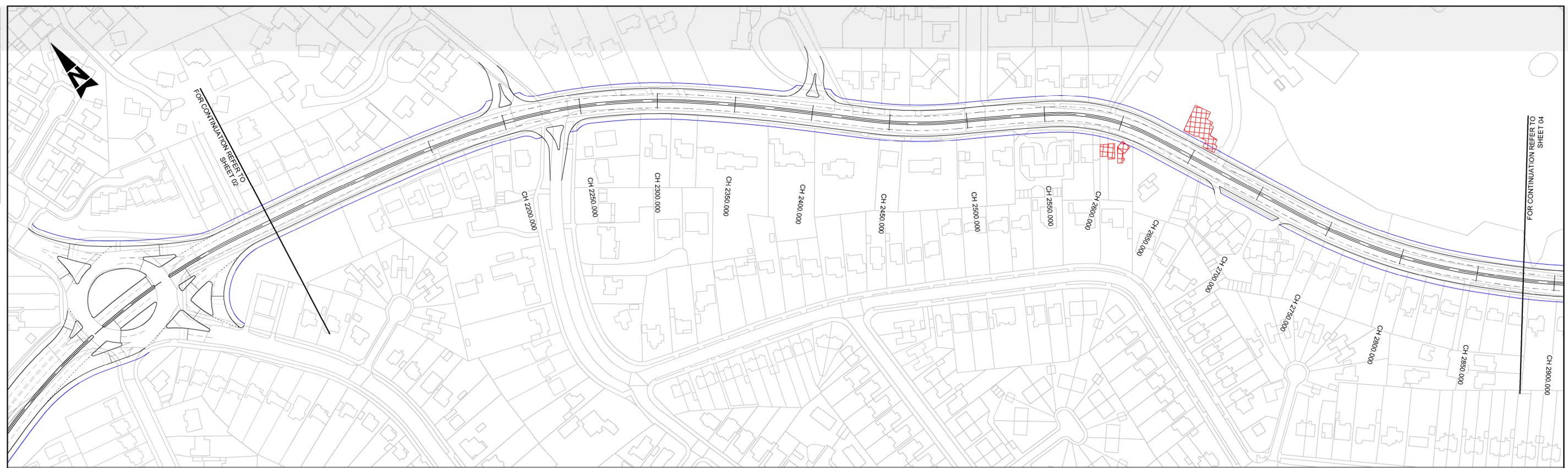
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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING				
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 1 OF 9				
Scale	Drawn	Checked	Approved	Authorised
1:1250				
Original Size	Date	Date	Date	Date
A1	---	---	---	---
Drawing Number	Project	Originator	Volume	Project Ref. No.
	HE551524 - WSP - HGN - A27WL - DR - D - 0022			3514447F
Location	Type	Role	Number	Revision
				P01.1

DO NOT SCALE

Millimetres
0 10 100



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- KEY**
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 - PROPOSED EDGING KERBLINE
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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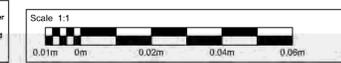
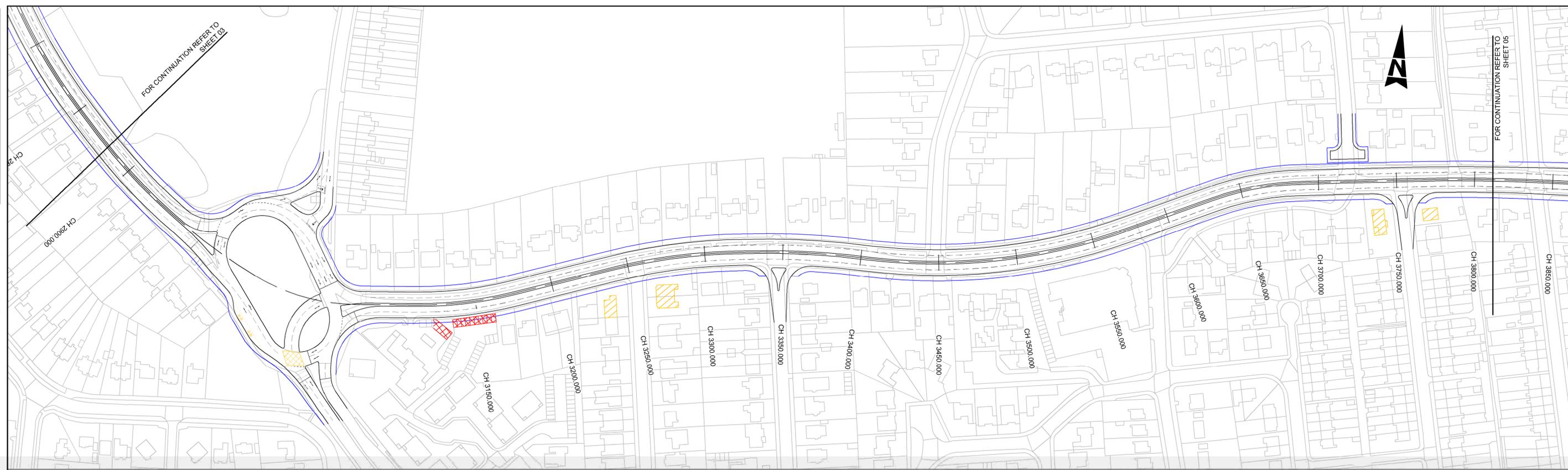
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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING	
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 3 OF 9	
Scale: 1:1250	Original Size: A1
Drawn: ---	Checked: ---
Date: ---	Date: ---
Approved: ---	Authorised: ---
Date: ---	Date: ---
Drawing Number: HE551524 - WSP - HGN - A27WL - DR - D - 0024	Project Ref. No.: 3514447F
Location: ---	Revision: P01.1

DO NOT SCALE

Millimetres
0 10 100



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- KEY**
- PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).	
Construction	(Enter "None" if applicable)
Maintenance / Cleaning	(Enter "None" if applicable)
Use	(Enter "None" if applicable)
Decommissioning / Demolition	(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

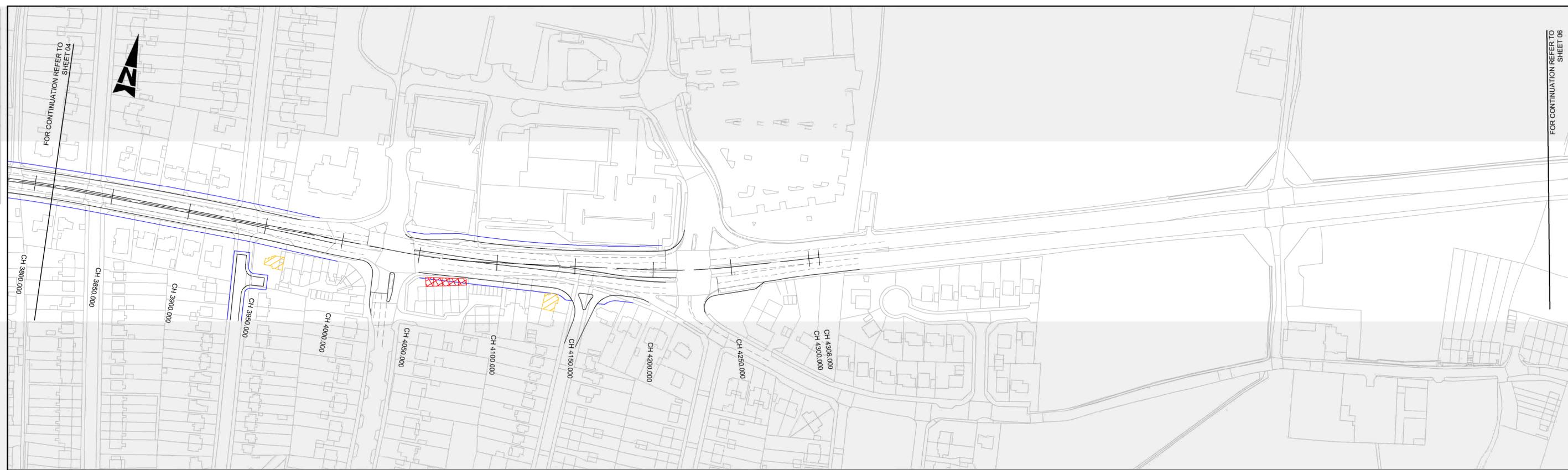
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Project Title: REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING				
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 4 OF 9				
Scale: 1:1250	Drawn: ---	Checked: ---	Approved: ---	Authorised: ---
Original Size: A1	Date: ---	Date: ---	Date: ---	Date: ---
Drawing Number: Project	Originator: HE551524 - WSP - HGN - A27WL - DR - D - 0025	Volume: ---	Project Ref. No.: 3514447F	Revision: P01.1
Location: ---	Type: ---	Role: ---	Number: ---	

100
0
10
Millimetres
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FOR CONTINUATION REFER TO SHEET 06

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- KEY:**
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 - PROPOSED ROAD MARKINGS
 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Project Title		Scale		Drawn	Checked	Approved	Authorised
REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING		1:1250					
Drawing Title		Original Size	Date	Date	Date	Date	Date
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 5 OF 9		A1	---	---	---	---	---
Drawing Number	Project	Originator	Volume	Project Ref. No.		Revision	
	HE551524 - WSP - HGN - A27WL - DR - D - 0026			3514447F		P01.1	
Location	Type	Role	Number				



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- KEY:**
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 - PROPOSED EDGING KERBLINE
 - - - PROPOSED ROAD MARKINGS
 - ⊠ DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - ▨ DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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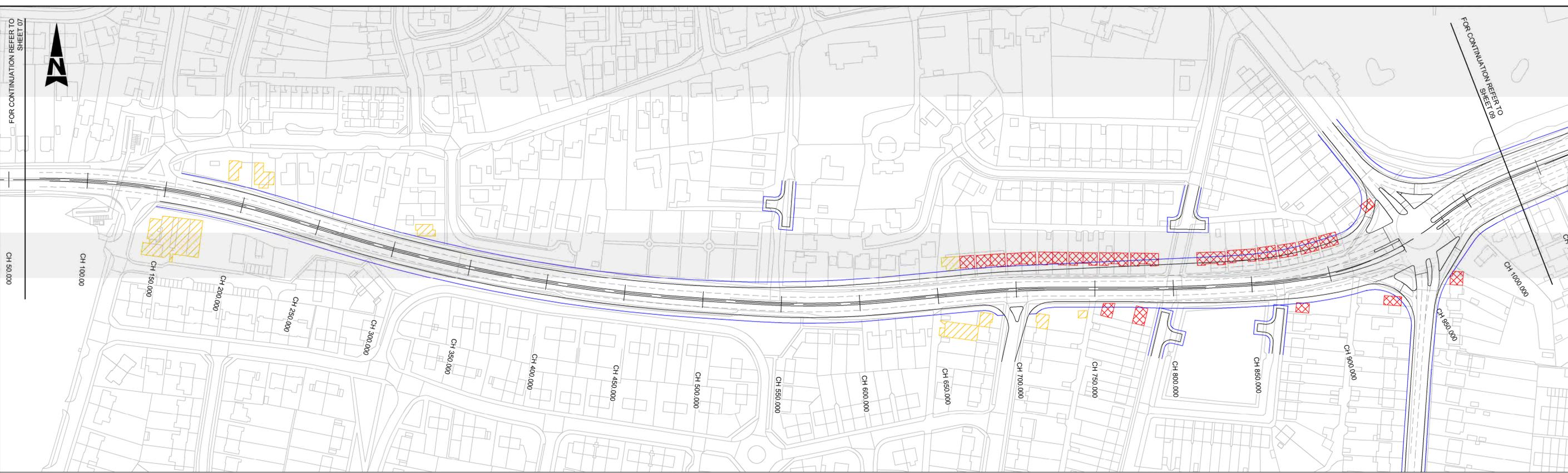
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Project Title: REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING				
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 7 OF 9				
Scale: 1:1250	Drawn: ---	Checked: ---	Approved: ---	Authorised: ---
Original Size: A1	Date: ---	Date: ---	Date: ---	Date: ---
Drawing Number: HE551524 - WSP - HGN - A27WL - DR - D - 0028	Project: ---	Volume: ---	Project Ref. No.: 3514447F	Revision: P01.1
Location: ---	Type: ---	Role: ---	Number: ---	

DO NOT SCALE

Millimetres

0 10 100



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION						
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Construction (Enter "None" if applicable)						
Maintenance / Cleaning (Enter "None" if applicable)						
Use (Enter "None" if applicable)						
Decommissioning / Demolition (Enter "None" if applicable)						
Rev.	Date	Description	By	Chk'd	App'd	
P01.1		First Issue				

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Drawing Title INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 8 OF 9					
Scale	Drawn	Checked	Approved	Authorised	
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Original Size	Date	Date	Date	Date	
A1	---	---	---	---	
Drawing Number	Project	Originator	Volume	Project Ref. No.	
HE551524 - WSP - HGN - A27WL - DR - D - 0029				3514447F	
Location	Type	Role	Number	Revision	
				P01.1	

100
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Millimetres
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 - DWELLING DIRECTLY IMPACTED BY WIDENING WORKS
 - DWELLINGS CLOSER THAN 5M TO NEW KERBLINES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Construction (Enter "None" if applicable)	
Maintenance / Cleaning (Enter "None" if applicable)	
Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1		First Issue			

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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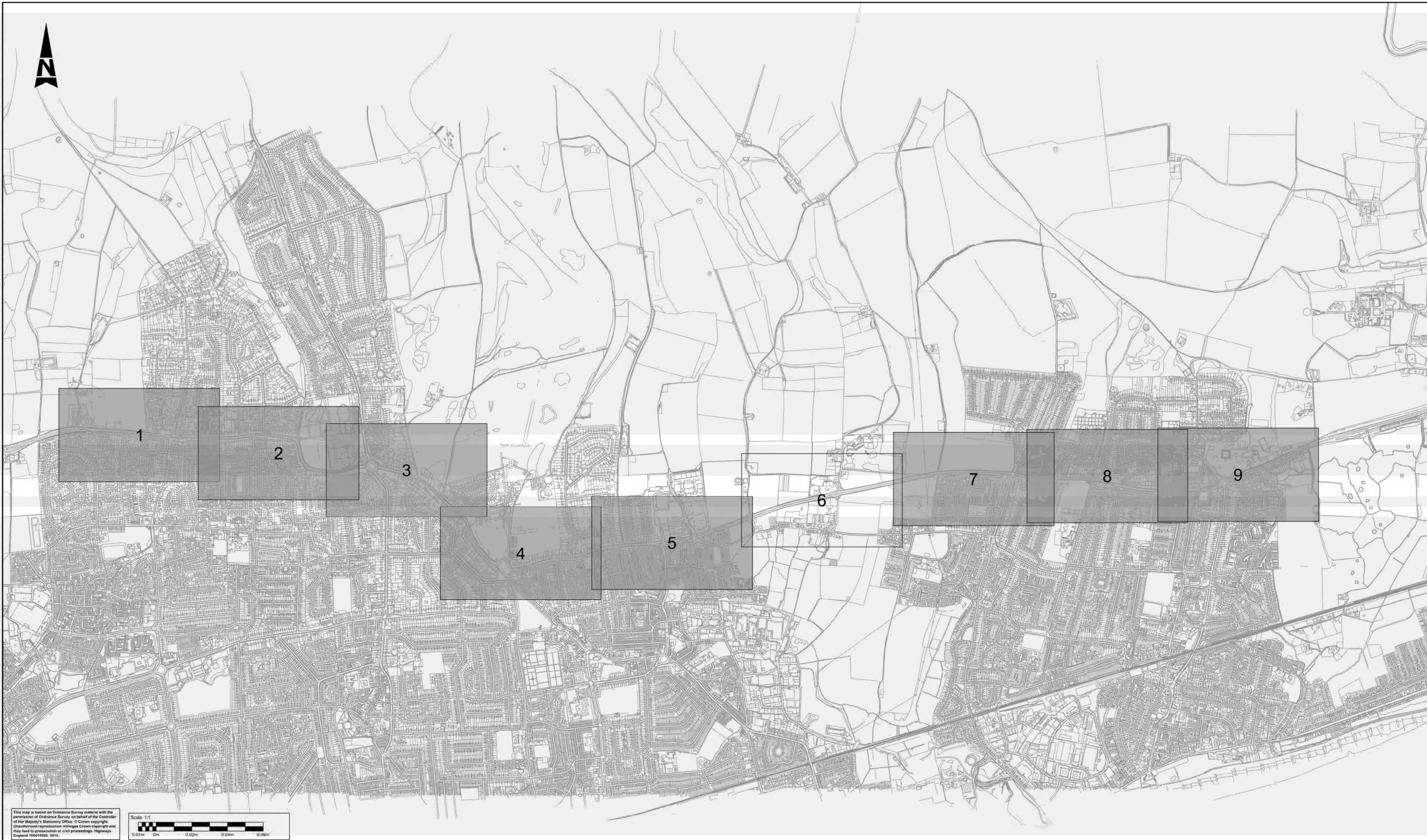
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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING				
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3 SHEET 9 OF 9				
Scale	Drawn	Checked	Approved	Authorised
1:1250				
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Drawing Number	Project	Originator	Volume	Project Ref. No.
	HE551524 - WSP - HGN - A27WL - DR - D - 0030			3514447F
Location	Type	Role	Number	Revision
				P01.1

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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS**

Suitability: **S0**

Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**



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Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A OVERVIEW PLAN**

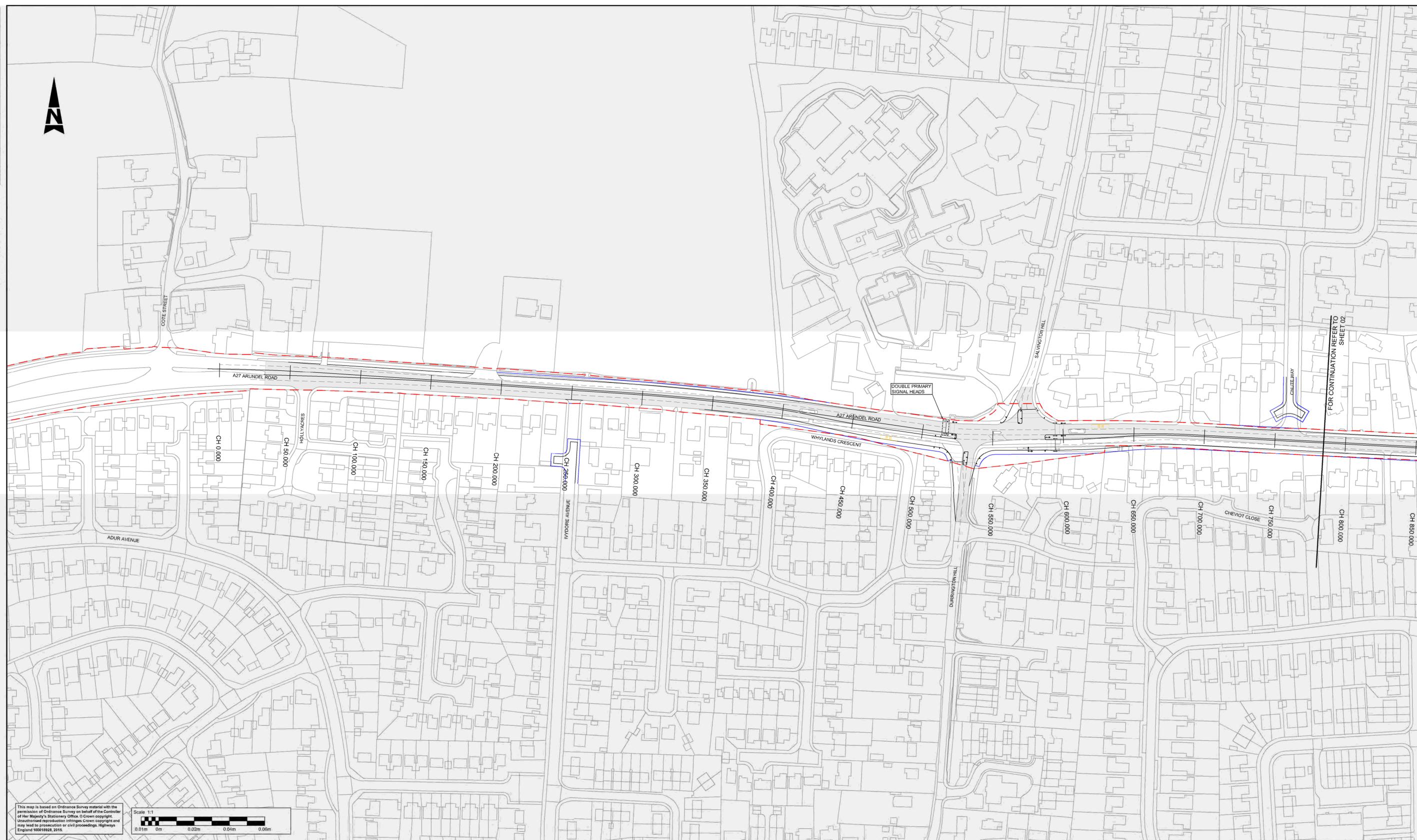
Client: **Working on behalf of**



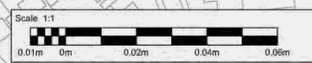
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NTS	---	---	---	---
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A1	---	---	---	---
Drawing Number	Project	Originator	Volume	Project Ref. No.
	HE551524 - WSP - HGN - A27WL - DR - D - 0121			3514447F
Location	Type	Rate	Number	Revision
				P01.1

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0 10 100
Millimetres



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 - EXISTING HIGHWAY CARRIAGEWAY
 - EXISTING ROAD MARKINGS
 - PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED RETAINING WALL
 - PROPOSED ROAD MARKINGS
 - DIRECTLY IMPACTED WITH DEMOLITION REQUIRED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).			
Construction	(Enter "None" if applicable)		
Maintenance / Cleaning	(Enter "None" if applicable)		
Use	(Enter "None" if applicable)		
Decommissioning / Demolition	(Enter "None" if applicable)		
Rev.	Date	Description	By
P01.1	---	First Issue	---

