# A417 Missing Link
# TR010056

# 6.4 Appendix 2.1 EMP Annex B Construction Traffic Management Plan (Rev 2)

Planning Act 2008

APFP Regulation 5(2)(a)
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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**The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009**

# A417 Missing Link

## Development Consent Order 202[x]

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## Appendix 2.1 EMP Annex B Construction Traffic Management Plan (Rev 2)

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| C01 | May 2021 | Application Submission |
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# Executive Summary

The project is currently at Project Control Framework (PCF) Stage 4, A preferred route was announced in March 2019. Submission of the Development Consent Order (DCO) is programmed for May 2021 and start on site is planned for early 2023.

In May 2019, Taylor Woodrow were appointed by Arup to provide buildability support to the development of the A417 Missing Link (the scheme) for PCF Stages 3 & 4. As part of this commission a Traffic Management Plan has been developed.

In order to minimise disruption to Customers, the majority of the works has been designed offline. The philosophy of the Traffic Management Plan is as follows.

- Construct as much as possible of the offline works in advance with minimum disruption to the existing traffic flows.
- Utilise the newly built permanent works areas of carriageway to provide diversion routes to minimise the requirement for temporary works alignments.
- Temporary road closures of the existing A417 Crickley Hill and closure of one of the three lanes will be required to facilitate construction of the embankments for the new carriageway.
- Once construction of the new A436 link road, Shab Hill Junction and the new A417 to Cowley Junction has been completed, traffic from the existing A417, will be diverted to facilitate completion of the works for the new alignment where it crosses the existing A417, adjacent to the Air Balloon pub.
- Compounds would be located at either end of the project with access created from the local side roads.

To allow for safe and economical construction, the project would be split into phases along the route. Each phase will require a variety of Traffic Management set ups. It is envisaged that all Traffic Management schemes installed on the project will have been categorised as ‘Standard’ as defined in CI01.6.2 of Part 1 of Chapter 8 of the Traffic Signs Manual.

During the continued planning and development of the scheme the overall objective will be ensuring the safety of the travelling public and workforce whilst minimising disruption to the public.

# 1 Introduction

## 1.1 Purpose of this document

1.1.1 This document defines the traffic management and closures required, how they will be communicated and implemented with the least impact on the Key Customers and Stakeholders.

1.1.2 In developing this Traffic Management Plan, consideration has been given to the following five key areas outlined in the major project dynamic roadworks vision statement:

- Varying the speed limits so they are appropriate to the work taking place.
- Shortening the length of the roadworks. The design has been developed so that the majority of the scheme is offline, with traffic management confined to the junction tie-ins and the existing A417 up Crickley Hill.
- Appropriate use of full road closures and associated diversions.
- Delivering road works quicker.
- Explaining clearly what activities are or not taking place.

1.1.3 The dynamic road works template is included in Appendix D.

1.1.4 The Traffic Management Plan will be refined during PCF Stage 5 (Construction Preparation) and Stage 6 (Construction, Commissioning and Handover).

## 1.2 Scheme overview

1.2.1 The A417/A419 is a strategic route between Gloucester and Swindon that provides an important link between the Midlands/North and South of England. The route is an alternative to the M5/M4 route via Bristol. The section of the A417 near Birdlip, known as the 'Missing Link', forms the only section of single carriageway along the route and is located in the Cotswolds Area of Outstanding Natural Beauty (AONB).

1.2.2 In 2014, the Department for Transport (DfT) announced its five-year investment programme for making improvements to the Strategic Road Network (SRN) across England. This scheme is one of more than 100 schemes identified as part of the first Road Investment Strategy (RIS1) 2015-2020[i]. Funding for delivery of the scheme has been confirmed within the second Road Investment Strategy (RIS2)[ii], which covers the period between 2020 and 2025 which was published on 11 March 2020.

1.2.3 This scheme to upgrade this section of the A417 to dual carriageway, in a way that is sensitive to the surrounding AONB, would help unlock Gloucestershire's potential for growth, support regional plans for more homes and jobs, and improve life in local communities.

[i] Department for Transport (March 2015), Road investment strategy: 2015 to 2020, Accessed 29 January 2020, https://www.gov.uk/government/publications/road-investment-strategy-for-the-2015-to-2020-road-period
[ii] Department for Transport (March 2020), Road investment strategy: 2020 to 2025, Accessed 11 March 2020, https://www.gov.uk/government/publications/road-investment-strategy-2-ris2-2020-to-2025

## 1.3 Scheme vision and objectives

1.3.1 The scheme vision is for a landscape-led highways improvement scheme that will deliver a safe and resilient free-flowing road whilst conserving and enhancing the special character of the Cotswolds AONB; reconnecting landscape and ecology; bringing about landscape, wildlife and heritage benefits, including enhanced visitors' enjoyment of the area; improving local communities' quality of life; and contributing to the health of the economy and local businesses.