Drawing Status: **WORK IN PROGRESS**

Client: **Working on behalf of highways england**

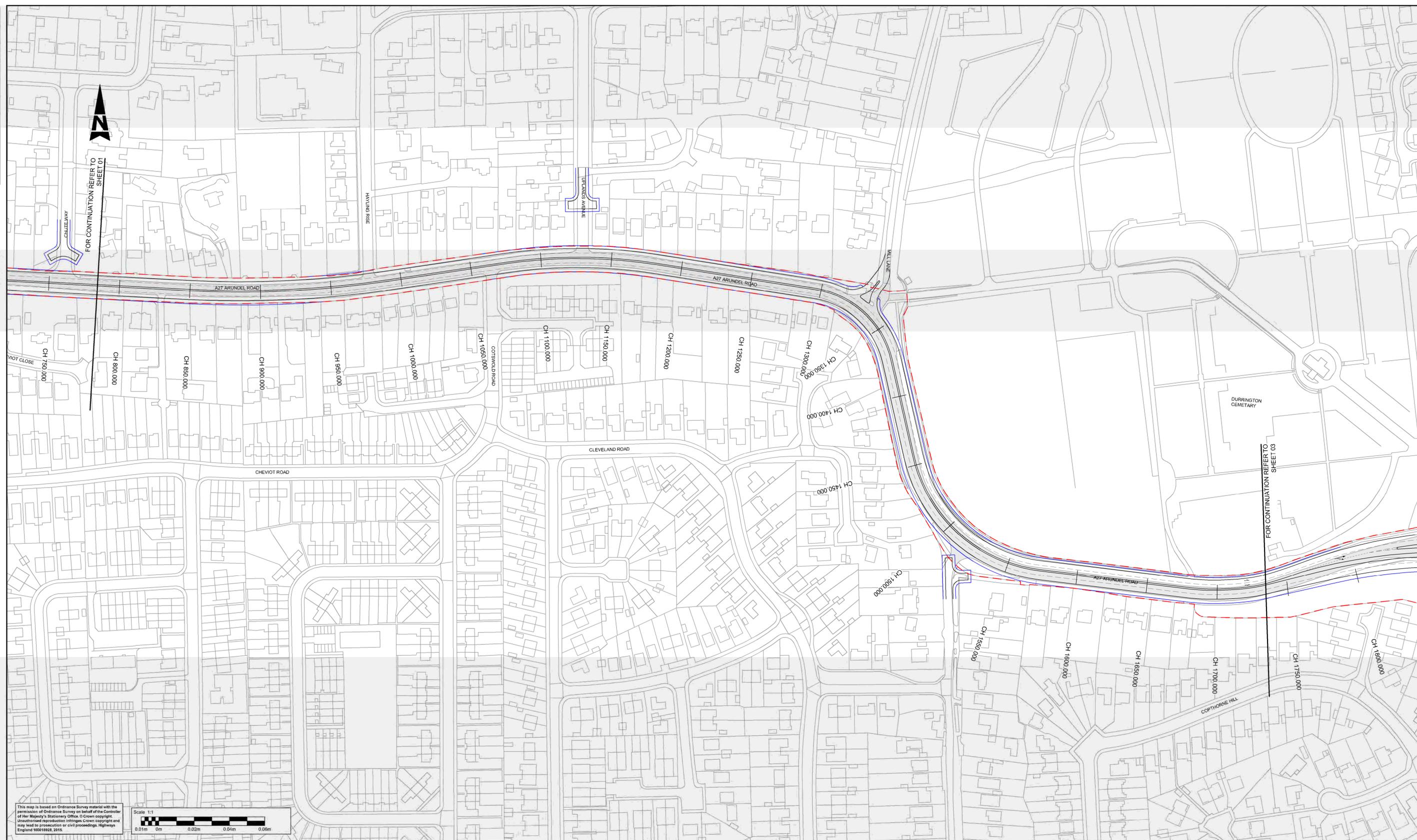
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Project Title		REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING			
Drawing Title		INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 1 OF 9			
Scale	1:1250	Drawn	Checked	Approved	Authorised
Original Size	A1	Date	Date	Date	Date
Drawing Number	HE551524 - WSP - HGN - A27WL - DR - D - 0122	Project	Volume	Project Ref. No.	3514447F
Location	Type	Role	Number	Revision	P01.1

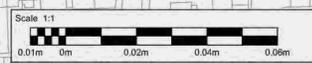
DO NOT SCALE

Millimetres

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 - EXISTING ROAD MARKINGS
 - PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED RETAINING WALL
 - PROPOSED ROAD MARKINGS
 - DIRECTLY IMPACTED WITH DEMOLITION REQUIRED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).			
Construction	(Enter "None" if applicable)		
Maintenance / Cleaning	(Enter "None" if applicable)		
Use	(Enter "None" if applicable)		
Decommissioning / Demolition	(Enter "None" if applicable)		

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 2 OF 9**

Scale	Drawn	Checked	Approved	Authorised
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Original Size	Date	Date	Date	Date
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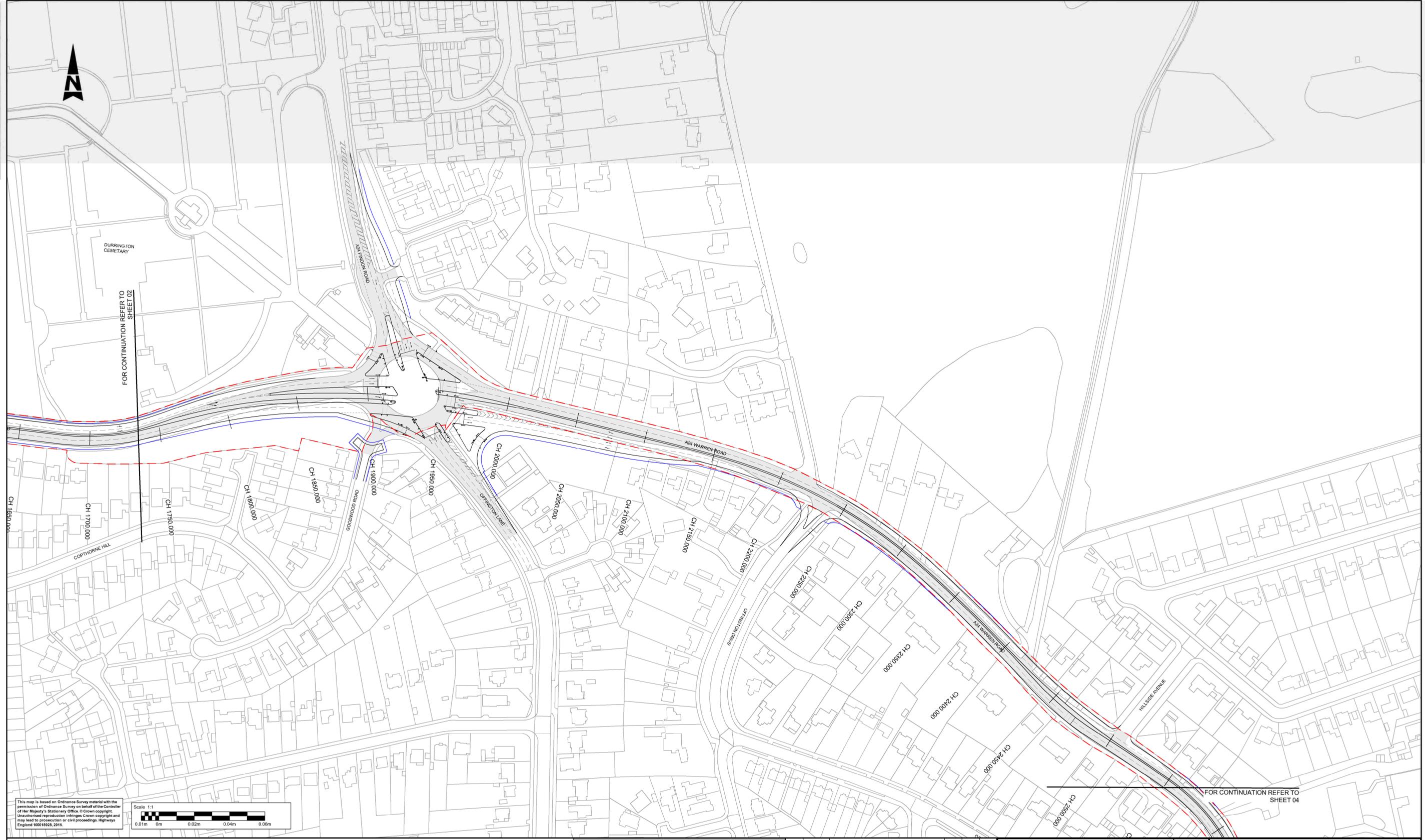
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A27WL-DR-D-0123	HE551524 - WSP - HGN - A27WL-DR-D-0123	---	---	3514447F

Location	Type	Role	Number
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Millimetres

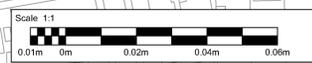
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FOR CONTINUATION REFER TO SHEET 02

FOR CONTINUATION REFER TO SHEET 04

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 - PROPOSED EDGING KERBLINE
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
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Construction	(Enter "None" if applicable)		
Maintenance / Cleaning	(Enter "None" if applicable)		
Use	(Enter "None" if applicable)		
Decommissioning / Demolition	(Enter "None" if applicable)		

Rev.	Date	Description	By	Chkd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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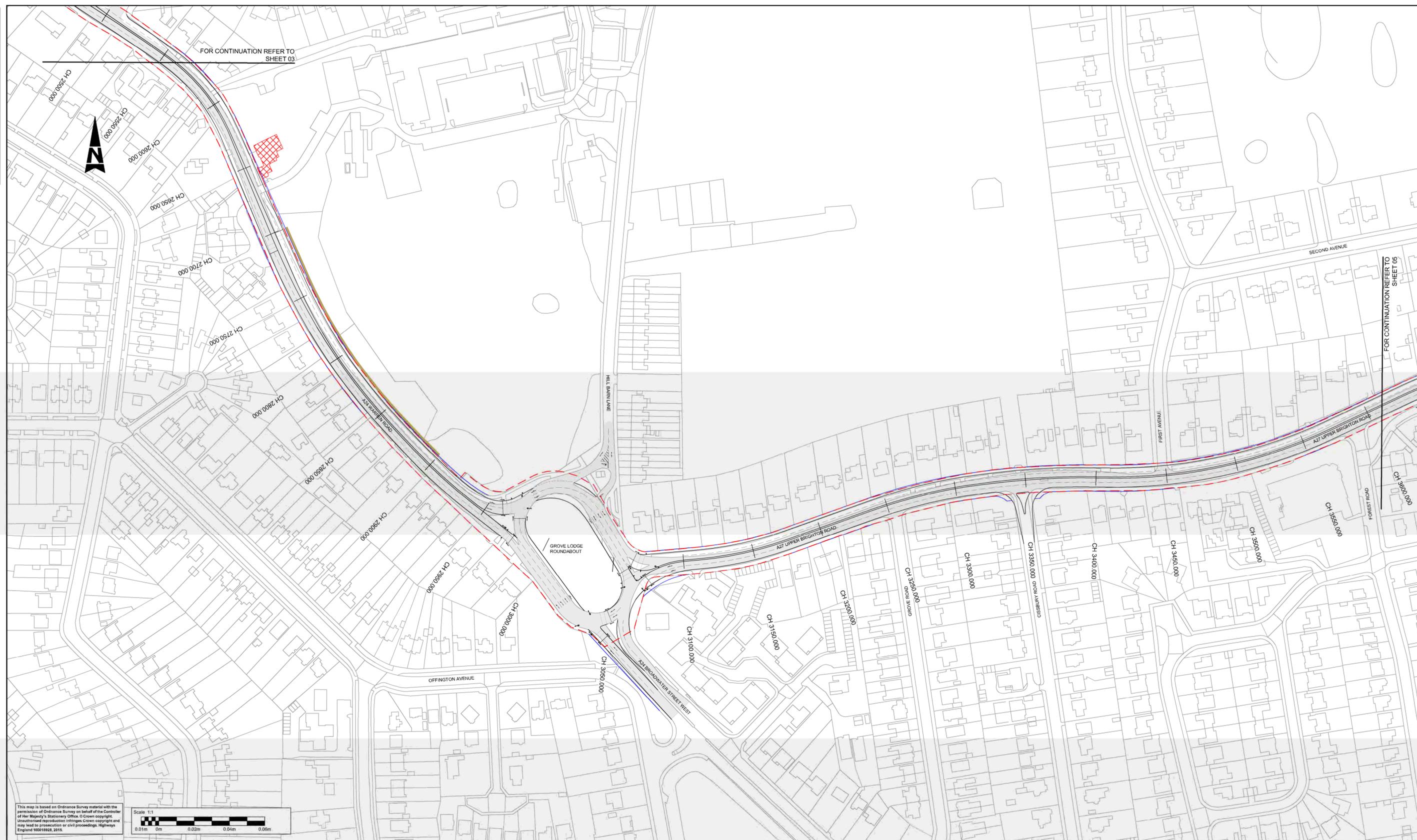
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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 3 OF 9					
Scale	1:1250	Drawn	---	Checked	---
Original Size	A1	Date	---	Date	---
Drawing Number	HE551524 - WSP - HGN - A27WL - DR - D - 0124	Volume	---	Project Ref. No.	3514447F
Project	HE551524 - WSP - HGN - A27WL - DR - D - 0124	Revision	---	Project Ref. No.	P01.1
Location	---	Type	---	Role	---

DO NOT SCALE

Millimetres

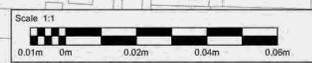
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FOR CONTINUATION REFER TO SHEET 03

FOR CONTINUATION REFER TO SHEET 05

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 - PROPOSED CARRIAGEWAY KERBLINE
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction
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Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 4 OF 9**

Scale	Drawn	Checked	Approved	Authorised
1:1250	---	---	---	---

Original Size	Date	Date	Date	Date
A1	---	---	---	---

Drawing Number	Project	Originator	Volume	Project Ref. No.
A1	HE551524 - WSP - HGN - A27WL - DR - D - 0125	---	---	3514447F

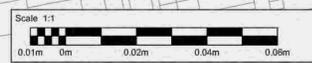
Location	Type	Role	Number	Revision
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0 10 100
Millimetres



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 - EXISTING ROAD MARKINGS
 - PROPOSED CARRIAGEWAY KERBLINE
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Use	(Enter "None" if applicable)
Decommissioning / Demolition	(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

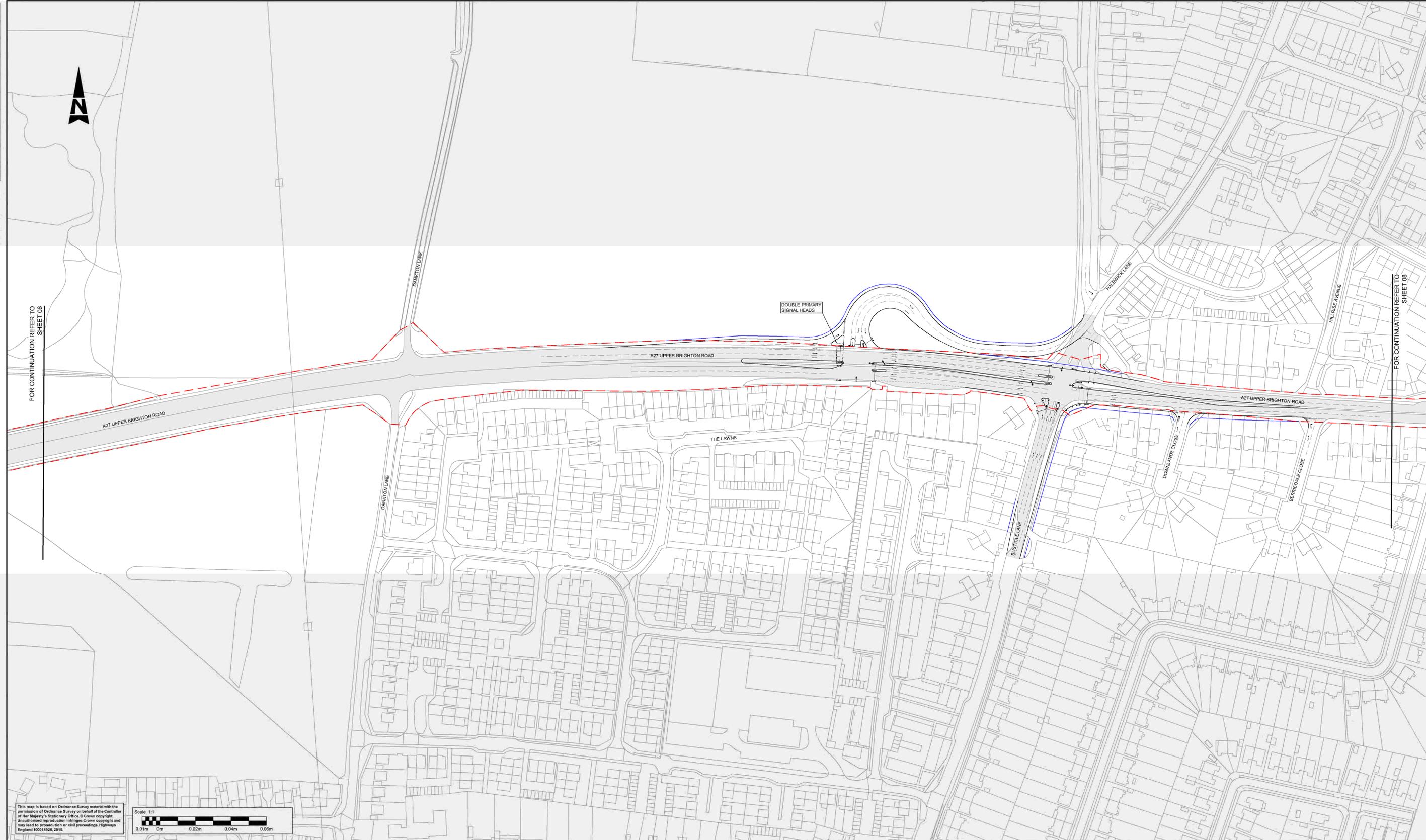
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Project Title: REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 5 OF 9					
Scale: 1:1250	Drawn: ---	Checked: ---	Approved: ---	Authorised: ---	
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Drawing Number: HE551524 - WSP - HGN - A27WL - DR - D - 0126	Project: ---	Originator: ---	Volume: ---	Project Ref. No.: 3514447F	
Location: ---	Type: ---	Role: ---	Number: ---	Revision: P01.1	

DO NOT SCALE

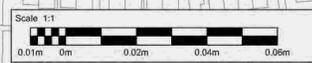
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FOR CONTINUATION REFER TO SHEET 06

FOR CONTINUATION REFER TO SHEET 08

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- KEY:**
- EXISTING HIGHWAYS ENGLAND BOUNDARY
 - EXISTING HIGHWAY CARRIAGEWAY
 - EXISTING ROAD MARKINGS
 - PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED RETAINING WALL
 - PROPOSED ROAD MARKINGS
 - DIRECTLY IMPACTED WITH DEMOLITION REQUIRED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).			
Construction (Enter "None" if applicable)			
Maintenance / Cleaning (Enter "None" if applicable)			
Use (Enter "None" if applicable)			
Decommissioning / Demolition (Enter "None" if applicable)			
Rev.	Date	Description	By
P01.1	---	First Issue	---

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

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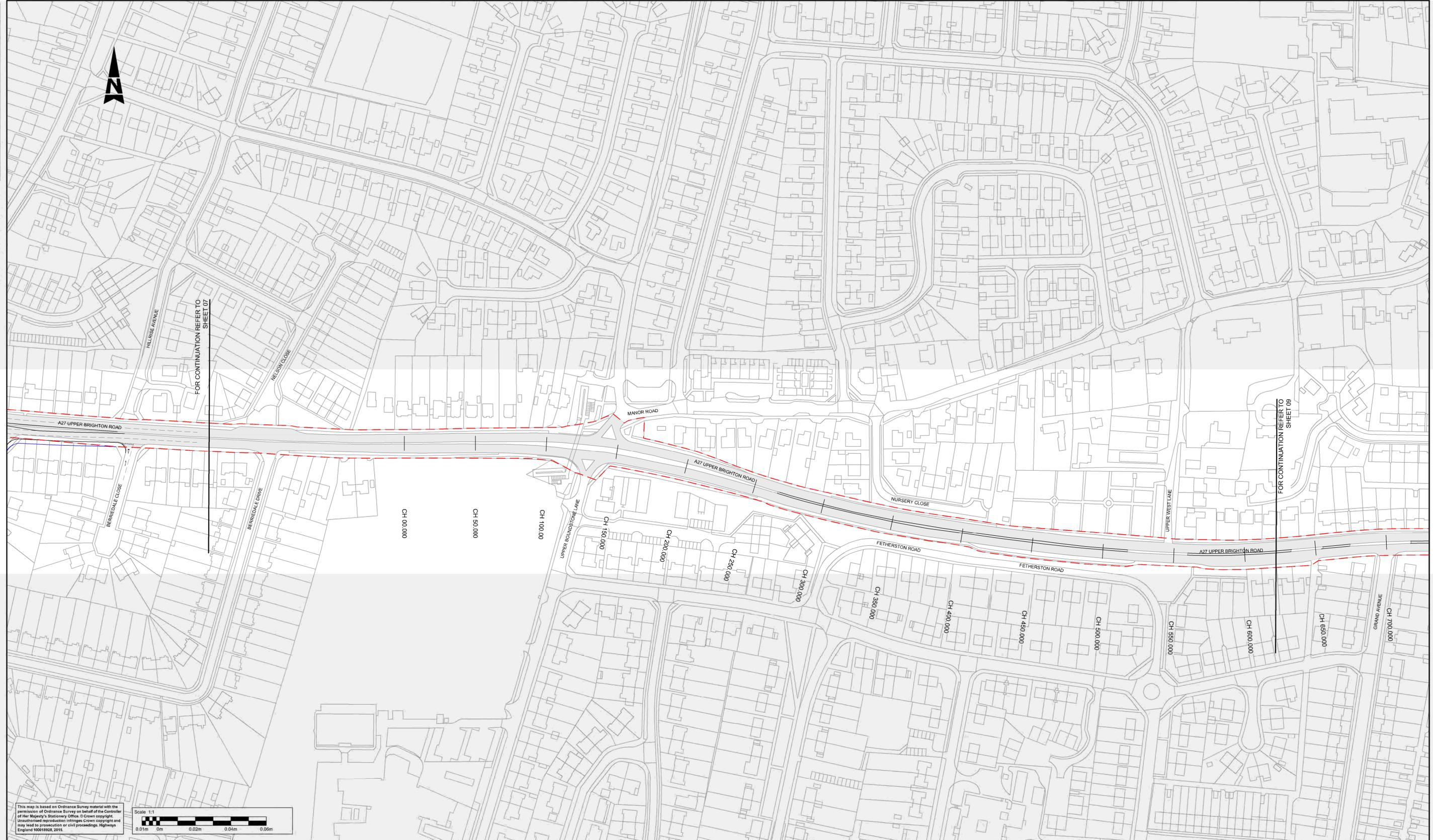
Client: **Working on behalf of highways england**

REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 7 OF 9					
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Drawing Number: HE551524 - WSP - HGN - A27WL - DR - D - 0128	Project: ---	Originator: ---	Volume: ---	Project Ref. No.: 3514447F	
Location: ---	Type: ---	Role: ---	Number: ---	Revision: P01.1	

DO NOT SCALE

Millimetres

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 - PROPOSED EDGING KERBLINE
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
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Construction (Enter "None" if applicable)			
Maintenance / Cleaning (Enter "None" if applicable)			
Use (Enter "None" if applicable)			
Decommissioning / Demolition (Enter "None" if applicable)			
Rev.	Date	Description	By
P01.1	---	First Issue	---

Rev.	Date	Description	By	Chk'd	App'd
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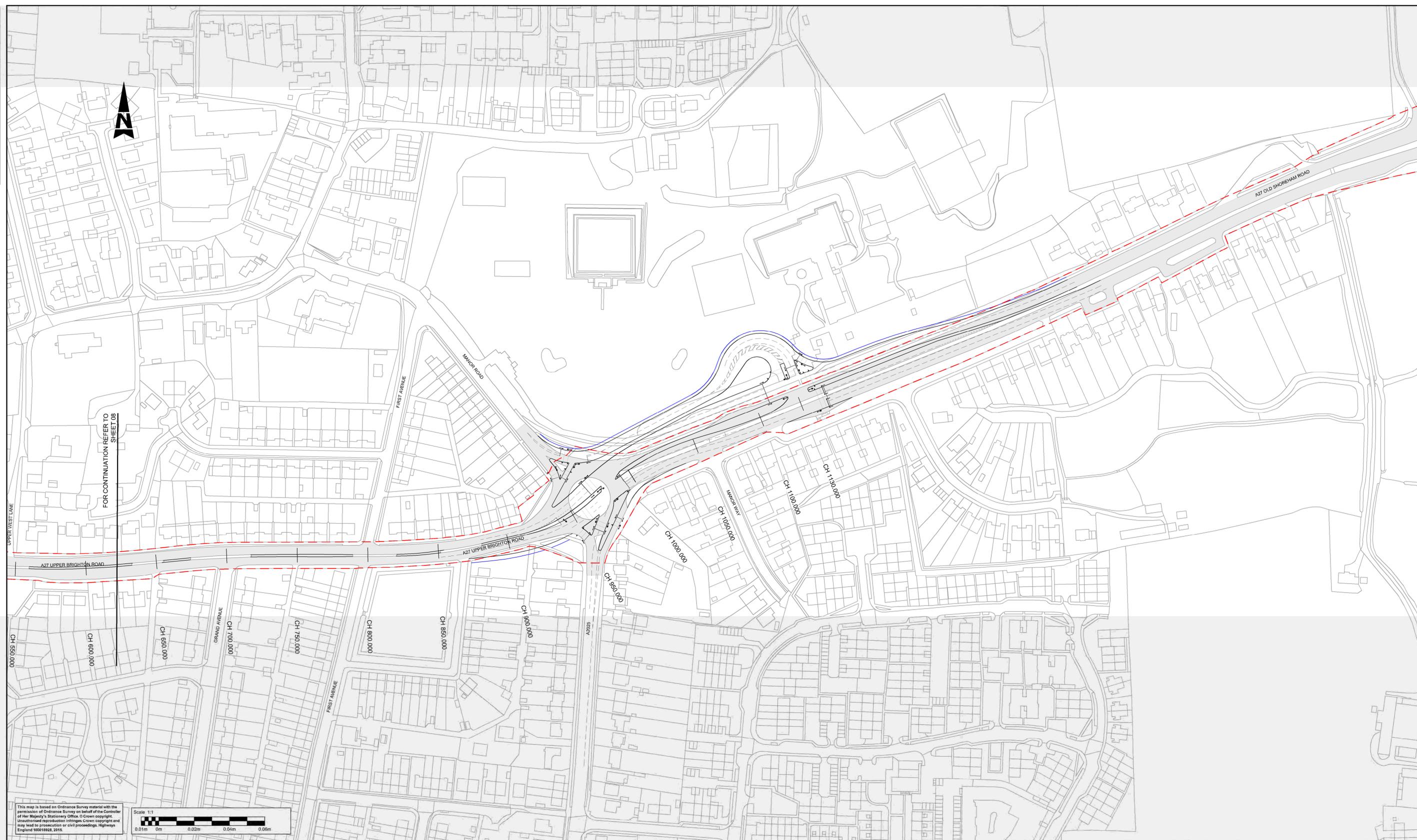
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Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 8 OF 9					
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Drawing Number: Project	HE551524 - WSP - HGN - A27WL - DR - D - 0129	Volume: Originator	Revision: Number	Project Ref. No.: 3514447F	
Location: Type	Role	Number	Revision: P01.1		

DO NOT SCALE

Millimetres

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100



FOR CONTINUATION REFER TO SHEET 08

UPPER WEST LANE

CH 000 050 000

CH 600 000 000

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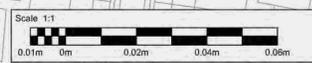
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 - PROPOSED RETAINING WALL
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
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Construction (Enter "None" if applicable)			
Maintenance / Cleaning (Enter "None" if applicable)			
Use (Enter "None" if applicable)			
Decommissioning / Demolition (Enter "None" if applicable)			
Rev.	Date	Description	By
P01.1	---	First Issue	---

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

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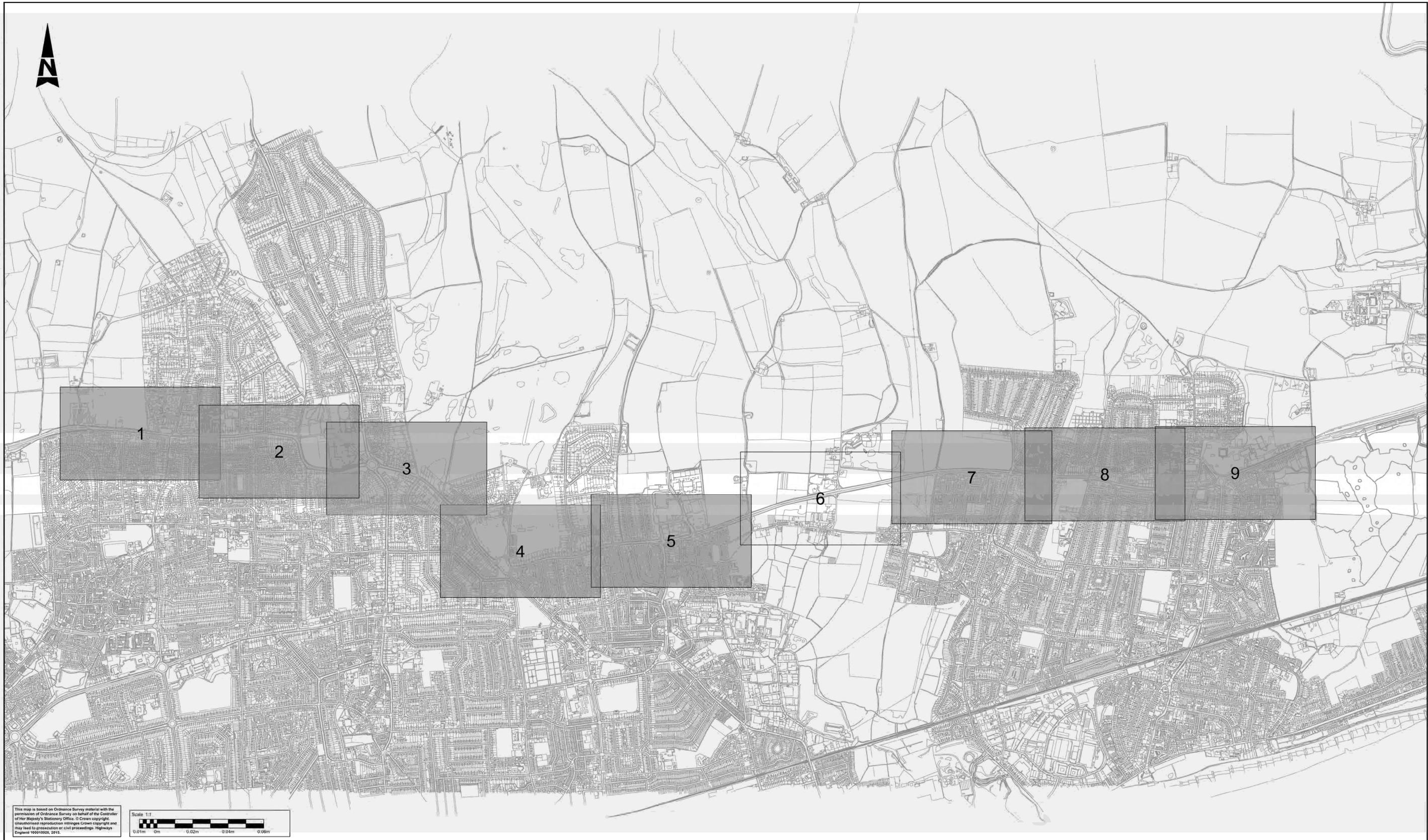
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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 9 OF 9					
Scale	1:1250	Drawn	Checked	Approved	Authorised
Original Size	A1	Date	Date	Date	Date
Drawing Number	HE551524 - WSP - HGN - A27WL - DR - D - 0130	Project	Volume	Project Ref. No.	Revision
Location	---	Type	Role	Number	P01.1

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Millimetres
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Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chk'd	App'd
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Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A OVERVIEW PLAN**

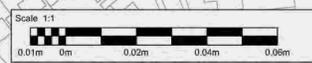
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	HE551524 - WSP - HGN - A27WL - DR - D - 0121			3514447F
Location	Type	Rate	Number	Revision
				P01.1

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Millimetres



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

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Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

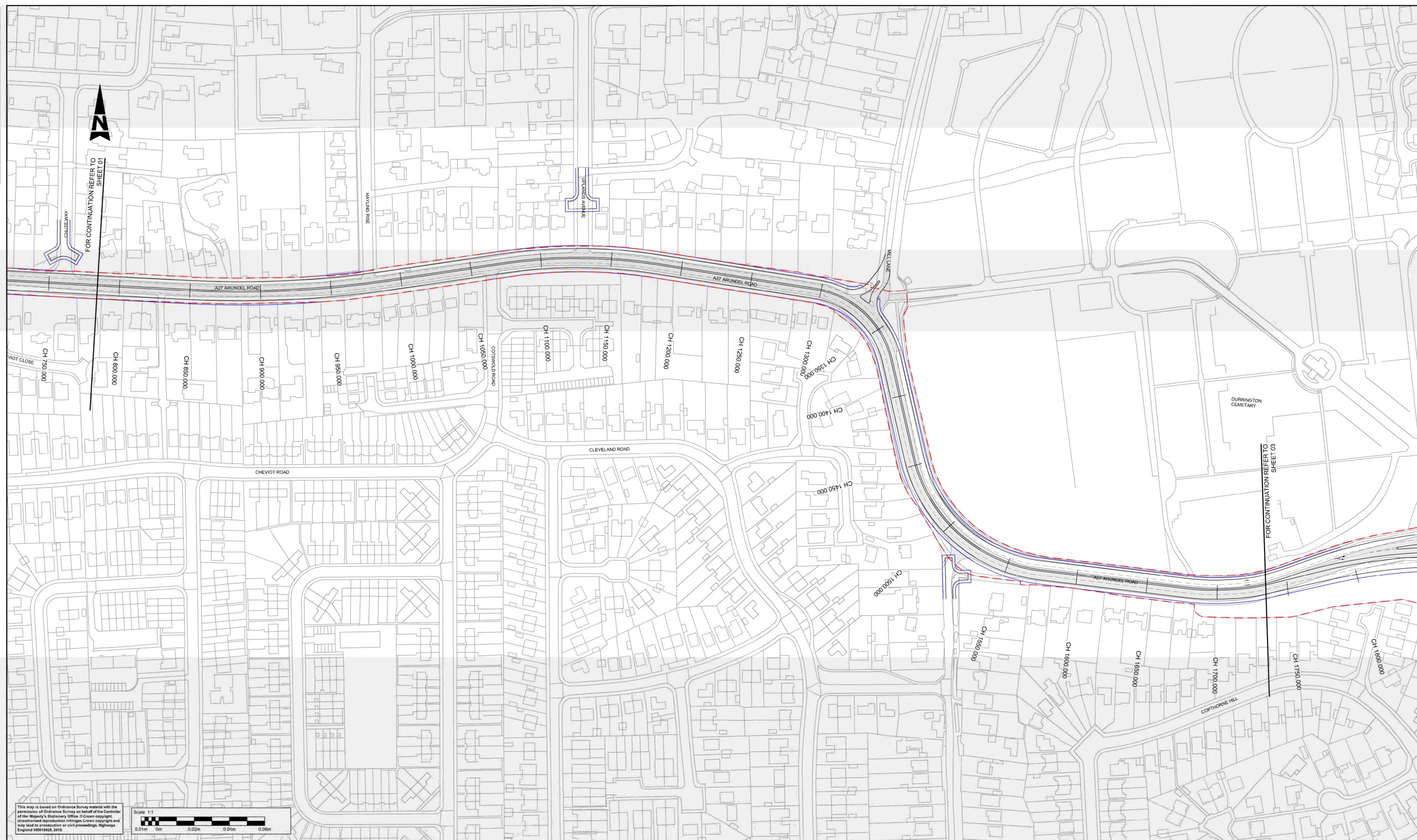
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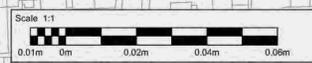
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Millimetres

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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
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Construction	(Enter "None" if applicable)		
Maintenance / Cleaning	(Enter "None" if applicable)		
Use	(Enter "None" if applicable)		
Decommissioning / Demolition	(Enter "None" if applicable)		

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

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Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 2 OF 9**

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Original Size	Date	Date	Date	Date
A1	---	---	---	---

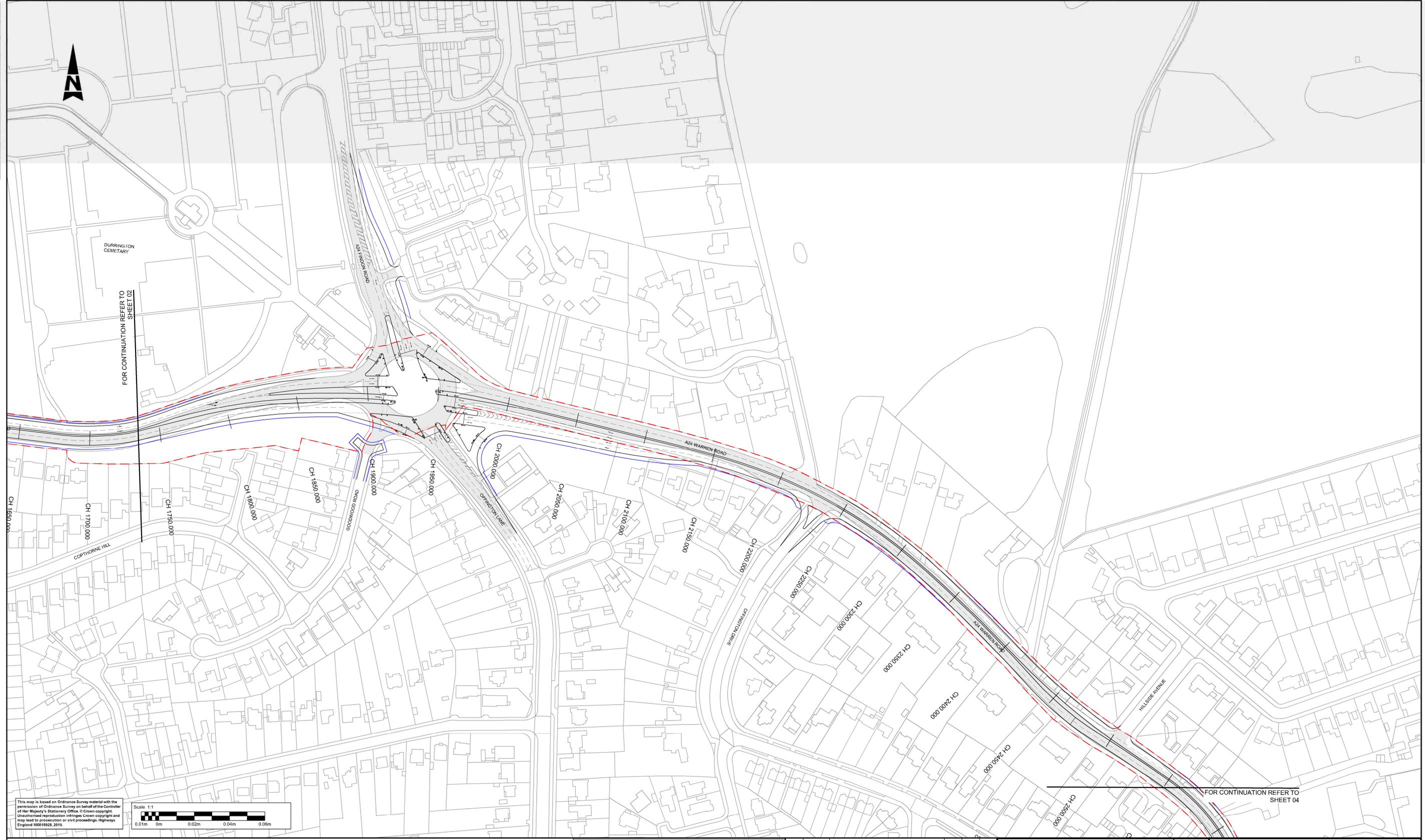
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Location	Type	Role	Number
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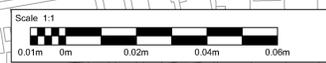
DO NOT SCALE

Millimetres

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 - PROPOSED RETAINING WALL
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
(Enter "None" if applicable)

Maintenance / Cleaning
(Enter "None" if applicable)

Use
(Enter "None" if applicable)

Decommissioning / Demolition
(Enter "None" if applicable)

Rev.	Date	Description	By	Chkd	App'd
P01.1	---	First Issue	---	---	---

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Suitability: **S0**

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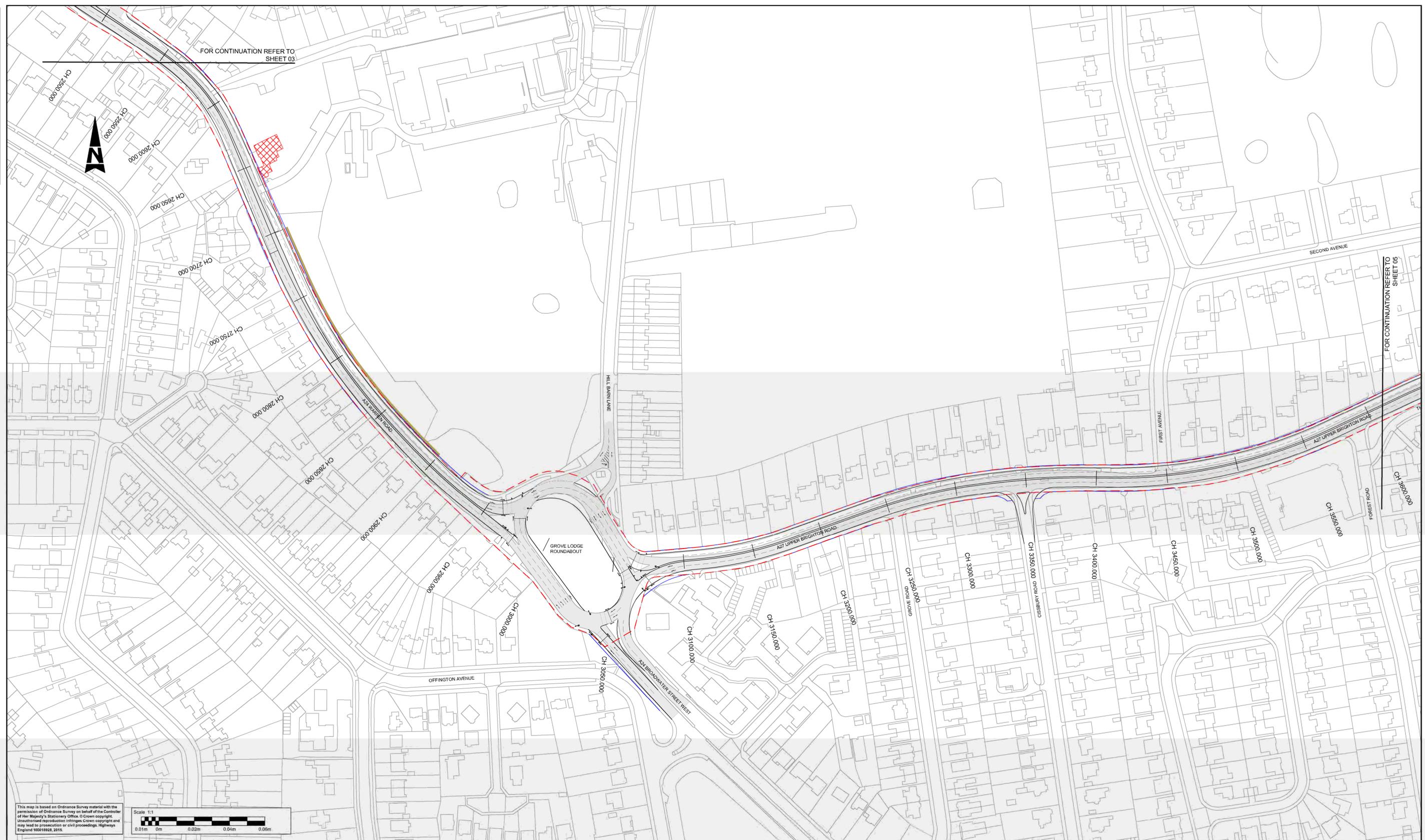
Client: **Working on behalf of**

Project Title: REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
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DO NOT SCALE

Millimetres

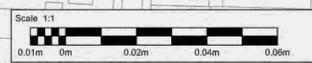
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Use (Enter "None" if applicable)	
Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

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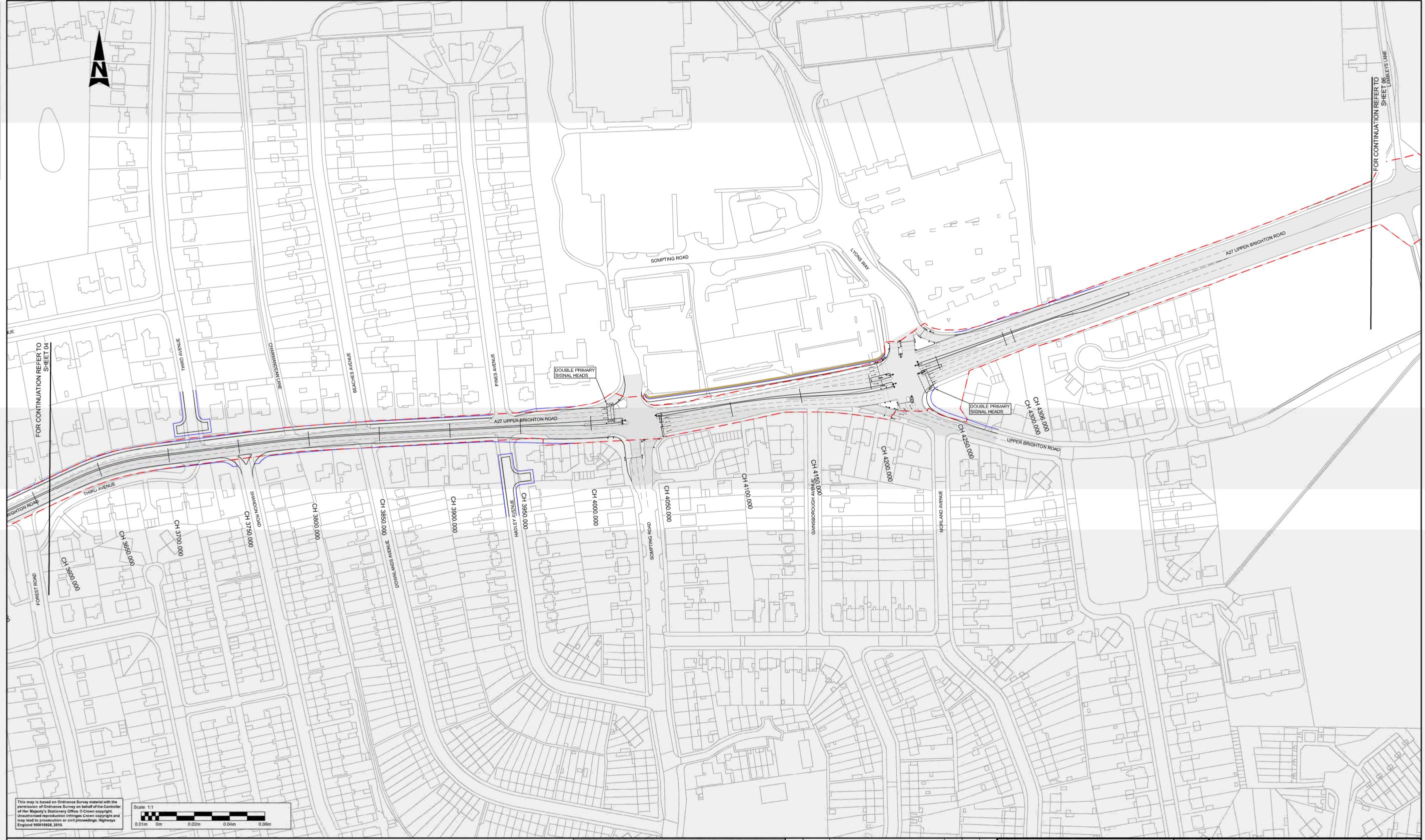
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Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 4 OF 9**

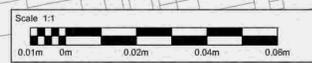
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								3514447F	
Location		Type		Role		Number		Revision	
								P01.1	

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Millimetres



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Decommissioning / Demolition (Enter "None" if applicable)	