1.3.2 In order to deliver this vision, the following scheme objectives have been set:

- **Safe, resilient and efficient network:** to create a high-quality resilient route that helps to resolve traffic problems and achieves reliable journey times between the Thames Valley and West Midlands as well as providing appropriate connections to the local road network.
- **Improving the natural environment and heritage:** to maximise opportunities for landscape, historic and natural environment enhancement within the Cotswolds AONB and to reduce negative impacts of the proposed scheme on the surrounding environment.
- **Community & access:** to enhance the quality of life for local residents and visitors by reducing traffic intrusion and pollution, discouraging rat-running through villages and substantially improving public access for the enjoyment of the countryside.
- **Supporting economic growth:** to facilitate economic growth, benefit local businesses and improve prosperity by the provision of a free flowing road giving people more reliable local and strategic journeys.

## 1.4 Scheme description

1.4.1 The scheme would provide 3.4 miles (5.5km) of new, rural all-purpose dual carriageway for the A417. The new dual carriageway would connect the existing A417 Brockworth bypass with the existing dual carriageway A417 south of Cowley. The new dual carriageway would be completed in-line with current trunk road design standards. The section to the west of the existing Air Balloon roundabout would follow the existing A417 corridor, but to the south and east of the Air Balloon roundabout, the corridor would be offline, away from the existing road corridor.

1.4.2 The scheme would include a new crossing near Emma's Grove for walkers, cyclists and horse riders including disabled users, which would accommodate the Cotswold Way National Trail. A new junction would be incorporated at Shab Hill, providing a link from the A417 to the A436 (towards the A40 and Oxford), and to the B4070 (for Birdlip and other local destinations).

1.4.3 A new 37m wide multi-purpose crossing to provide essential mitigation for bats and enhancement opportunity of ecology and landscape integration. The public will also further benefit as the crossing would accommodate the Gloucestershire Way and provide an improved visitor experience.

1.4.4 A new junction would be included near Cowley, replacing the existing Cowley roundabout, making use of an existing underbridge to provide access to local destinations. The use of the existing underbridge would allow for all directions of travel to be made.

1.4.5 The current A417 between the existing 'Air Balloon roundabout' and 'Cowley roundabout' would be detrunked for its entire length. Some lengths of the existing road would be converted into a route for walkers, cyclists and horse riders including disabled users. Other sections would be retained as lower-class public roads, maintaining local access for residents. Some of the route would provide Common Land.

## 1.5 Challenges and considerations

1.5.1 The A417 Missing Link is wholly within the Cotswold AONB and is required to maintain the existing connections between urban, rural and employment centres. The existing situation of the road requires an intervention which must address challenges and opportunities that cannot be achieved through improvements to alternative strategic routes.

1.5.2 The key challenges and considerations that the scheme would address are:

- **Landscape** – the existing road runs through the AONB creating severance in a high value landscape in a visible position of the top of the Cotswold escarpment. Sympathetic design, including route alignment, form of road and earthworks, and application of appropriate landscape and ecological measures that respond to the local area and address fragmentation, offer opportunities to contribute to changes in view and deliver effective integration and compatibility with the landscape character of the location.
- **Environment** – the area surrounding the A417 Missing Link has a number of designated sites which are of natural significance for their scientific, environmental and heritage value. The scheme would provide for opportunity for enhancement of these sites. Additionally, there is one Air Quality Management area at Birdlip roundabout which could be mitigated through the scheme.
- **Traffic** – the A417 / A419 provides an essential link to the M5 at Gloucester and the M4 at Swindon, two of the top growth areas in the region. It also acts as an important connector between regions, providing an alternative to popular routes such as the A34 / M40, and forming an important travel route between the South Coast and the West Midlands. This section of the A417 is the only single carriageway section of an alternative high-quality continuous carriageway route. It is frequently congested, with long delays causing poor journey times and reliability compared to the rest of the A417 / A419.
- **Safety** – High volumes of traffic, poor forward visibility and steep gradients, poor weather conditions in winter months, contribute towards a particularly poor safety record on the existing single carriageway section of the A417. Accident severity is particularly high on this section, with the number killed and seriously injured casualties (KSI's) much higher than the national average for this category of road. The scheme has the opportunity to significantly improve safety on this section of road by increasing forward visibility and reducing the steep gradients on Crickley Hill.