Rev.	Date	Description	By	Chk'd	App'd
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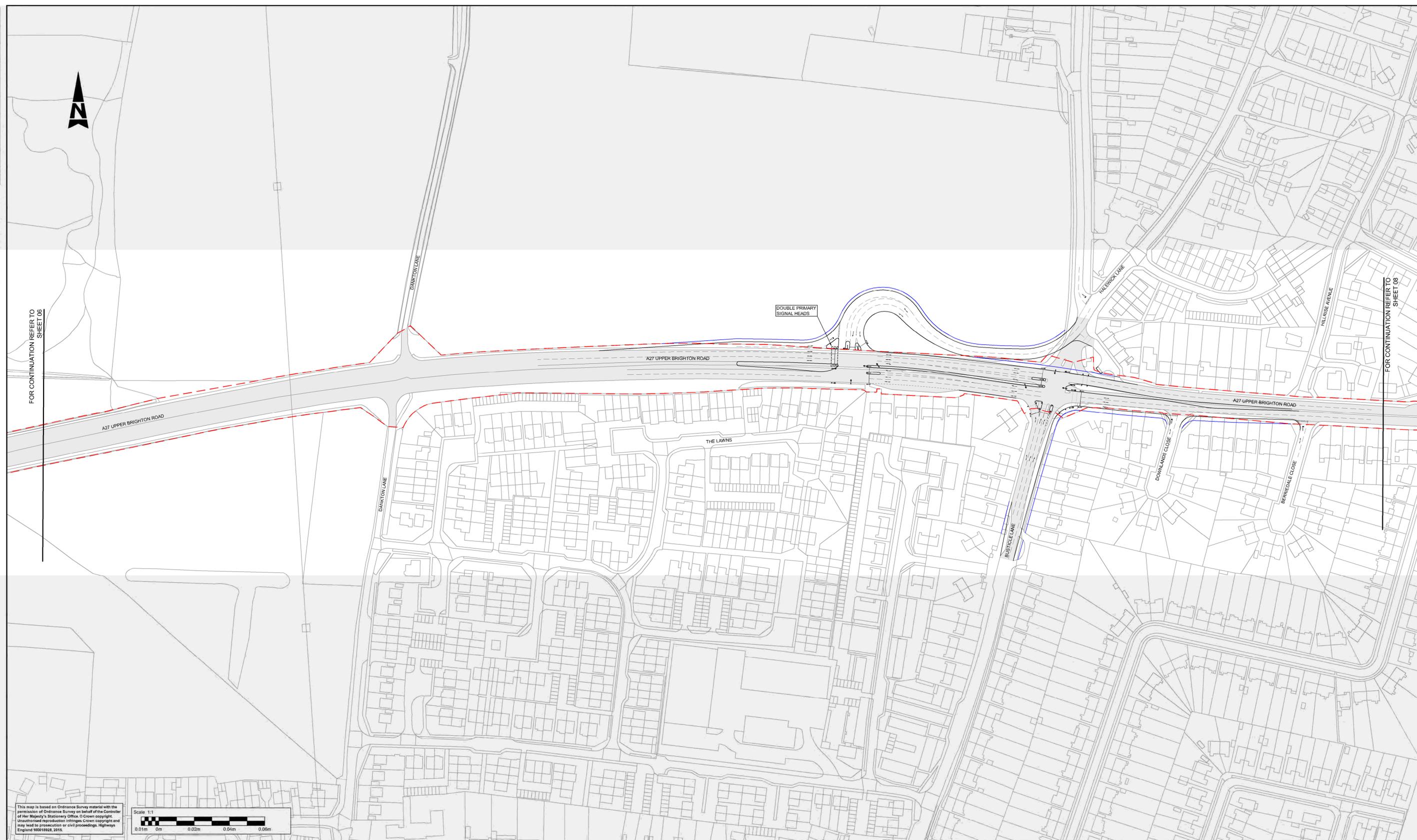
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INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 5 OF 9					
Scale	Drawn	Checked	Approved	Authorised	
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Drawing Number	Project		Originator	Volume	Project Ref. No.
A1	HE551524 - WSP - HGN - A27WL - DR - D - 0126		I	I	3514447F
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DO NOT SCALE

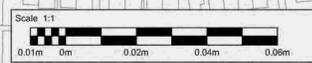
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Rev.	Date	Description	By
P01.1	---	First Issue	---

Rev.	Date	Description	By	Chk'd	App'd
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Project Title: **REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING**

Drawing Title: **INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 7 OF 9**

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Original Size	Date	Date	Date	Date
A1	---	---	---	---

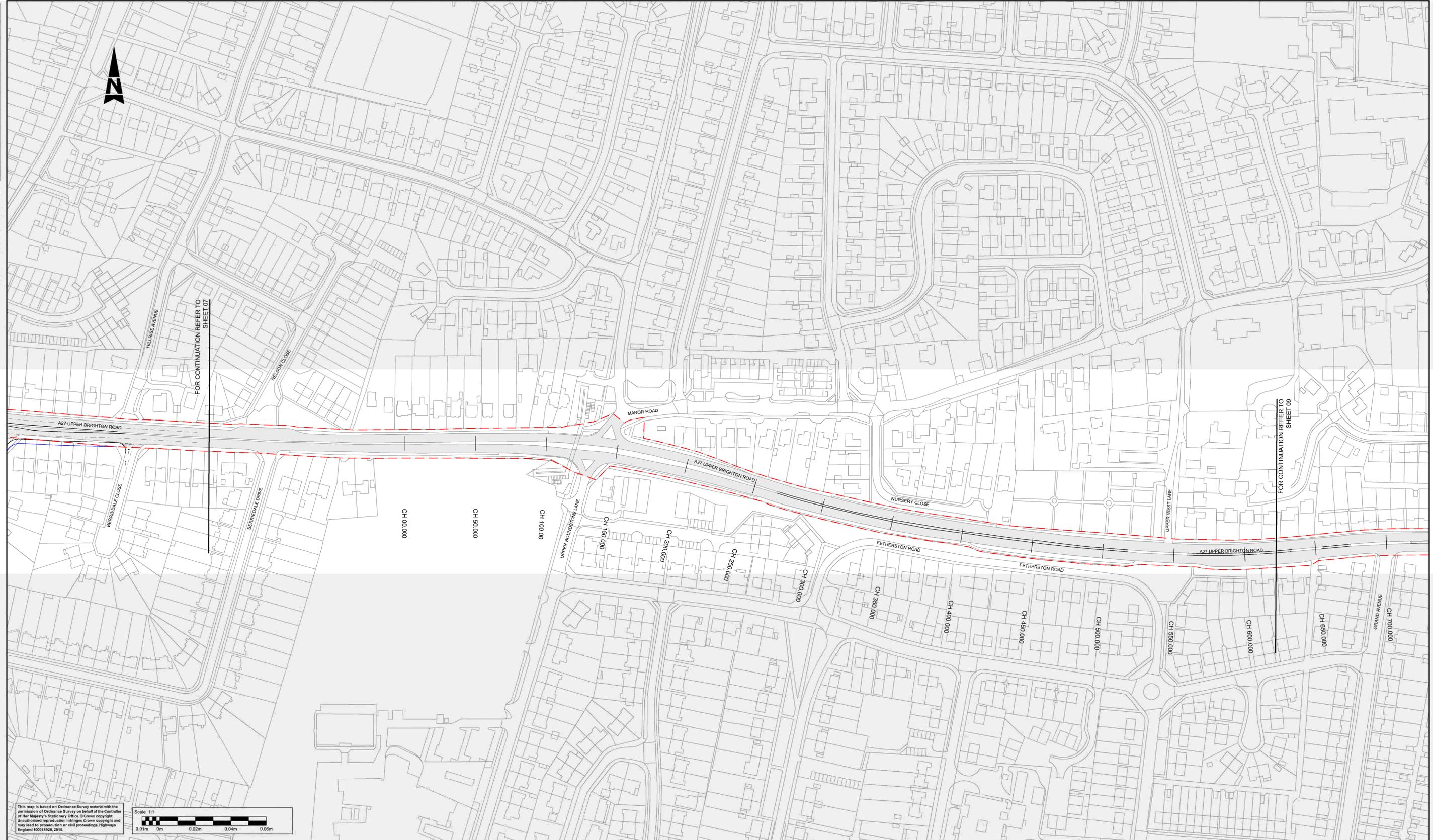
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Revision	Number
P01.1	---

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 - PROPOSED CARRIAGEWAY KERBLINE
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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
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Construction	(Enter "None" if applicable)		
Maintenance / Cleaning	(Enter "None" if applicable)		
Use	(Enter "None" if applicable)		
Decommissioning / Demolition	(Enter "None" if applicable)		

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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www.wsp-pb.com

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Client: **Working on behalf of highways england**

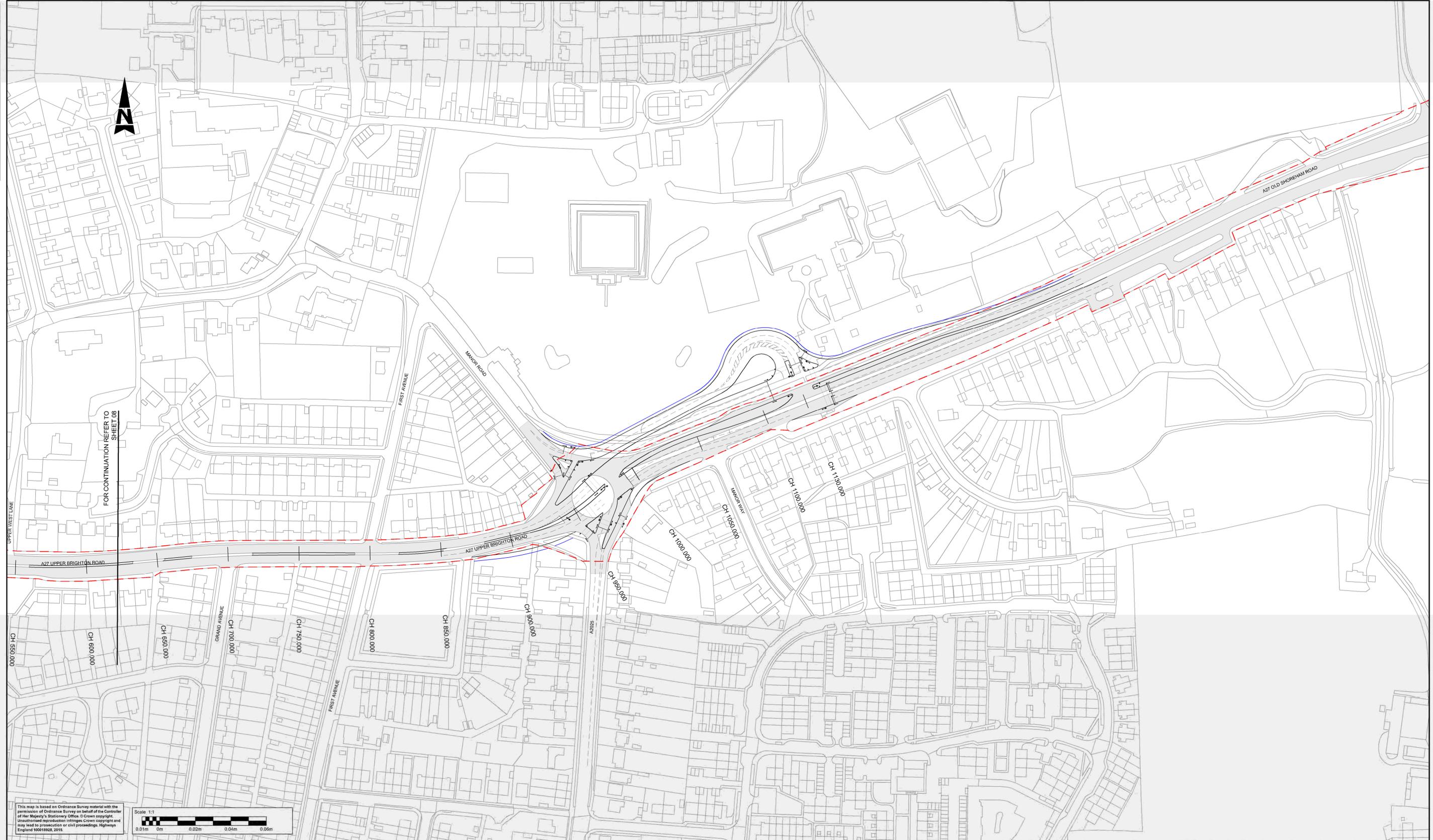
REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
Drawing Title: INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 8 OF 9					
Scale: 1:1250	Drawn: ---	Checked: ---	Approved: ---	Authorised: ---	
Original Size: A1	Date: ---	Date: ---	Date: ---	Date: ---	
Drawing Number: Project	Initiator: HE551524 - WSP - HGN - A27WL - DR - D - 0129			Project Ref. No.: 3514447F	
Location:	Type:	Role:	Number:	Revision: P01.1	

DO NOT SCALE

Millimetres

0 10

100



FOR CONTINUATION REFER TO SHEET 08

UPPER WEST LANE

CH 000,000

CH 600,000

CH 650,000

CH 700,000

CH 750,000

CH 800,000

CH 850,000

CH 900,000

CH 950,000

CH 1000,000

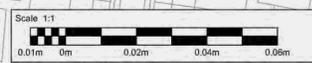
CH 1050,000

CH 1100,000

CH 1150,000

A27 OLD SHOREHAM ROAD

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- KEY:**
- EXISTING HIGHWAYS ENGLAND BOUNDARY
 - EXISTING HIGHWAY CARRIAGEWAY
 - EXISTING ROAD MARKINGS
 - PROPOSED CARRIAGEWAY KERBLINE
 - PROPOSED EDGING KERBLINE
 - PROPOSED RETAINING WALL
 - PROPOSED ROAD MARKINGS
 - DIRECTLY IMPACTED WITH DEMOLITION REQUIRED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION			
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).			
Construction	(Enter "None" if applicable)		
Maintenance / Cleaning	(Enter "None" if applicable)		
Use	(Enter "None" if applicable)		
Decommissioning / Demolition	(Enter "None" if applicable)		
Rev.	Date	Description	By
P01.1	---	First Issue	---

Rev.	Date	Description	By	Chk'd	App'd
P01.1	---	First Issue	---	---	---

Drawing Status: **WORK IN PROGRESS** Suitability: **S0**

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REGIONAL INVESTMENT PROGRAMME A27 WORTHING AND LANCING					
INDICATIVE ALIGNMENT PROPOSALS LAYOUT OPTION 3A SHEET 9 OF 9					
Scale	1:1250	Drawn	Checked	Approved	Authorised
Original Size	A1	Date	Date	Date	Date
Drawing Number	HE551524 - WSP - HGN - A27WL - DR - D - 0130	Project	Volume	Project Ref. No.	Revision
Location	---	Type	Role	Number	P01.1

Appendix V

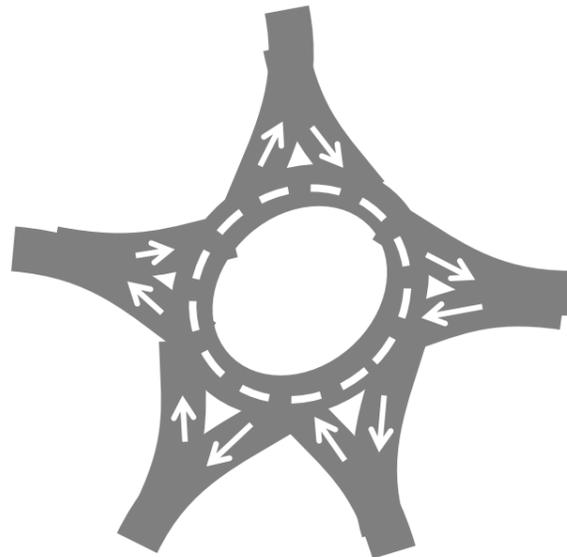
OPTIONS TRAFFIC FLOW DIAGRAMS

Worthing Lancing Assessment

Base (2016 only) AM Peak 20

Crockhurst Hill Roundabout

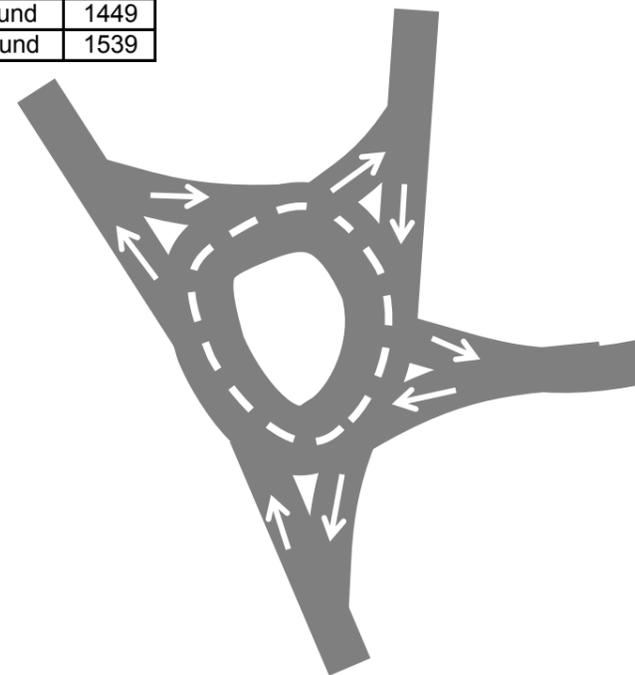
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Eastbound	1084
Westbound	1027



A24	
Eastbound	1449
Westbound	1539

Grove Lodge Roundabout

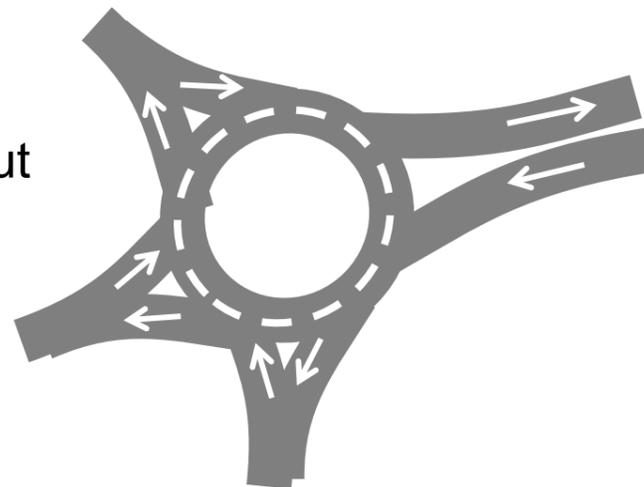
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Northbound	1449
Southbound	1539



A27	
Eastbound	1486
Westbound	1425

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1773
Westbound	1803



A27	
Eastbound	1917
Westbound	1575

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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NOTES:						FIGURE NUMBER					
						FIGURE TITLE					
						A27 Arundel Assessment Key Flows					

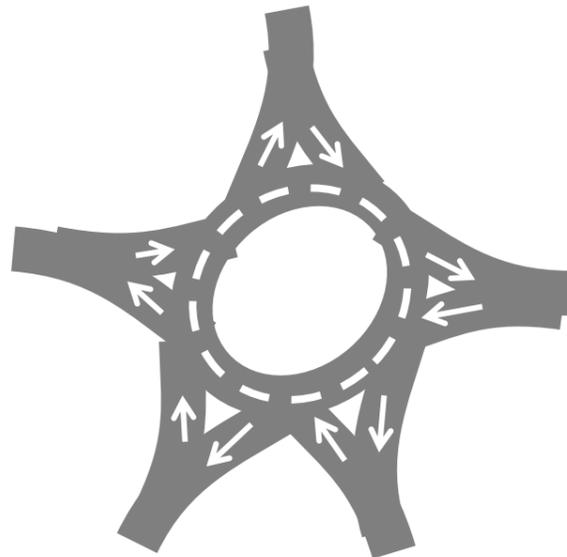


Worthing Lancing Assessment

Base (2016 only) IP Peak 201

Crockhurst Hill Roundabout

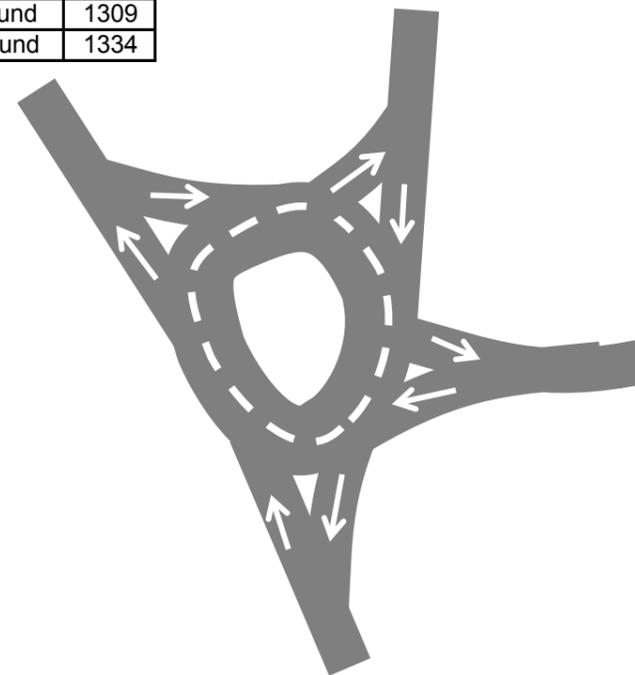
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Eastbound	960
Westbound	1019



A24	
Eastbound	1309
Westbound	1334

Grove Lodge Roundabout

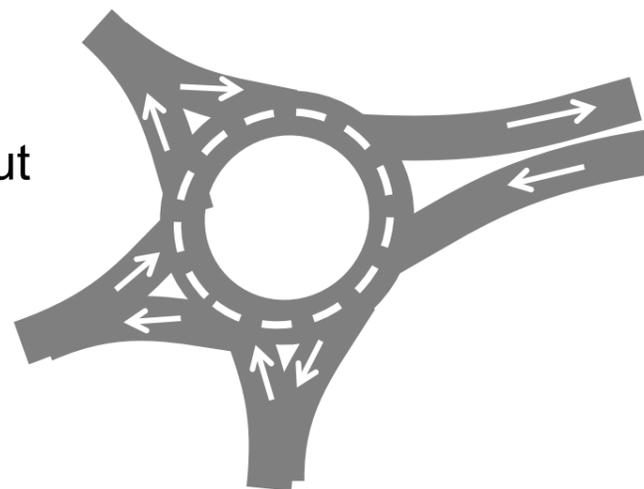
A24	
Northbound	1309
Southbound	1334



A27	
Eastbound	1330
Westbound	1206

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1355
Westbound	1496



A27	
Eastbound	1476
Westbound	1520

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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NOTES:						FIGURE NUMBER					
						FIGURE TITLE					
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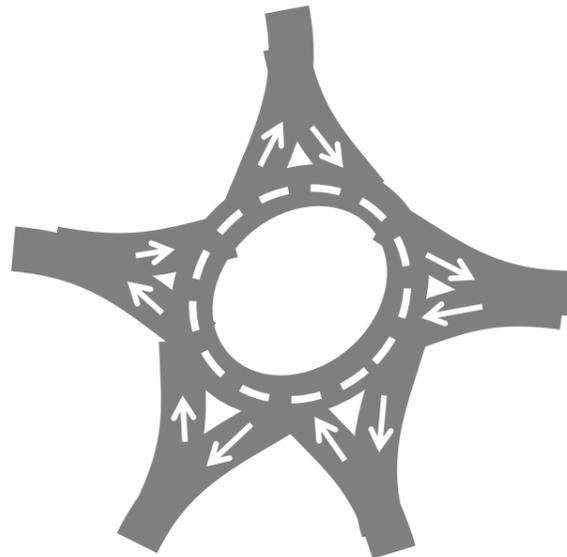


Worthing Lancing Assessment

Base (2016 only) PM Peak 20

Crockhurst Hill Roundabout

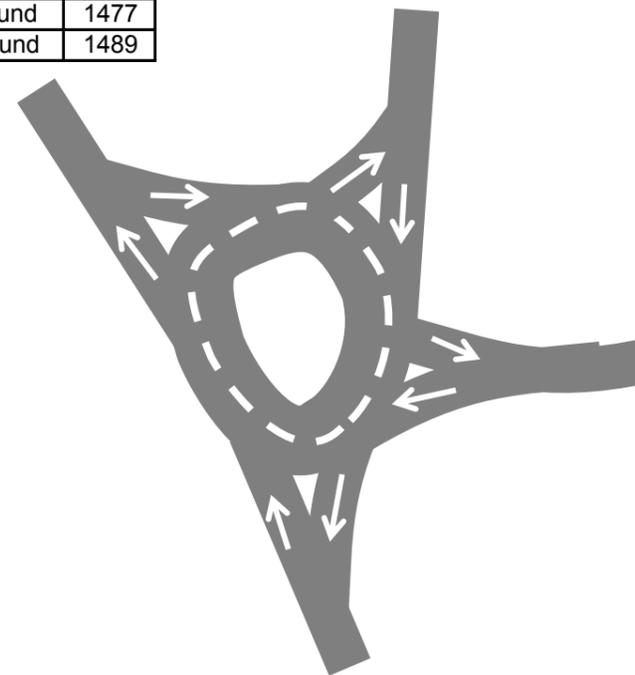
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Eastbound	1120
Westbound	1258



A24	
Eastbound	1477
Westbound	1489

Grove Lodge Roundabout

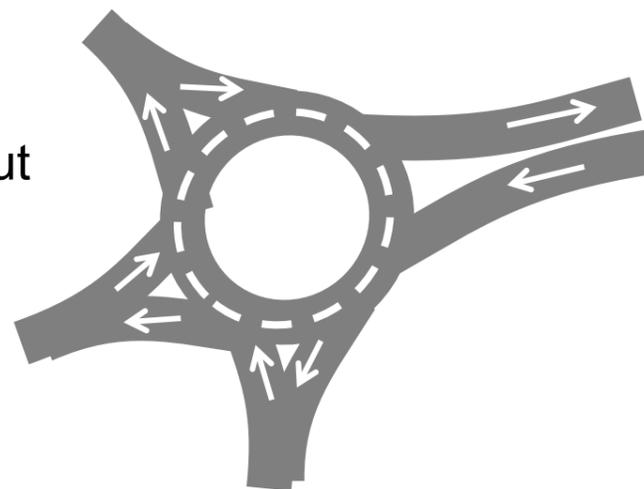
A24	
Northbound	1477
Southbound	1489



A27	
Eastbound	1500
Westbound	1411

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1774
Westbound	1722



A27	
Eastbound	1819
Westbound	1576

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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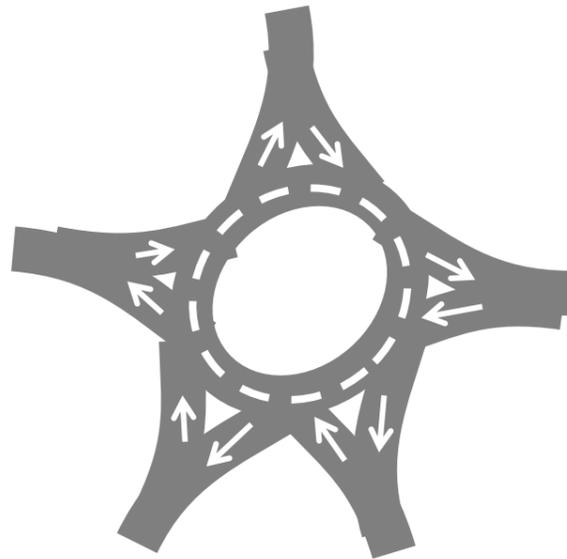


Worthing Lancing Assessment

DM AM Peak 2023

Crockhurst Hill Roundabout

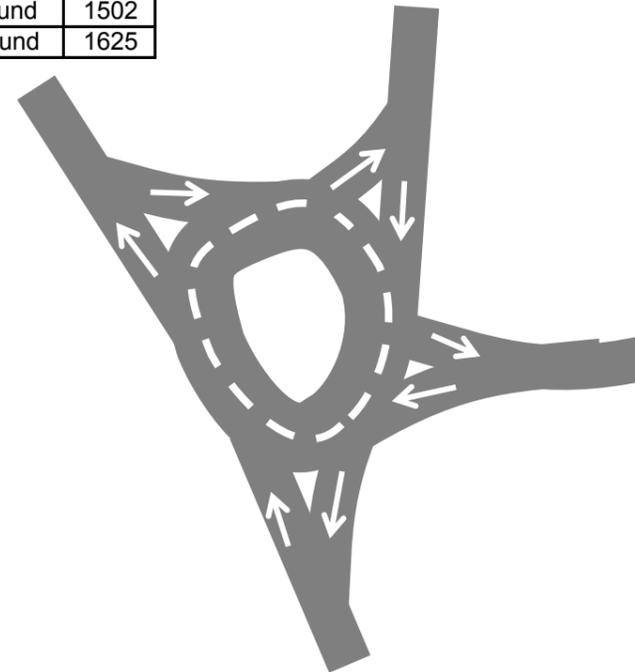
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Eastbound	1242
Westbound	1175



A24	
Eastbound	1502
Westbound	1625

Grove Lodge Roundabout

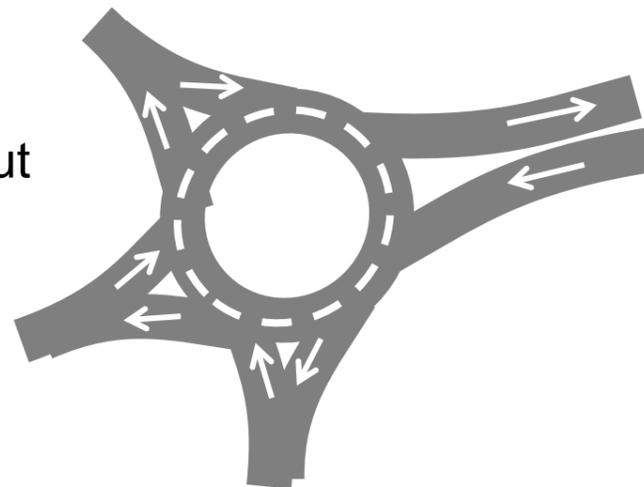
A24	
Northbound	1502
Southbound	1625



A27	
Eastbound	1492
Westbound	1471

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1793
Westbound	1769



A27	
Eastbound	1808
Westbound	1561

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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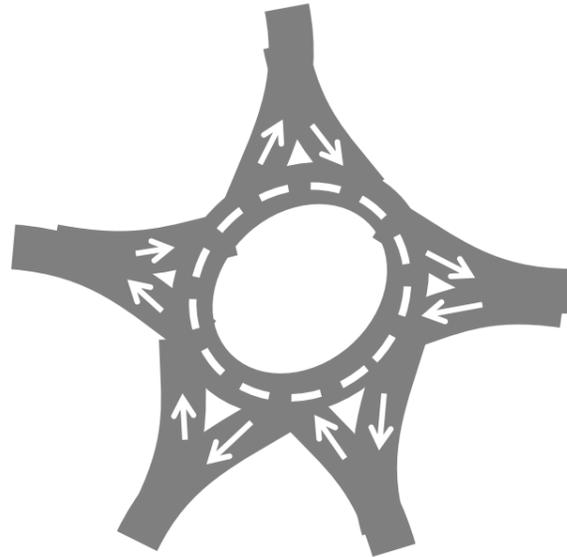


Worthing Lancing Assessment

DM IP Peak 2023

Crockhurst Hill Roundabout

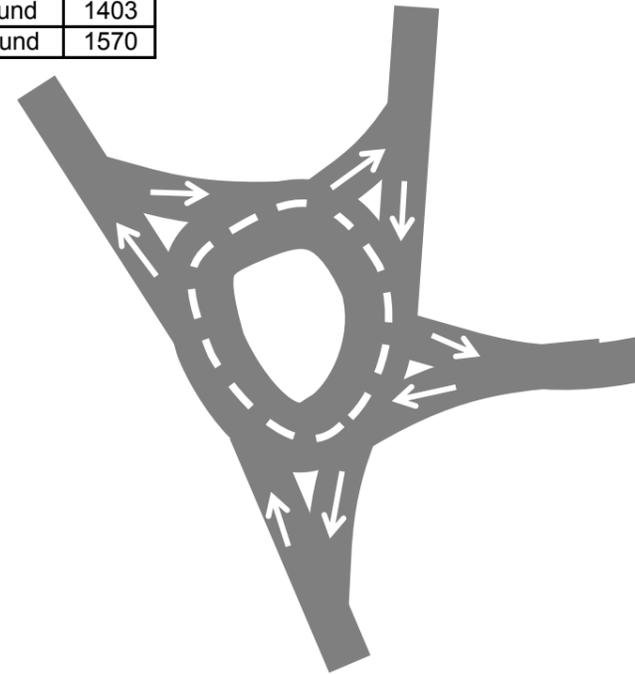
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Eastbound	1118
Westbound	1450



A24	
Eastbound	1403
Westbound	1570

Grove Lodge Roundabout

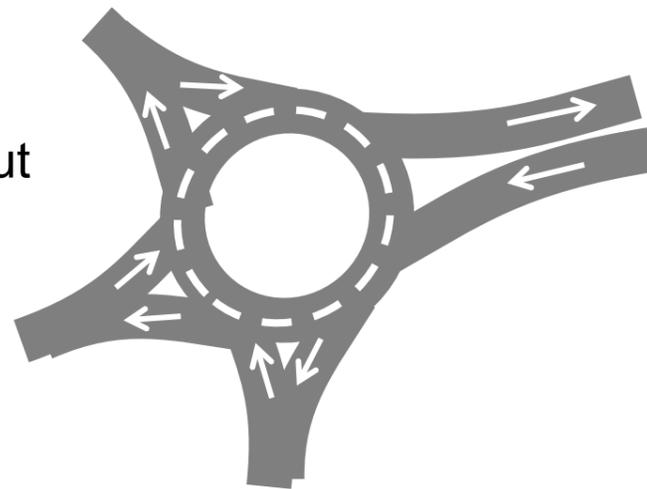
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Northbound	1403
Southbound	1570



A27	
Eastbound	1423
Westbound	1375

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1410
Westbound	1536



A27	
Eastbound	1585
Westbound	1601

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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NOTES:						FIGURE NUMBER					
						FIGURE TITLE					
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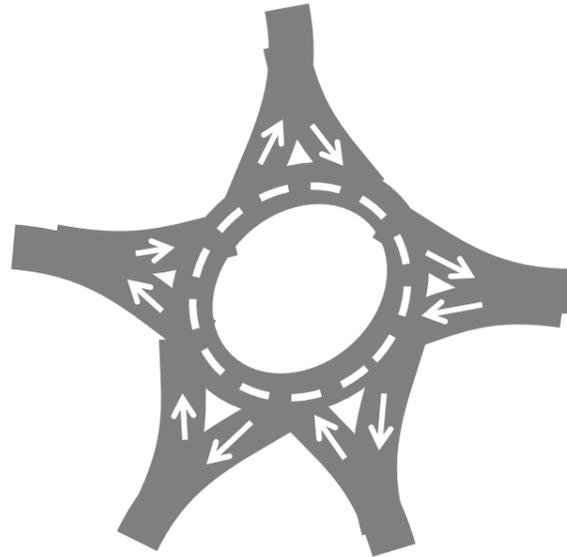


Worthing Lancing Assessment

DM PM Peak 2023

Crockhurst Hill Roundabout

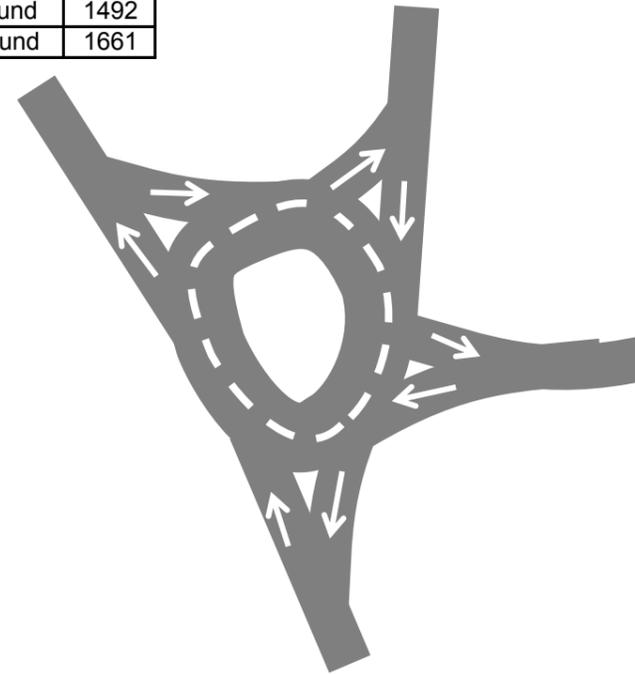
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Eastbound	1264
Westbound	1571



A24	
Eastbound	1492
Westbound	1661

Grove Lodge Roundabout

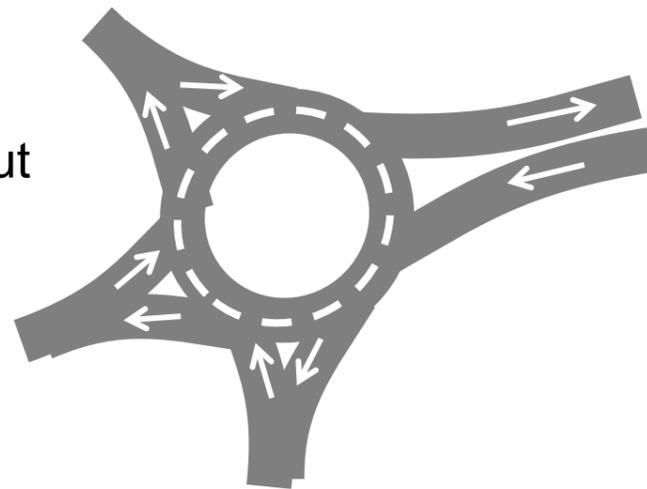
A24	
Northbound	1492
Southbound	1661



A27	
Eastbound	1500
Westbound	1373

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1655
Westbound	1545



A27	
Eastbound	1706
Westbound	1470

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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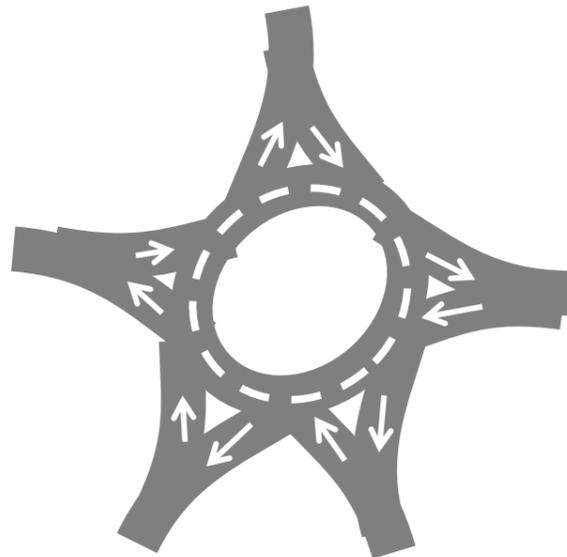


Worthing Lancing Assessment

DM AM Peak 2041

Crockhurst Hill Roundabout

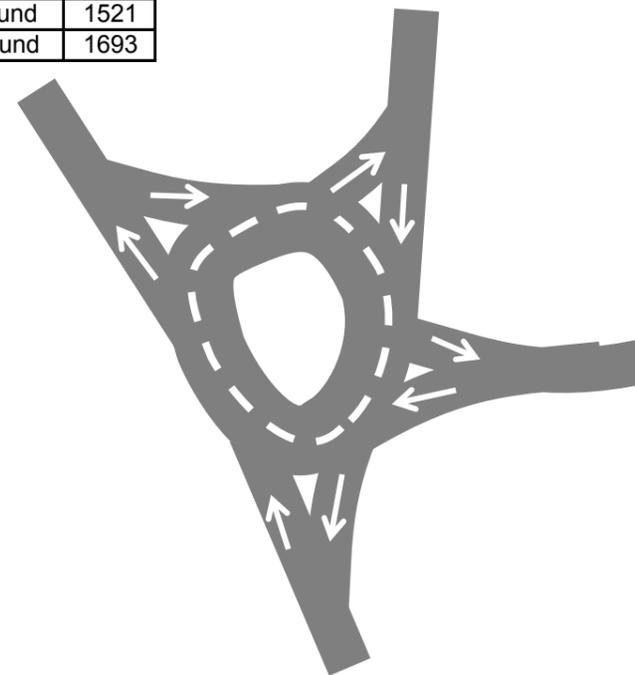
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Eastbound	1292
Westbound	1173



A24	
Eastbound	1521
Westbound	1693

Grove Lodge Roundabout

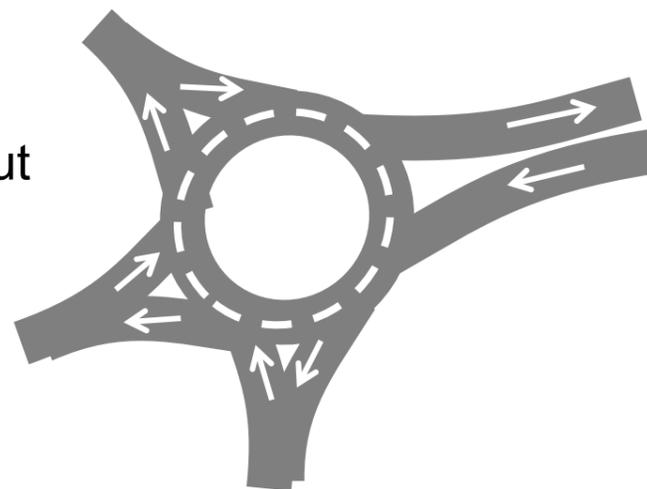
A24	
Northbound	1521
Southbound	1693



A27	
Eastbound	1456
Westbound	1484

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1795
Westbound	1793



A27	
Eastbound	1922
Westbound	1698

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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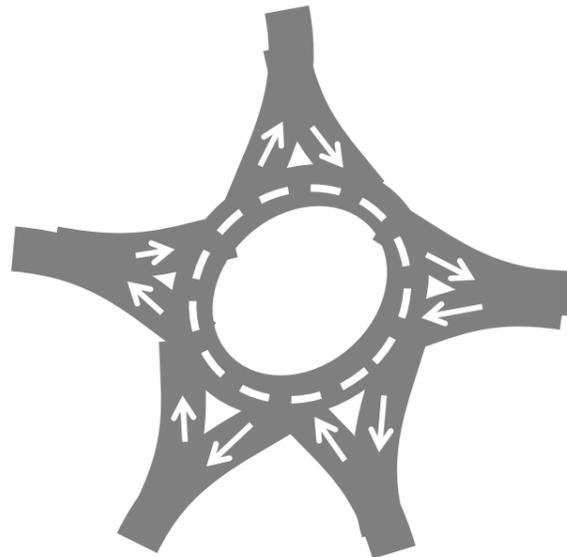


Worthing Lancing Assessment

DM IP Peak 2041

Crockhurst Hill Roundabout

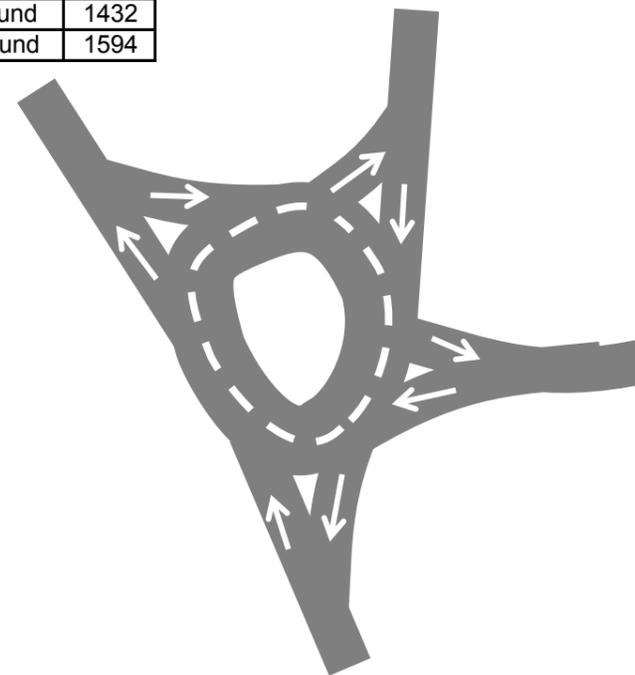
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Westbound	1488



A24	
Eastbound	1432
Westbound	1594

Grove Lodge Roundabout

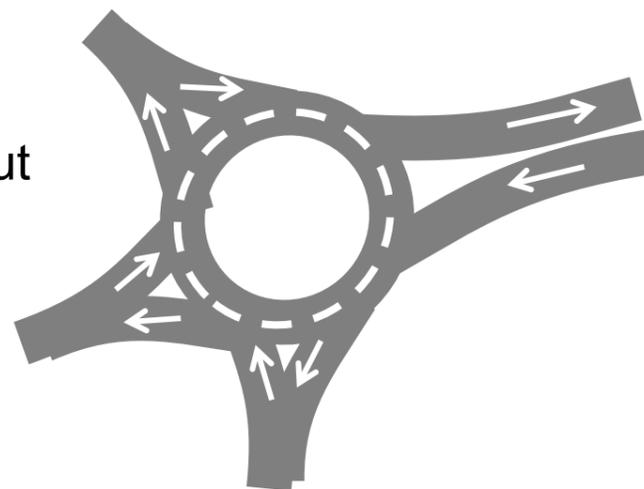
A24	
Northbound	1432
Southbound	1594



A27	
Eastbound	1500
Westbound	1479

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1576
Westbound	1675



A27	
Eastbound	1854
Westbound	1643

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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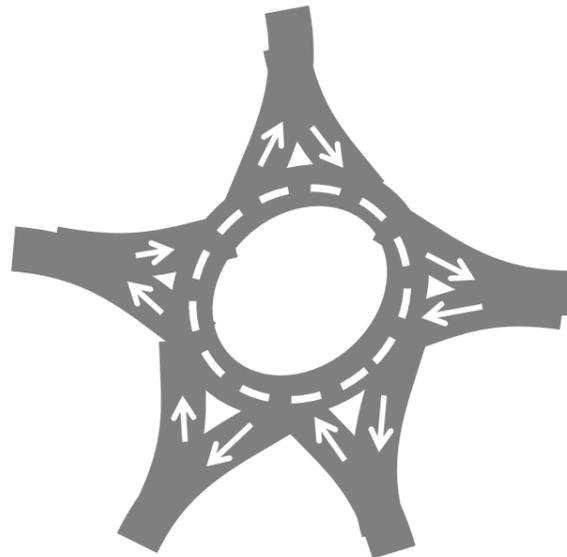


Worthing Lancing Assessment

DM PM Peak 2041

Crockhurst Hill Roundabout

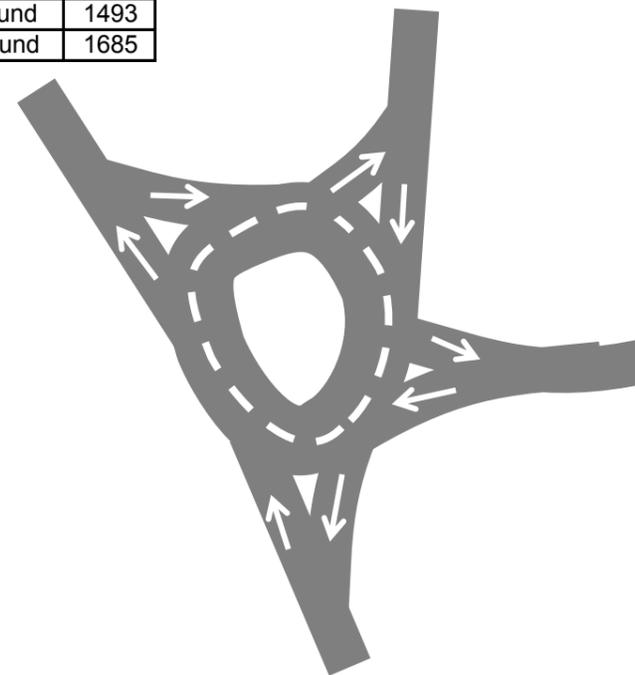
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Eastbound	1452
Westbound	1533