# 2 Traffic Management Plan – detailed description

## 2.1 Customer requirements

2.1.1 Key Customers and Stakeholders include the following:

- Highways England
- Gloucester County Council
- Cheltenham Borough Council
- Cotswold District Council
- Tewkesbury Borough Council
- Emergency Services (fire and ambulance)
- Traffic Police
- Travelling Public
- Local Residents and Land Owners
- Local Businesses
- National Freight Services
- Abnormal Loads Officer

2.1.2 Highways England Customer Services Strategy – 'Better Journeys, better conversations' details Customers wants as:

- Feeling safe on the networks
- In control of their journeys
- Stress free journeys
- To be listened to
- Trust what they're being told

2.1.3 Service expectations: During the period 2015 to 2020, Highways England wants to achieve 90% customer satisfaction. The user satisfaction for 2017-18 was at 88.7% but below the 90% target set for by the Government. Researching this user satisfaction survey, some of the findings which are considered to help identify customer requirements will be taken into account while planning the TM schemes:

2.1.4 The key performance indicator (KPI) can be raised when:

- all road users passing roadworks see signs explaining the works
- a sign at the start of works stating "XXX people working on this site today" is introduced
- works were seen to be in progress at time of passing

2.1.5 Dissatisfaction may arise from:

- seeing no work in progress
- congestion
- long stretches of roadworks with speed restrictions

2.1.6 From the survey, the key factors to satisfy road users driving through the roadworks are:

- Clear communication
- Good and friendly signage explaining what the scheme is and what works are included

- Be well signposted and plenty of information
- Have enough timed advanced notices
- There should also be signage stating what the roadworks are for and why the delays

2.1.7 Highways England have identified that the following factors would positively influence customer satisfaction:

- Creating a more positive impression of roadworks; through measures to indicate progress being made, for example through signage such as (in the last month we have laid X meters of new highway drainage)
- Ensuring signage is informative; personable and positioned well in advance informing all local users of the reasons for the works
- Provision of journey time information on Highways England strategic signs (travel time data can be requested via NTIC)

2.1.8 This information is captured in Table C-1 Customers Requirement Log contained within Appendix C.

2.1.9 The twenty principles detailed in Highways England document, Roadworks: A Customers View will be considered when designing the traffic management for the A417 Missing Link. The twenty principles are detailed in Table B-1 within Appendix B – Roadworks Principles.

## 2.2 Nature of the works

2.2.1 The project includes dualling of the existing A417 up the Crickley Hill escarpment prior to circa, 2.5km of new road offline, re-joining the existing A417 at Cowley roundabout. The new alignment requires a combination of cuttings and embankments together with earthworks associated with junctions and link roads. In addition, there are 7 new structures:

- Bat underpass east of Fly-Up
- Grove Farm Access underpass
- Cotswold Way crossing
- Gloucestershire Way crossing
- Shab Hill Junction underbridge
- Cowley overbridge
- Stockwell overbridge

2.2.2 The scheme has been split into 6 main sections:

- Zone A: Ch0 to Ch500
- Zone B: Ch500 to Ch1800
- Zone C: Ch1800 to Ch2200
- Zone D: Ch2200 to Ch4000 / Shab Hill Junction
- Zone E: Ch4000 to Ch5150
- Zone F: Ch5150 to Ch5860 / Cowley Junction

2.2.3 The Gloucestershire Way crossing is a substantial structure and as well as the cut / fill in zone D and the construction of the A436 Link is on the critical path for the project – please refer to Time Chainage Programme in Appendix E.

2.2.4 Utility diversions; the following Statutory Undertakers with apparatus that may be affected by the scheme have been identified;

- Openreach
- Western Power Distribution
- Severn Trent Water
- Gigaclear
- Arqiva (telecoms masts)

2.2.5 The affected Statutory Undertakers plant is predominantly located on Crickley Hill and alongside side roads (e.g. Cold Slad Lane, Dog Lane and several unnamed lanes). The main exceptions are high voltage electricity cables and water mains which are routed through fields. Full details of the required diversions can be found in document number HE551505-ARP-HGN-X_XX_XXXX_X-RP-D-000005 “Statutory Undertakers Diversions PCF Stage 3”.

2.2.6 Traffic Management would be designed in accordance with Part 1 of Chapter 8 of the Traffic Signs Manual allowing working room to construct as well as the minimum safety zones. Barrier restraint systems will be assessed in accordance with IAN 142/11.

2.2.7 “No Construction Traffic” signs would be installed at appropriate locations to ensure construction traffic does not use local side roads which are not suitable for large vehicles. Birdlip Hill already has a 7.5T weight limit, but this would be reinforced by “No Construction Traffic” signage. All deliveries would be informed of the approved delivery route to the site, which would be mandatory.

## 2.3 Proposed traffic management measures

2.3.1 Traffic Management Phasing Plans are provided in Appendix A – TM Options.

### Restrictions

2.3.2 The Speed restrictions will be detailed in section 3.3.7.

2.3.3 Full closures of the existing A417 between Air Balloon Roundabout and Cowley Lane Roundabout, where the new road is being constructed off-line, would be restricted to overnight closures between the hours of 20.00 and 06.00. It is advised that carriageway closures on Friday nights are avoided due to the large increase in traffic flow.

2.3.4 Full weekend closures of the A417 between the A46 Shurdington Junction and the Air Balloon Roundabout up Crickley Hill between 23.00 on Friday and 05.00 on Monday would be required for the installation of TM measures up Crickley Hill.

### Operating lanes

2.3.5 Between Air Balloon Roundabout and Cowley Roundabout, the existing arrangement is single lane in each direction apart from the crawler lane towards Cirencester from Air Balloon Roundabout. The route is at the national speed limit (60mph) except for a 40mph speed restriction through Nettleton .

2.3.6 From Air Balloon Roundabout until the existing dual carriageway at Brockworth Bypass, the speed limit is 60mph with two lanes in the Cirencester bound direction and one lane towards Gloucester.

### Speed limits

2.3.7 The existing speed limits provided in section 3.3.5 will be maintained, when and where safe to do so.

- At the tie-in of Cowley Junction, it is envisaged the existing dual carriageway traffic would be placed into contra-flow with a 40mph speed restriction prior to the existing 40mph speed limit through Nettleton.
- At the tie in at Brockworth dual carriageway, contra-flows would be required to facilitate the works and it is envisaged a 40mph speed restriction would be enforced.
- Speed cameras would be provided through the works to assist with driver behaviour and compliance.
- A risk assessment of driver behaviour between the work sites should be undertaken to determine the extra mitigation measures, such as advance signage, which would be required to prevent incidents occurring from the acceleration / breaking between one section of traffic management and the other.
- On completion of the new links and carriageways, risk assessments would be undertaken to determine the earliest opportunity to lift temporary speed restrictions.

2.3.8 Table 2-1 outlines the indicative length and duration of the Traffic Management. Phases that are detailed in Appendix A.

**Table 2-1 Indicative length of traffic management**

| Carriageway | Works location | Traffic management restrictions | Length of TM (m) | Duration of TM (months) |
|---|---|---|---|---|
| Existing A417 Southbound | Crickley Hill | 40mph speed limit with single lane running | 2.15km | Phase 3 - 8 months<br>Phase 4 - 3 months<br>Phase 5 - 7 months<br>Phase 6 - 11 months<br>Phase 7 - 2 months |
| Existing A417 Northbound | Crickley Hill | 40mph speed limit with single lane running | 2.15km | Phase 5 - 7 months<br>Phase 6 - 11 months<br>Phase 7 - 2 months |
| A417 Air Balloon Roundabout Southbound | Air Balloon Roundabout | 40mph speed limit and restricted lane widths | 0.5km | Phase 2 – 4 months<br>Phase 3 – 8 months<br>Phase 4 - 3 months<br>Phase 5 – 7 months<br>Phase 6 – 2 months |
| A417 Air Balloon Roundabout Northbound | Air Balloon Roundabout | 40mph speed limit and restricted lane widths | 0.5km | Phase 2 – 4 months<br>Phase 3 – 8 months<br>Phase 4 - 3 months<br>Phase 5 – 7 months<br>Phase 6 – 2 months |