A24	
Eastbound	1493
Westbound	1685

Grove Lodge Roundabout

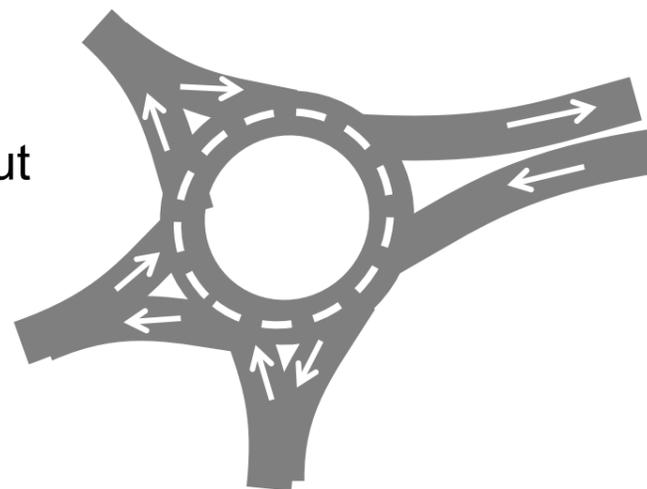
A24	
Northbound	1493
Southbound	1685



A27	
Eastbound	1492
Westbound	1464

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1730
Westbound	1592



A27	
Eastbound	1925
Westbound	1614

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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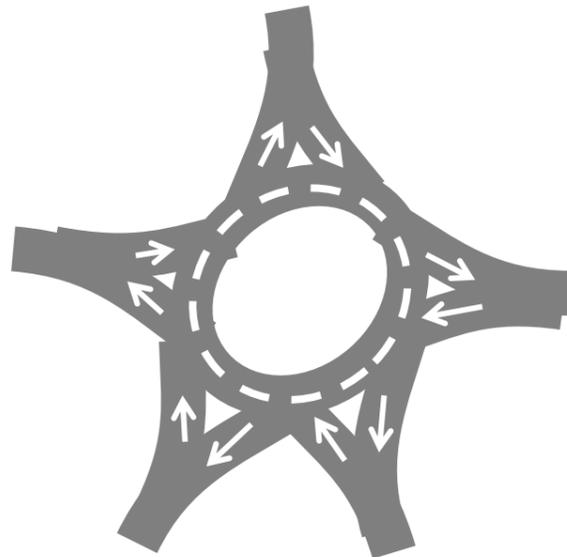


Worthing Lancing Assessment

Option 1 AM Peak 2023

Crockhurst Hill Roundabout

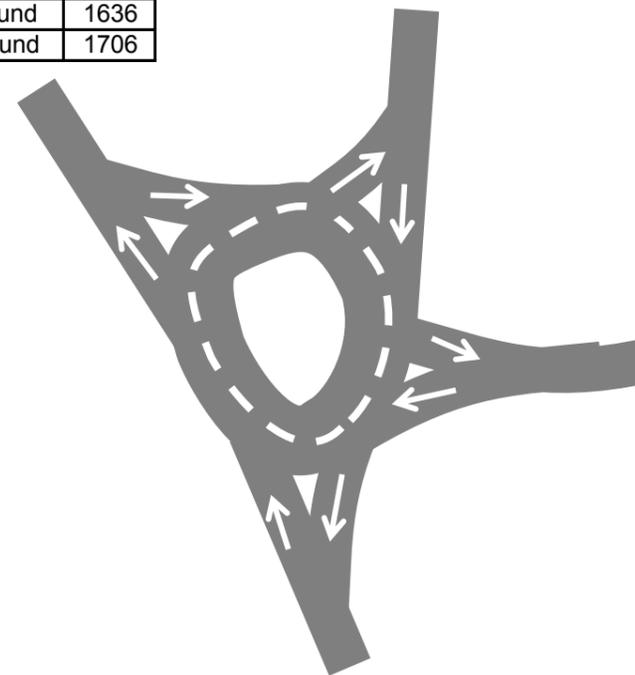
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Eastbound	1229
Westbound	1225



A24	
Eastbound	1636
Westbound	1706

Grove Lodge Roundabout

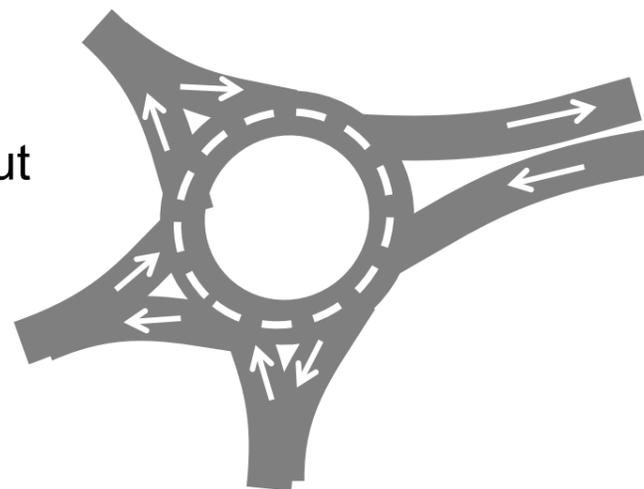
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Northbound	1636
Southbound	1706



A27	
Eastbound	1456
Westbound	1661

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1390
Westbound	1797



A27	
Eastbound	1875
Westbound	2372

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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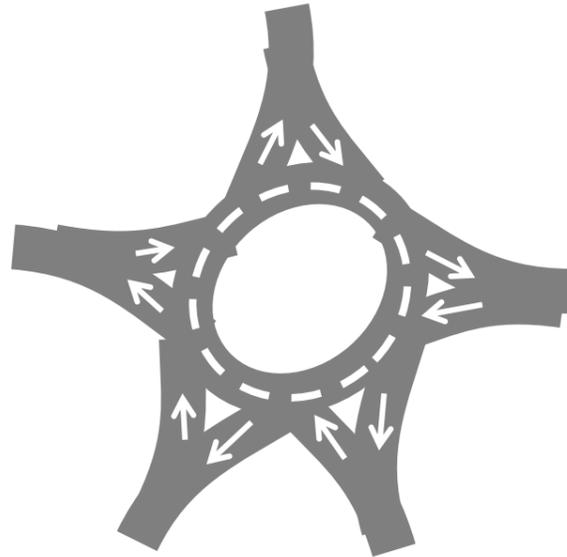


Worthing Lancing Assessment

Option 1 IP Peak 2023

Crockhurst Hill Roundabout

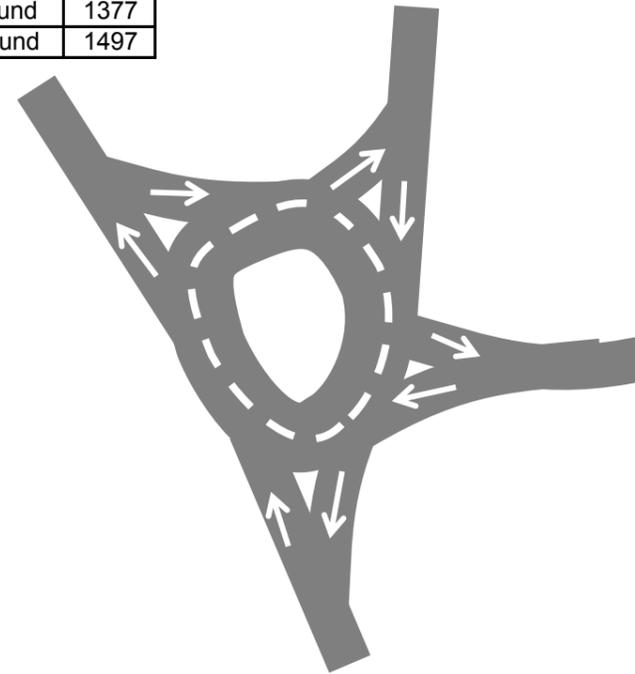
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Eastbound	1061
Westbound	1348



A24	
Eastbound	1377
Westbound	1497

Grove Lodge Roundabout

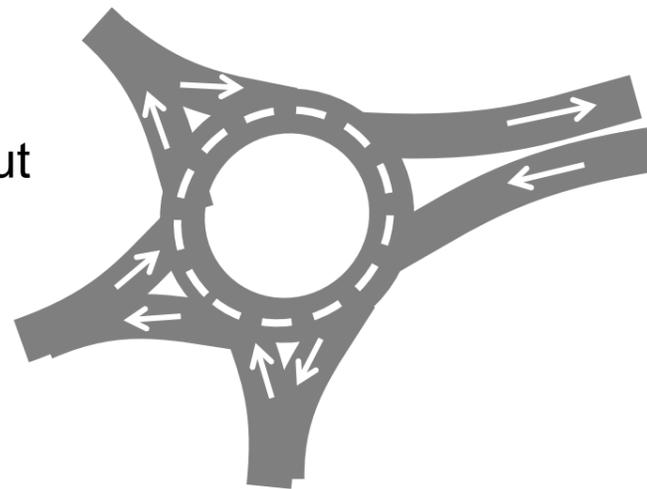
A24	
Northbound	1377
Southbound	1497



A27	
Eastbound	1317
Westbound	1420

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1202
Westbound	1389



A27	
Eastbound	1602
Westbound	2050

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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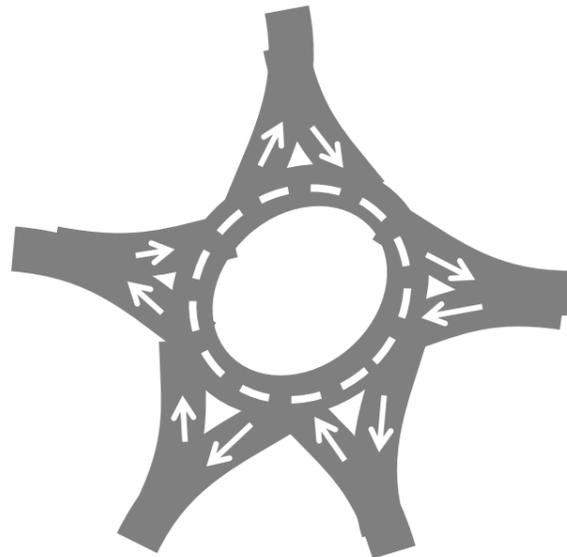


Worthing Lancing Assessment

Option 1 PM Peak 2023

Crockhurst Hill Roundabout

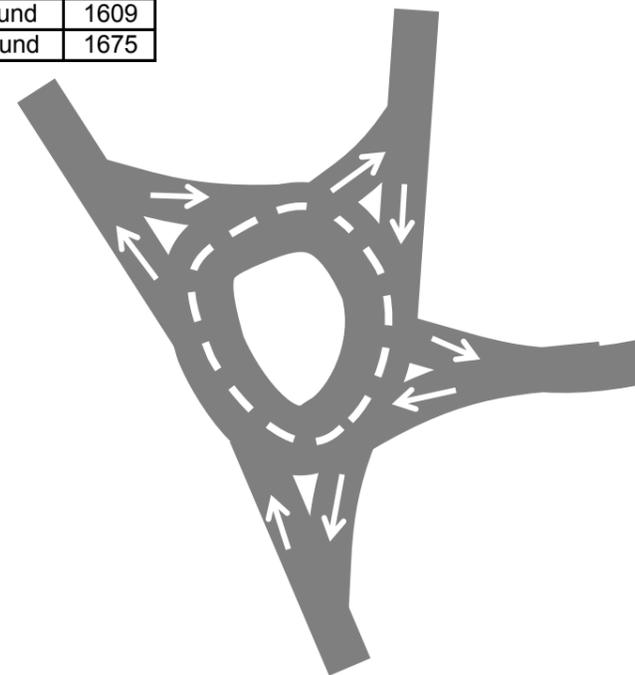
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Eastbound	1235
Westbound	1563



A24	
Eastbound	1609
Westbound	1675

Grove Lodge Roundabout

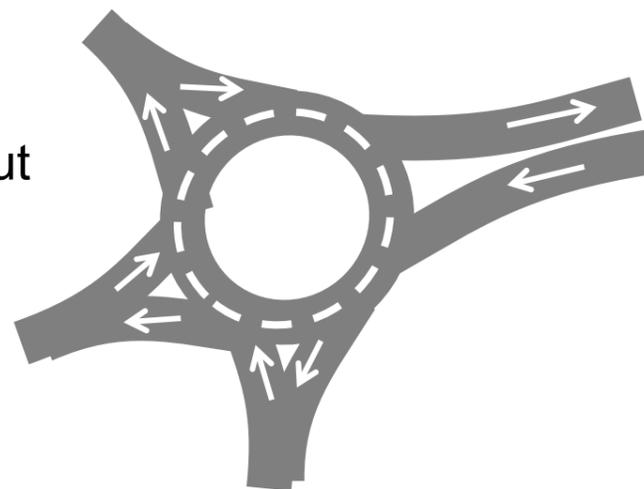
A24	
Northbound	1609
Southbound	1675



A27	
Eastbound	1455
Westbound	1451

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1295
Westbound	1310



A27	
Eastbound	1805
Westbound	2131

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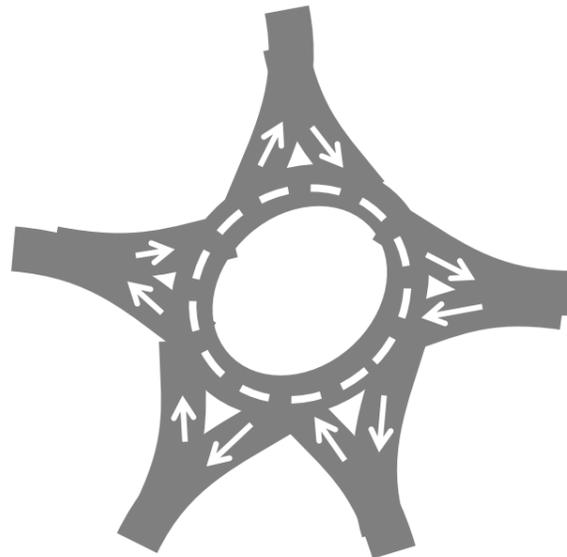


Worthing Lancing Assessment

Option 1 AM Peak 2041

Crockhurst Hill Roundabout

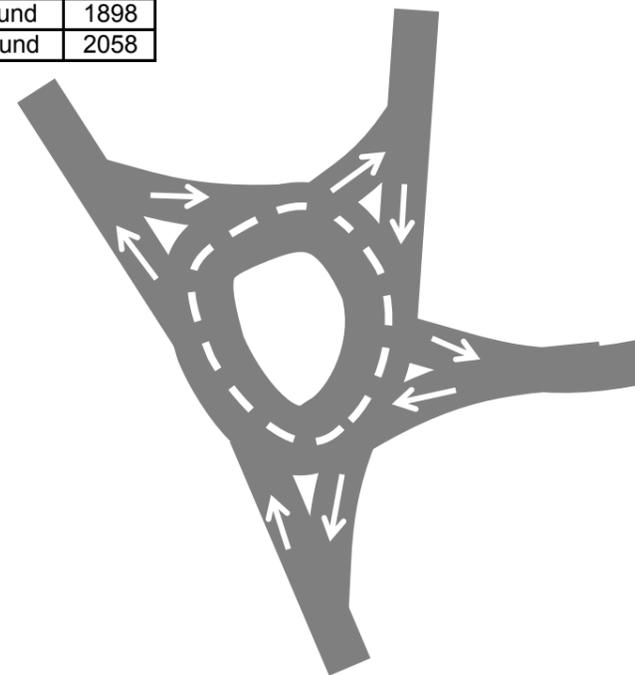
A27	
Eastbound	1376
Westbound	1489



A24	
Eastbound	1898
Westbound	2058

Grove Lodge Roundabout

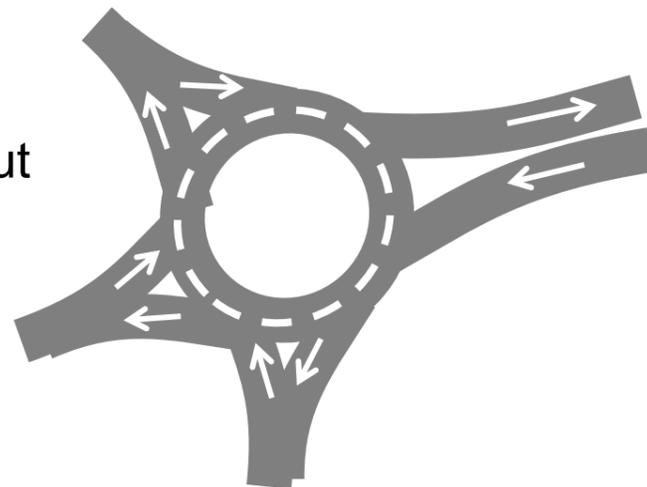
A24	
Northbound	1898
Southbound	2058



A27	
Eastbound	1636
Westbound	1848

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1576
Westbound	2328



A27	
Eastbound	2175
Westbound	2866

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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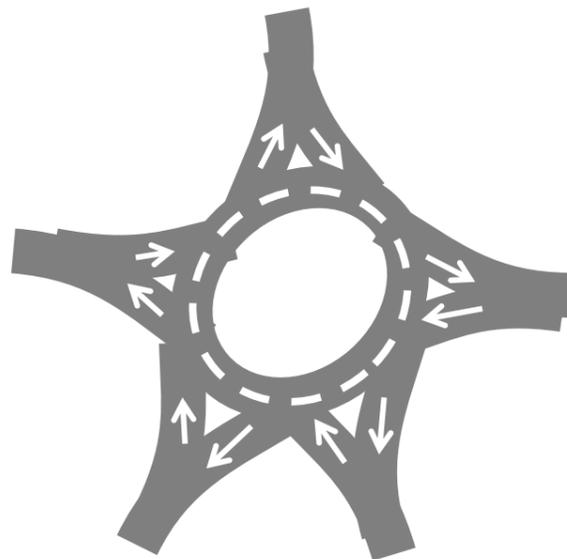


Worthing Lancing Assessment

Option 1 IP Peak 2041

Crockhurst Hill Roundabout

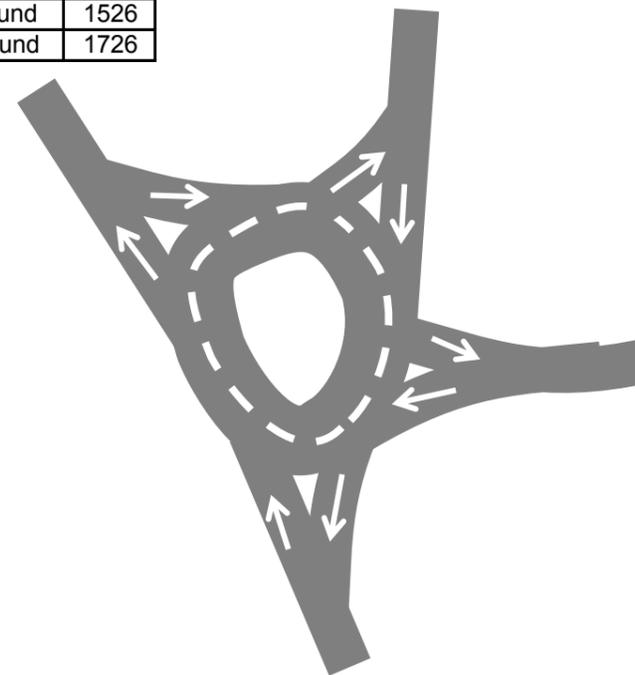
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Eastbound	1236
Westbound	1503



A24	
Eastbound	1526
Westbound	1726

Grove Lodge Roundabout

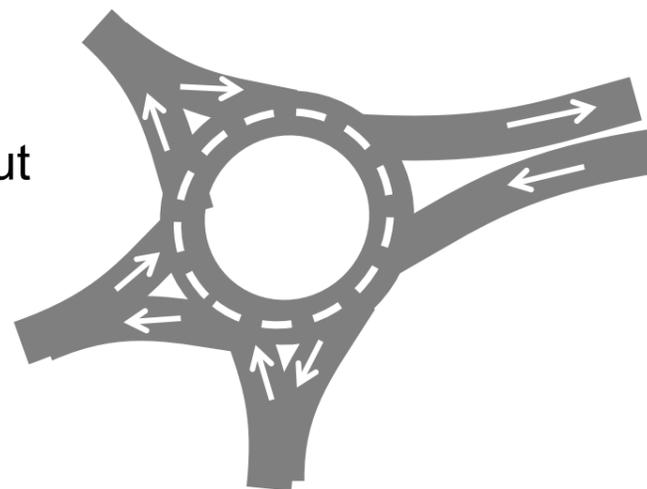
A24	
Northbound	1526
Southbound	1726



A27	
Eastbound	1453
Westbound	1643

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1360
Westbound	1666



A27	
Eastbound	1845
Westbound	1615

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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						A27 Arundel Assessment Key Flows					

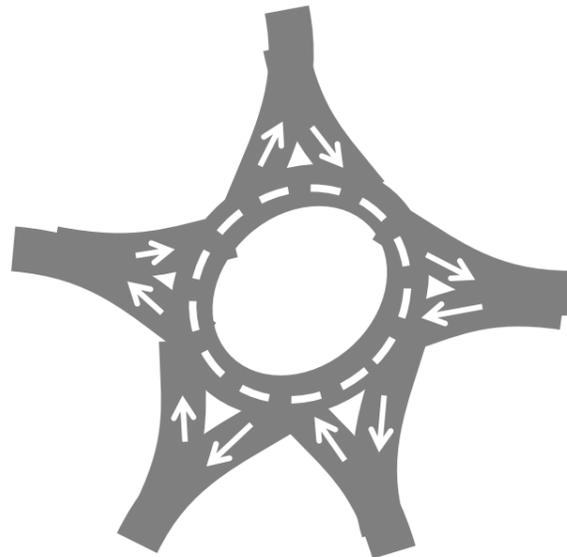


Worthing Lancing Assessment

Option 1 PM Peak 2041

Crockhurst Hill Roundabout

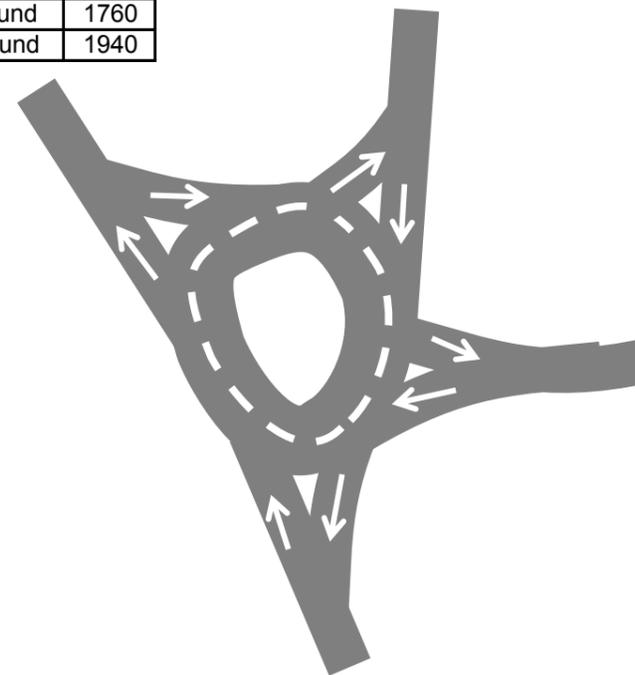
A27	
Eastbound	1408
Westbound	1862



A24	
Eastbound	1760
Westbound	1940

Grove Lodge Roundabout

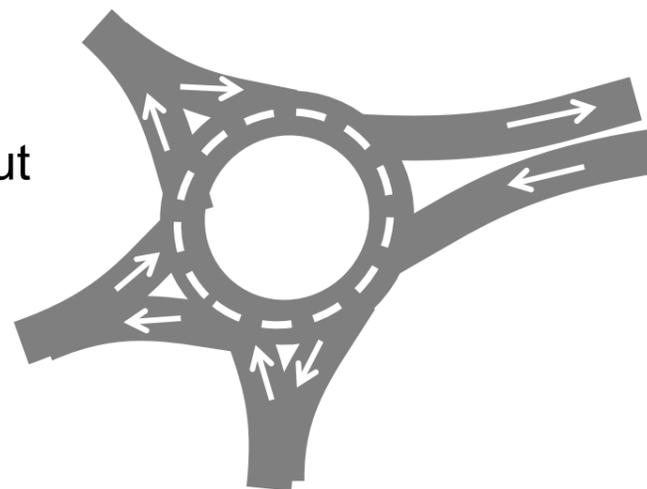
A24	
Northbound	1760
Southbound	1940



A27	
Eastbound	1571
Westbound	1753

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1494
Westbound	1671



A27	
Eastbound	2106
Westbound	2861

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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NOTES:						FIGURE NUMBER					
						FIGURE TITLE					
						A27 Arundel Assessment Key Flows					

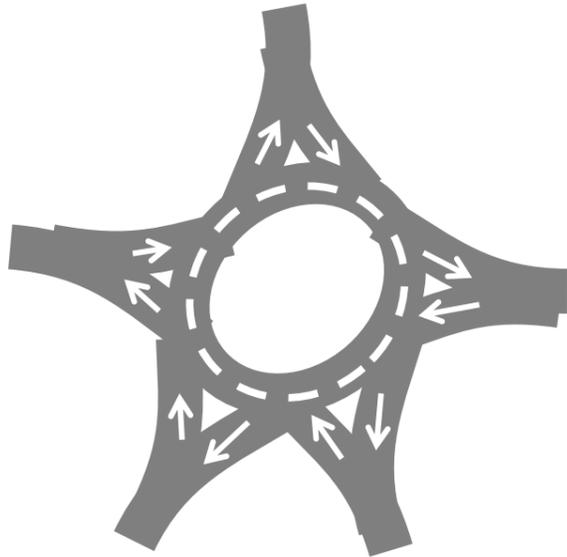


Worthing Lancing Assessment

Option 3 AM Peak 2023

Crockhurst Hill Roundabout

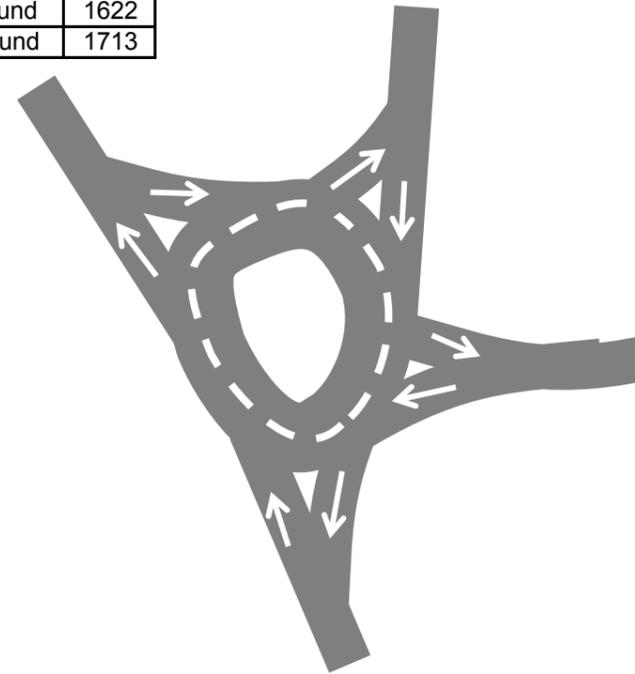
A27	
Eastbound	1171
Westbound	1247



A24	
Eastbound	1622
Westbound	1713

Grove Lodge Roundabout

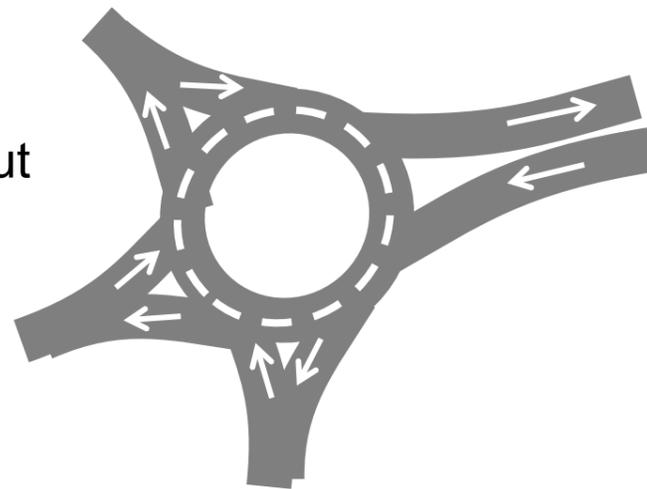
A24	
Northbound	1622
Southbound	1713



A27	
Eastbound	1438
Westbound	1680

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1386
Westbound	1814



A27	
Eastbound	1870
Westbound	2384

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
						A27 Worthing-Lancing	25/01/17	NTS	HM		
NOTES:						FIGURE NUMBER					
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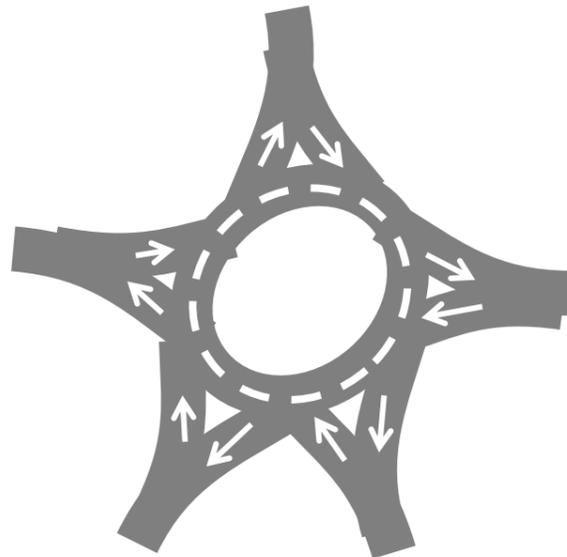


Worthing Lancing Assessment

Option 3 IP Peak 2023

Crockhurst Hill Roundabout

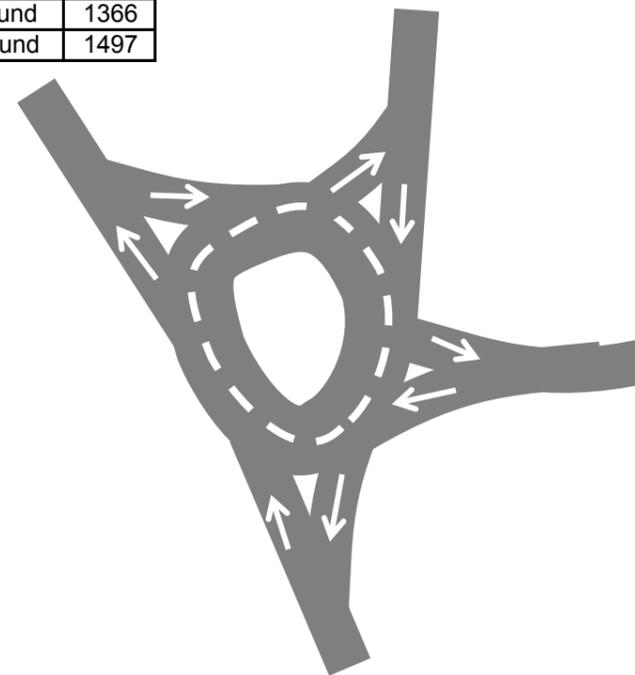
A27	
Eastbound	1024
Westbound	1366



A24	
Eastbound	1366
Westbound	1497

Grove Lodge Roundabout

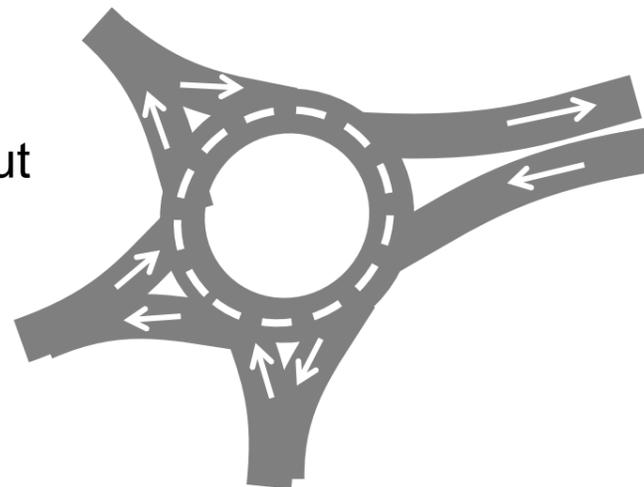
A24	
Northbound	1366
Southbound	1497



A27	
Eastbound	1285
Westbound	1428

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1201
Westbound	1395



A27	
Eastbound	1600
Westbound	1395

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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NOTES:						FIGURE NUMBER					
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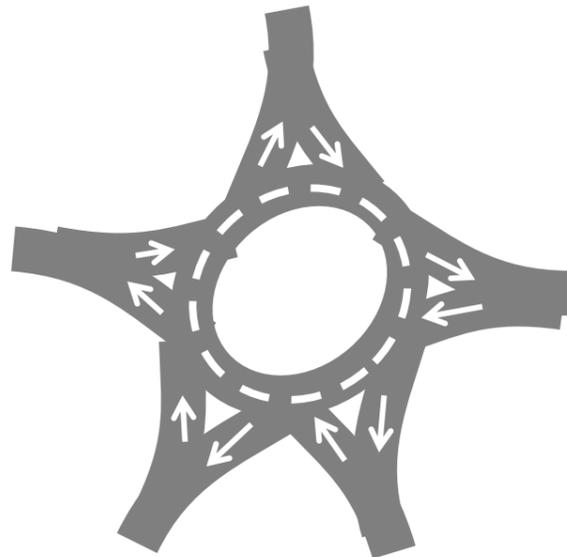


Worthing Lancing Assessment

Option 3 PM Peak 2023

Crockhurst Hill Roundabout

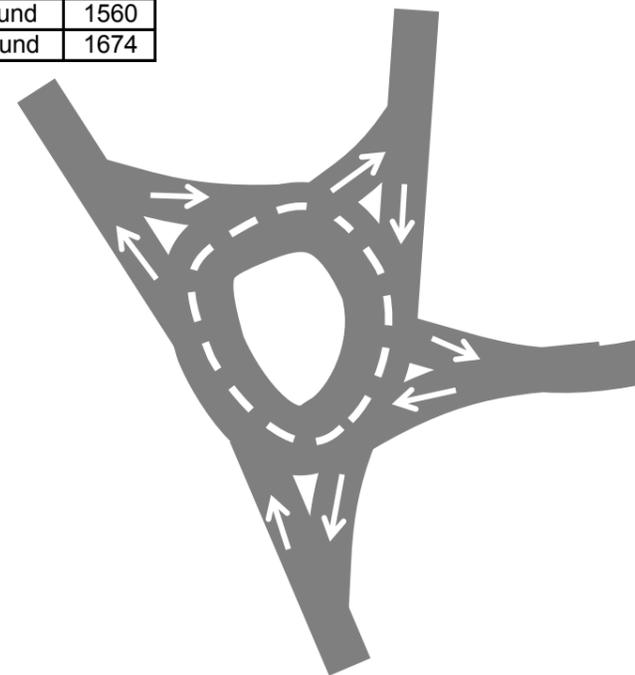
A27	
Eastbound	1106
Westbound	1568



A24	
Eastbound	1560
Westbound	1674

Grove Lodge Roundabout

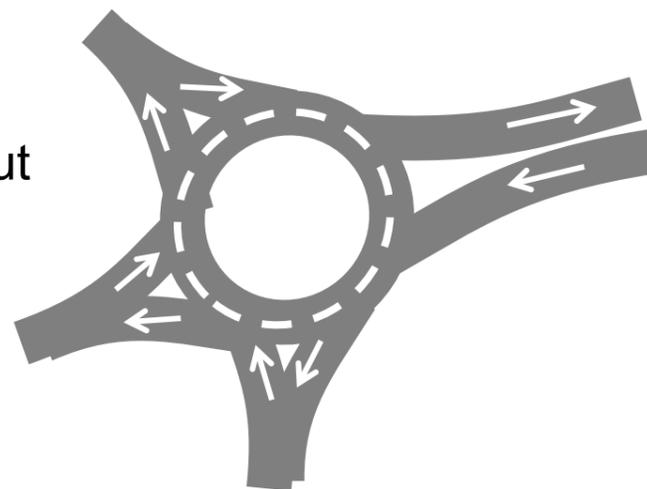
A24	
Northbound	1560
Southbound	1674



A27	
Eastbound	1402
Westbound	1454

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1281
Westbound	1310



A27	
Eastbound	1791
Westbound	2127

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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NOTES:						FIGURE NUMBER					
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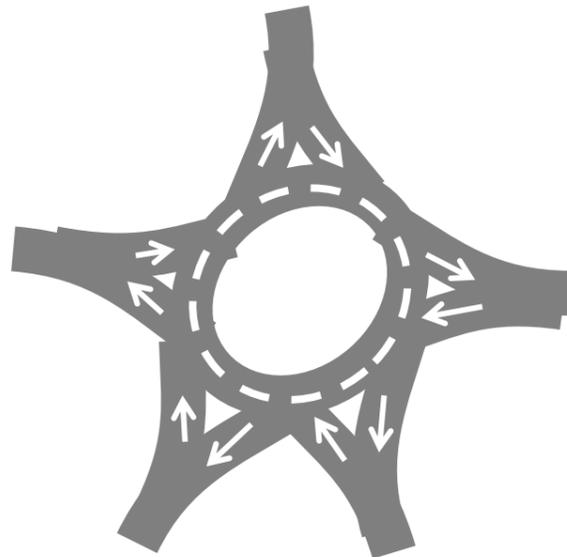


Worthing Lancing Assessment

Option 3 AM Peak 2041

Crockhurst Hill Roundabout

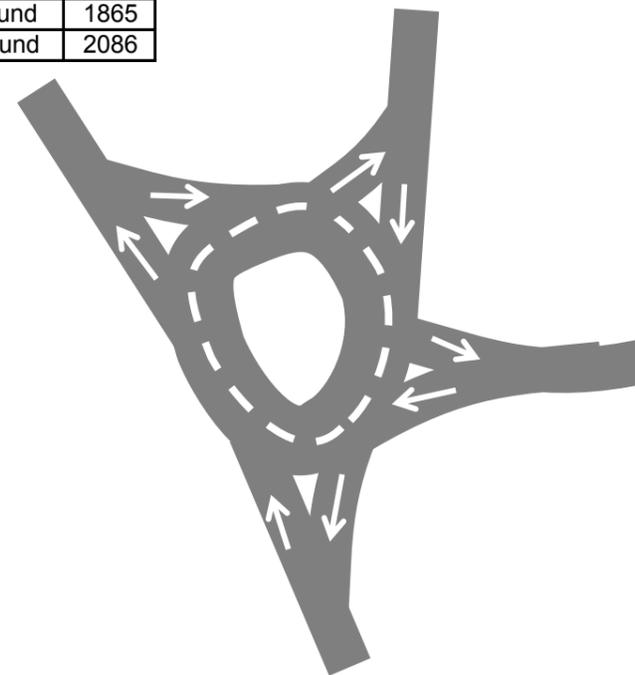
A27	
Eastbound	1312
Westbound	1515



A24	
Eastbound	1865
Westbound	2086

Grove Lodge Roundabout

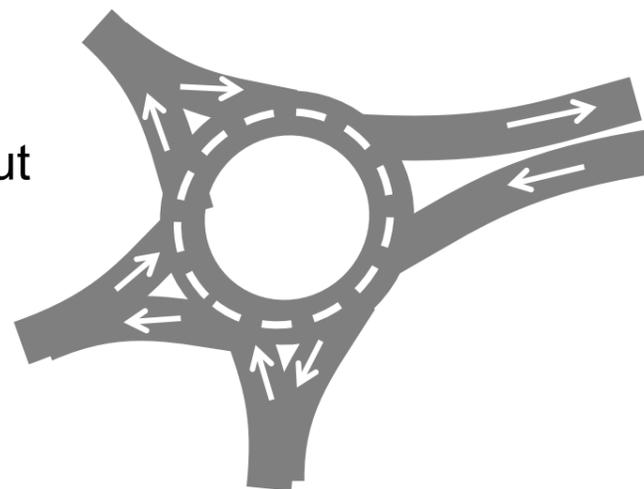
A24	
Northbound	1865
Southbound	2086



A27	
Eastbound	1628
Westbound	1962

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1582
Westbound	2375



A27	
Eastbound	2176
Westbound	2148

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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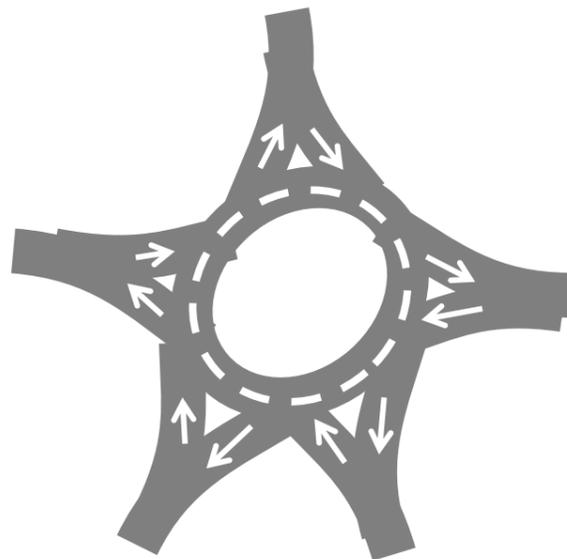


Worthing Lancing Assessment

Option 3 IP Peak 2041

Crockhurst Hill Roundabout

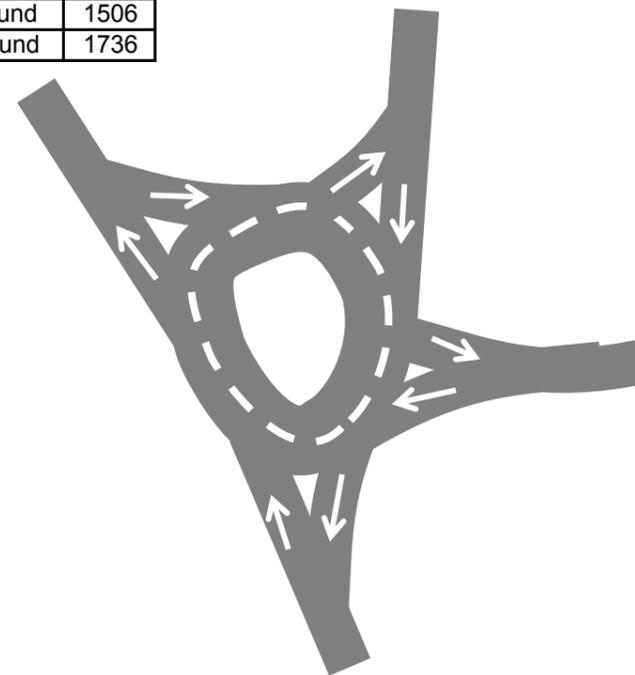
A27	
Eastbound	1189
Westbound	1536



A24	
Eastbound	1506
Westbound	1736

Grove Lodge Roundabout

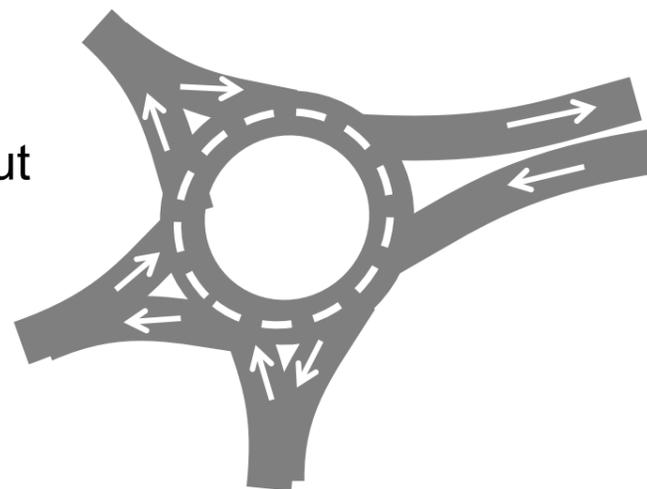
A24	
Northbound	1506
Southbound	1736



A27	
Eastbound	1406
Westbound	1658

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1355
Westbound	1690



A27	
Eastbound	1849
Westbound	2463

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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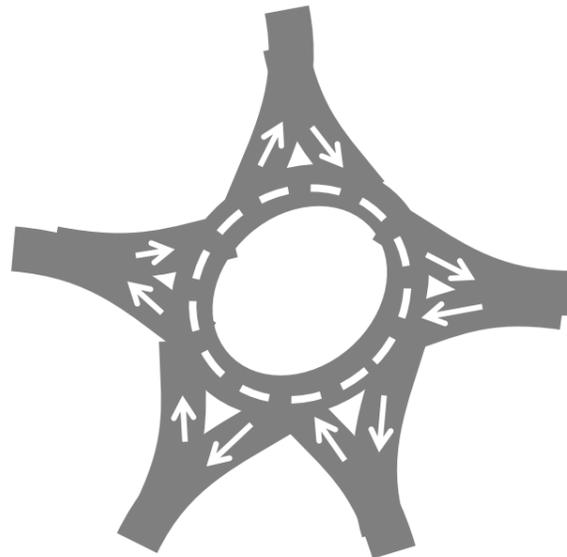


Worthing Lancing Assessment

Option 3 PM Peak 2041

Crockhurst Hill Roundabout

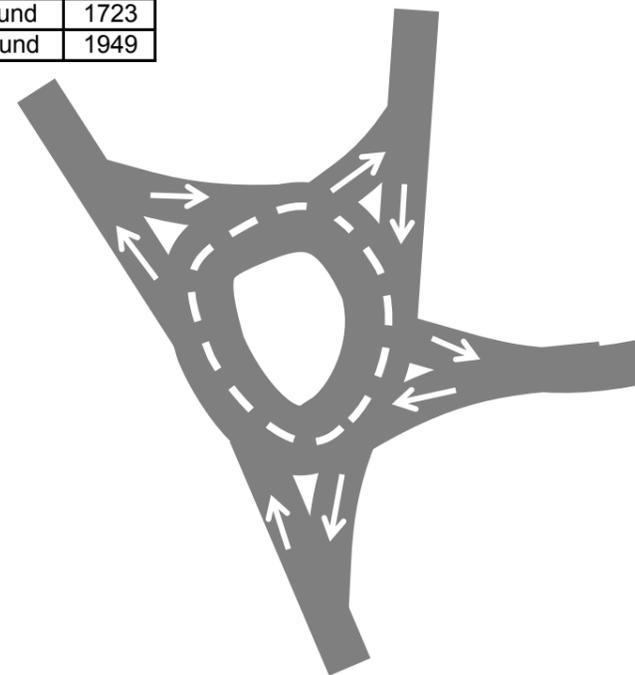
A27	
Eastbound	1303
Westbound	1850



A24	
Eastbound	1723
Westbound	1949

Grove Lodge Roundabout

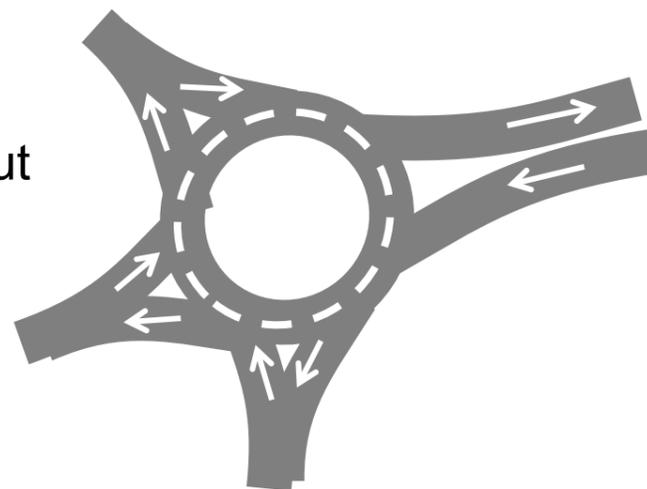
A24	
Northbound	1723
Southbound	1949



A27	
Eastbound	1539
Westbound	1738

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1485
Westbound	1695



A27	
Eastbound	2099
Westbound	2861

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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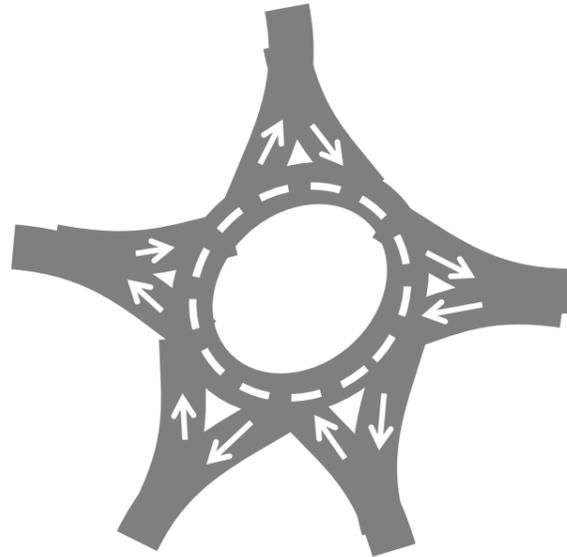


Worthing Lancing Assessment

Option 3a AM Peak 2023

Crockhurst Hill Roundabout

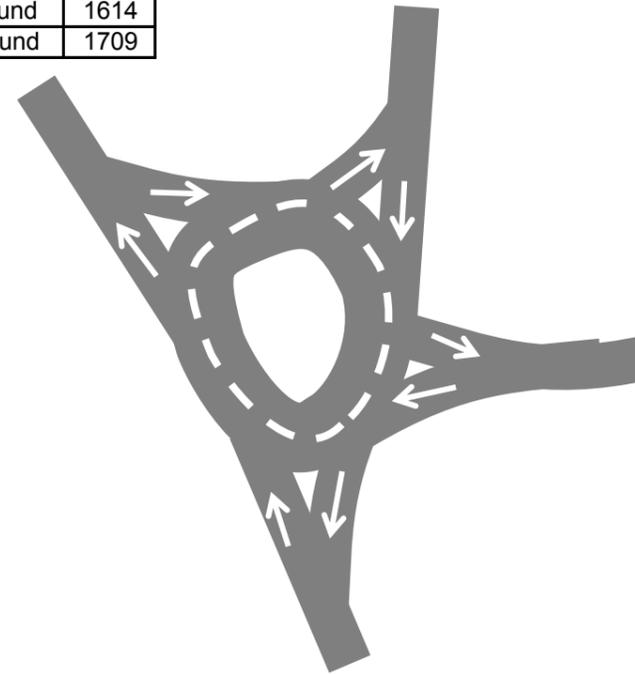
A27	
Eastbound	1169
Westbound	1240



A24	
Eastbound	1614
Westbound	1709

Grove Lodge Roundabout

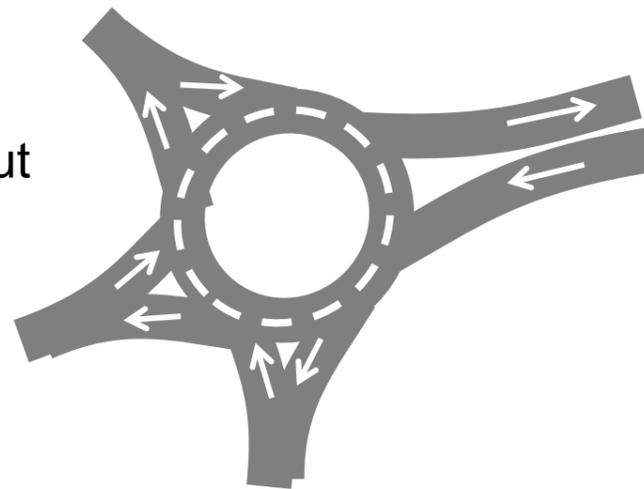
A24	
Northbound	1614
Southbound	1709



A27	
Eastbound	1437
Westbound	1678

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1385
Westbound	1813



A27	
Eastbound	1870
Westbound	2383

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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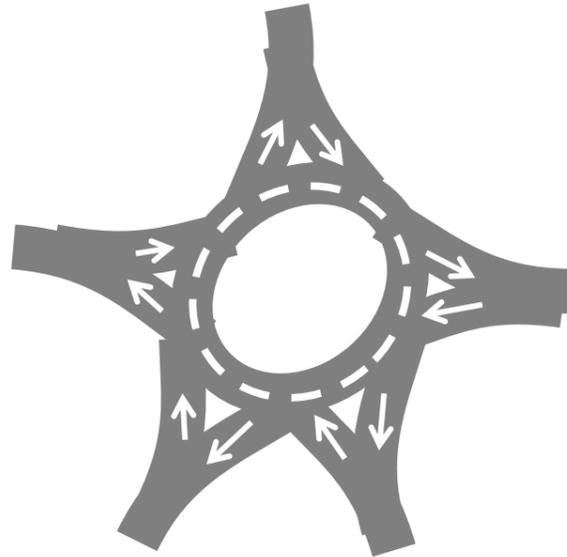


Worthing Lancing Assessment

Option 3a IP Peak 2023

Crockhurst Hill Roundabout

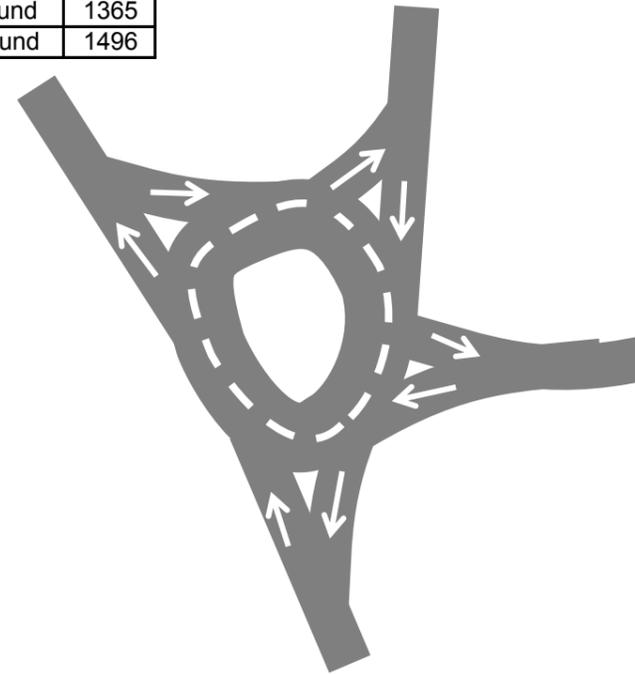
A27	
Eastbound	1023
Westbound	1366



A24	
Eastbound	1365
Westbound	1496

Grove Lodge Roundabout

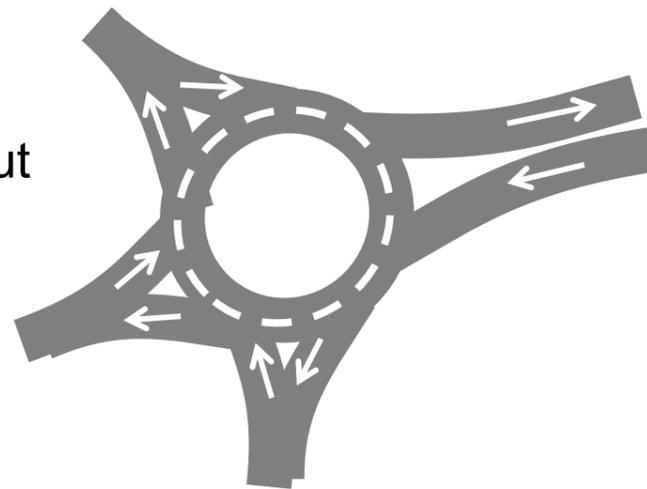
A24	
Northbound	1365
Southbound	1496



A27	
Eastbound	1277
Westbound	1428

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1200
Westbound	1391



A27	
Eastbound	1599
Westbound	2050

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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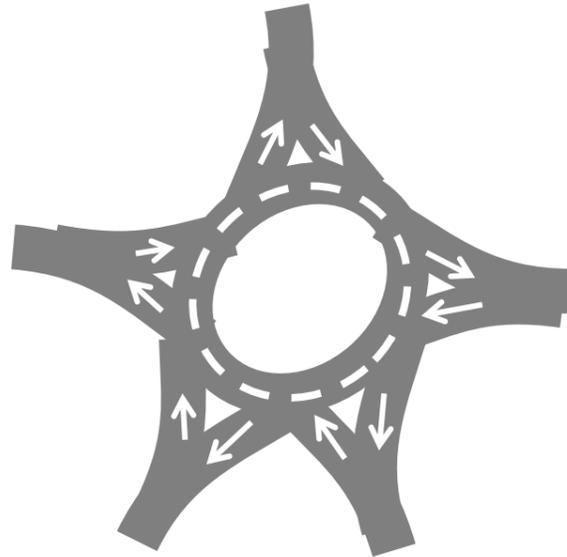


Worthing Lancing Assessment

Option 3a PM Peak 2023

Crockhurst Hill Roundabout

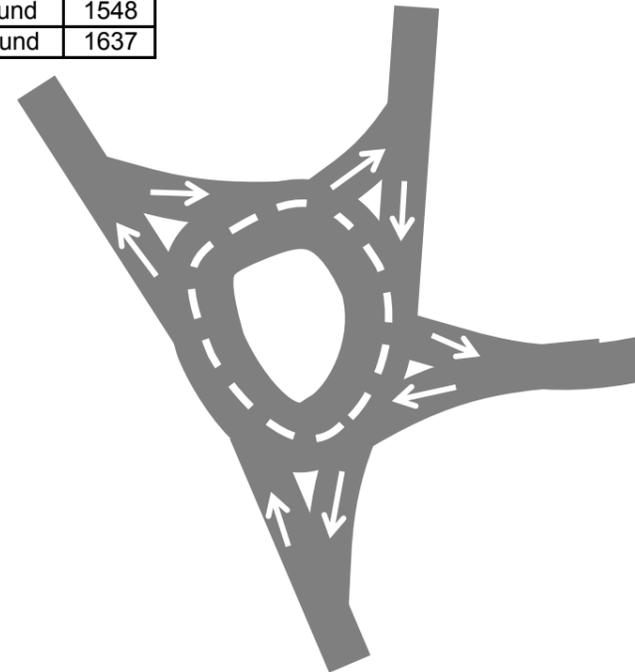
A27	
Eastbound	1103
Westbound	1587



A24	
Eastbound	1548
Westbound	1637

Grove Lodge Roundabout

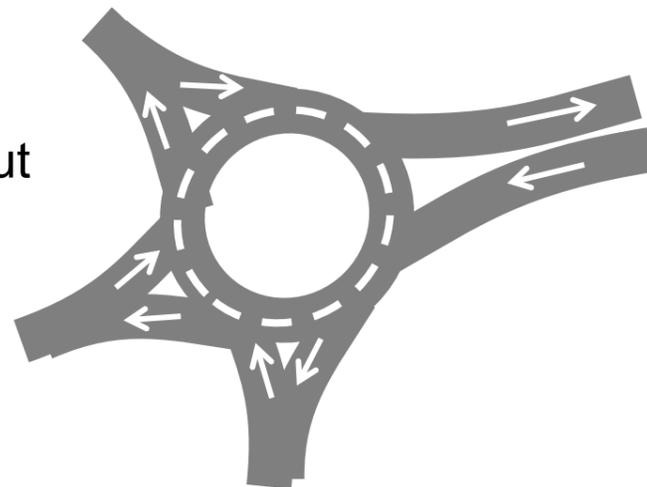
A24	
Northbound	1548
Southbound	1637



A27	
Eastbound	1422
Westbound	1456

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1292
Westbound	1311



A27	
Eastbound	1802
Westbound	2129

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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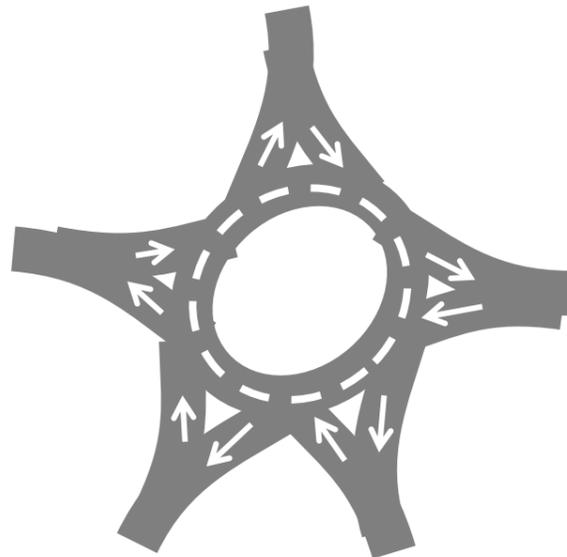


Worthing Lancing Assessment

Option 3a AM Peak 2041

Crockhurst Hill Roundabout

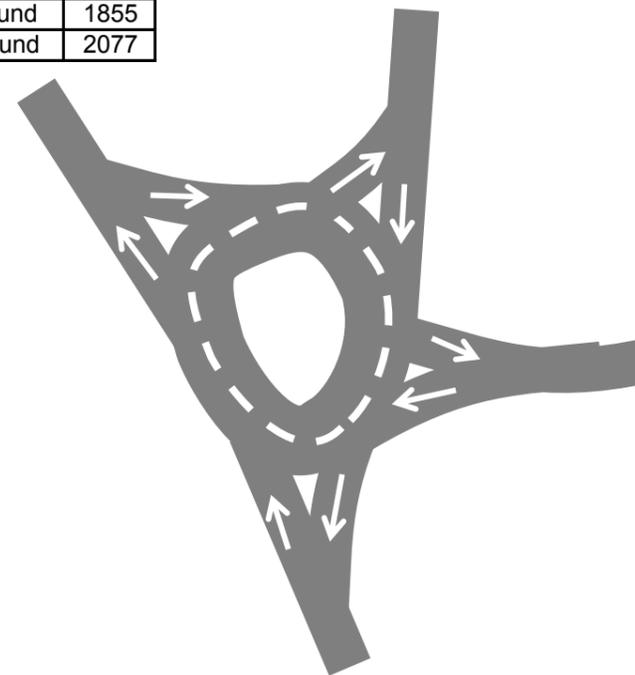
A27	
Eastbound	1278
Westbound	1511



A24	
Eastbound	1855
Westbound	2077

Grove Lodge Roundabout

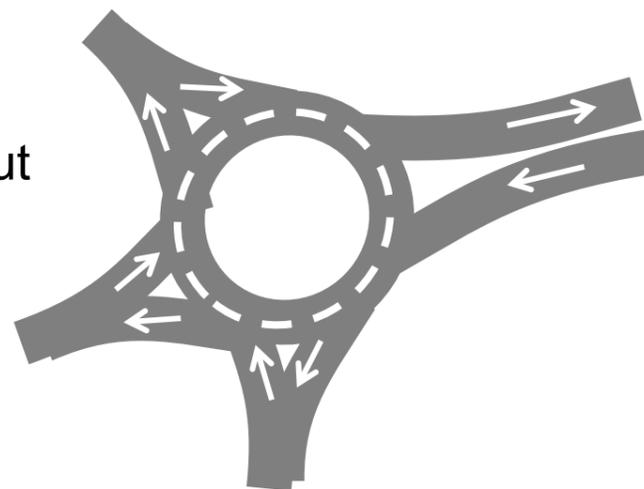
A24	
Northbound	1855
Southbound	2077



A27	
Eastbound	1624
Westbound	1958

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1573
Westbound	2371



A27	
Eastbound	2173
Westbound	2890

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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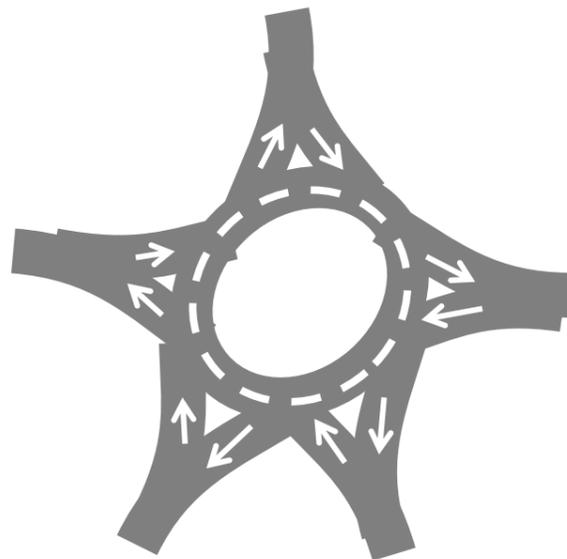


Worthing Lancing Assessment

Option 3a IP Peak 2041

Crockhurst Hill Roundabout

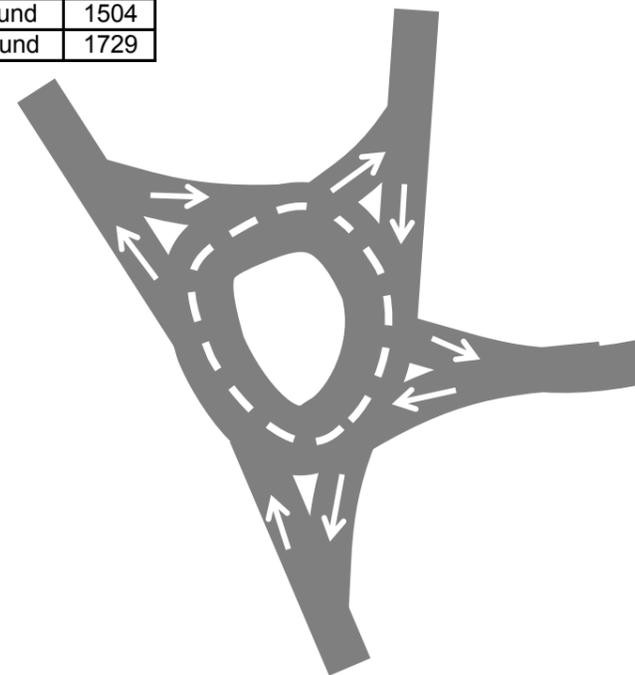
A27	
Eastbound	1184
Westbound	1530



A24	
Eastbound	1504
Westbound	1729

Grove Lodge Roundabout

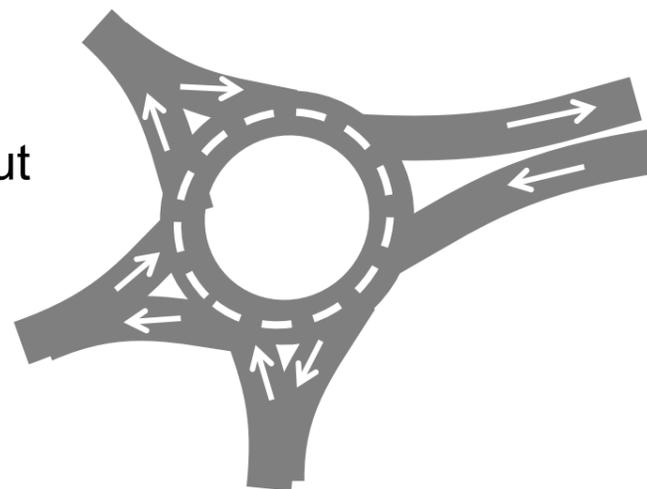
A24	
Northbound	1504
Southbound	1729



A27	
Eastbound	1402
Westbound	1652

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1355
Westbound	1683



A27	
Eastbound	1849
Westbound	2457

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
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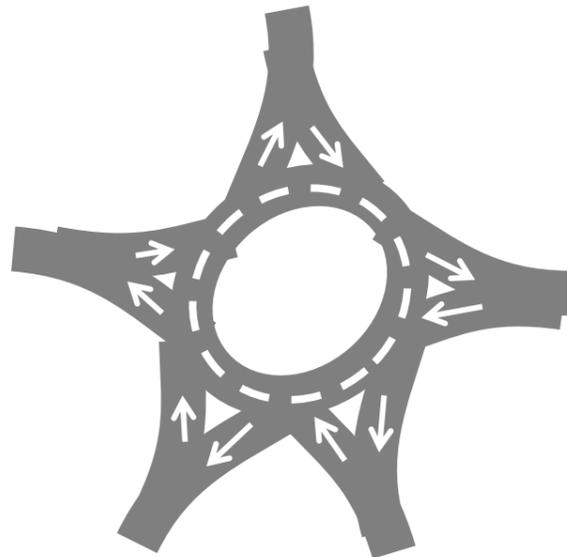


Worthing Lancing Assessment

Option 3a PM Peak 2041

Crockhurst Hill Roundabout

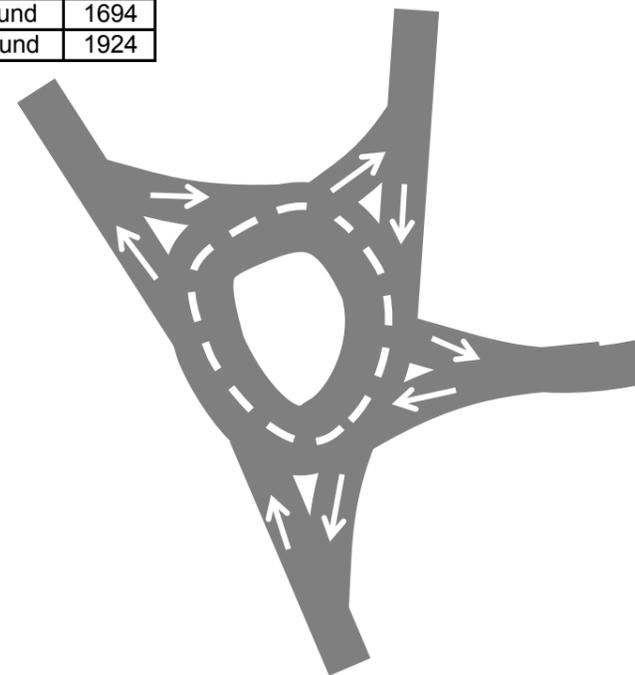
A27	
Eastbound	1296
Westbound	1861



A24	
Eastbound	1694
Westbound	1926

Grove Lodge Roundabout

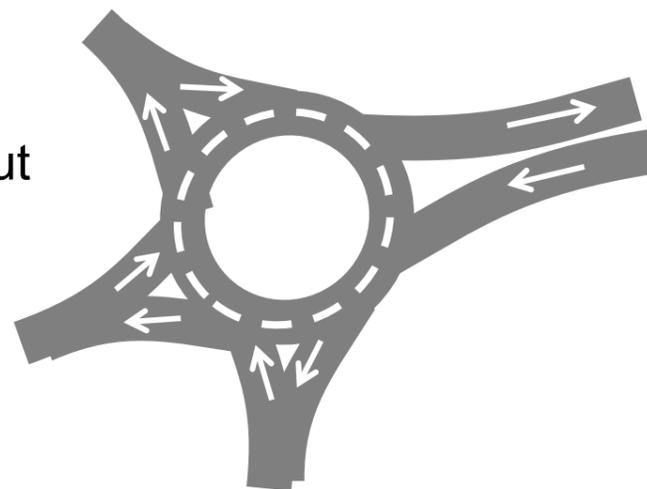
A24	
Northbound	1694
Southbound	1924



A27	
Eastbound	1538
Westbound	1741

A27 Old Shoreham Road Roundabout

A27	
Eastbound	1493
Westbound	1702



A27	
Eastbound	2097
Westbound	2865

REV	DATE	DESCRIPTION	BY	CHKD	APPD	PROJECT	DATE	SCALE	DRAWN BY	CHECKED	APPROVED
						A27 Worthing-Lancing	25/01/17	NTS	HM		
NOTES:						FIGURE NUMBER					
						FIGURE TITLE					
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