| Carriageway | Works location | Traffic management restrictions | Length of TM (m) | Duration of TM (months) |
|---|---|---|---|---|
| A436 Air Balloon Roundabout Eastbound | Air Balloon Roundabout | 40mph speed limit and restricted lane widths | 0.5km | Phase 2 – 4 months<br>Phase 3 – 8 months<br>Phase 4 - 3 months<br>Phase 5 – 7 months<br>Phase 6 – 2 months |
| A436 Air Balloon Roundabout Westbound | Air Balloon Roundabout | 40mph speed limit and restricted lane widths | 0.5km | Phase 2 – 4 months<br>Phase 3 – 8 months<br>Phase 4 - 3 months<br>Phase 5 – 7 months<br>Phase 6 – 2 months |
| Leckhampton Hill Air Balloon Roundabout both directions | Leckhampton Hill Road | 30mph speed limit and restricted lane widths | 1km | Phase 4 - 3 months<br>Phase 5 – 6 months |
| A417 Cowley Junction Southbound | Cowley Junction | 40mph speed limit and restricted lane widths | 0.8km | Phase 3 – 8 months<br>Phase 4 - 6 months |
| A417 Cowley Junction Northbound | Cowley Junction | 40mph speed limit and restricted lane widths | 0.8km | Phase 3 – 8 months<br>Phase 4 - 3 months<br>Phase 5 – 3 months |
| Unnamed side road Cowley Junction in both directions | Unnamed side Road | 30mph speed limit with restricted lane widths | 0.5km | Phase 3 – 8 months<br>Phase 4 - 3 months<br>Phase 5 – 3 months |
| New A436 (carrying A417 Traffic) Southbound | New A436 Roundabout to new Shab Hill Junction | 40mph speed limit | 1km | Phase 5 – 3 months<br>Phase 6 – 11 months<br>Phase 7 – 2 months |
| New A436 (carrying A417 Traffic) Northbound | New A436 Roundabout to new Shab Hill Junction | 40mph speed limit | 1km | Phase 5 – 3 months<br>Phase 6 – 11 months<br>Phase 7 – 2 months |
| New A417 Southbound | Crickley Hill | 40mph speed limit and contraflow running on new northbound carriageway | 3.5km | Phase 6 – 10 months |
| New A417 Northbound | Crickley Hill | 40mph speed limit and contraflow running on new northbound carriageway | 3.5km | Phase 6 – 10 months |
| New A417 Southbound | Crickley Hill | 40mph speed limit and contraflow running on new southbound carriageway | 3.5km | Phase 5 – 7 months |

| Carriageway | Works location | Traffic management restrictions | Length of TM (m) | Duration of TM (months) |
|---|---|---|---|---|
| New A417 Northbound | Crickley Hill | 40mph speed limit and contraflow running on new southbound carriageway | 3.5km | Phase 5 – 7 months |
| New A417 Southbound | Cowley Junction to new Shab Hill Junction | 40mph speed limit single lane running on new southbound carriageway | 2km | Phase 5 – 3 months<br>Phase 6 – 11 months<br>Phase 7 – 2 months |
| New A417 Northbound | Cowley Junction to new Shab Hill Junction | 40mph speed limit single lane running on new northbound carriageway | 2km | Phase 5 – 3 months<br>Phase 6 – 11 months<br>Phase 7 – 2 months |

### Carriageway and slip road closures

2.3.9 The scheme would attempt to limit the number of full carriageway closures to minimise impact and disruption to the travelling public. Existing strategic diversion routes, currently used by the Design, Build, Finance & Operator (DBFO) Contractor, would be utilised for the scheme. Details of strategic diversion routes can be found in Appendix F.

2.3.10 Table 2-2 lists the operations currently identified which would require full closures due to the proximity to the lanes, or works on/over the carriageway.

**Table 2-2 Anticipated carriageway and slip road closures**

| Operation | Number of closures | Reason for closure | Mitigation measures to minimise number of closures |
|---|---|---|---|
| Air Balloon ~~/ A436~~ roundabout~~s~~ | 4 nights A417 and A436 in both travelling directions | Traffic management switches between phases | Investigate the possibility of rolling blocks to maintain traffic flow.<br>Limit closure time to pinch point works. |
| Cowley roundabout | 5 nights A417 northbound and Southbound | Traffic management switches between phases | Investigate the possibility of rolling blocks to maintain traffic flow.<br>Limit closure time to pinch point works. |
| Cowley roundabout | 4 nights unclassified road in both directions | Traffic management switches between phases | Limit closure time to pinch point works. |
| A417 Crickley Hill | 1 weekend closure of the A417 between Air Balloon Roundabout and the A46 Junction | Installation of traffic management on Crickley Hill | Work to be planned well in advance and publicised.<br>Review methodology to minimise impact on travelling public |
| A417 Crickley Hill | 8 Nights A417 northbound and southbound | Traffic management switches | Investigate the possibility of rolling blocks to maintain traffic flow.<br>Limit closure time to pinch point works. |

| Operation | Number of closures | Reason for closure | Mitigation measures to minimise number of closures |
|---|---|---|---|
| Shab Hill junction | 4 nights A417 and A436 in both travelling directions | Traffic management switches between phases | Investigate the possibility of rolling blocks to maintain traffic flow.<br>Limit closure time to pinch point works. |
| Leckhampton Hill | 4 months in both directions adjacent to A436 junction | Allow vertical alignment of road to be changed | Plan works, if possible during winter months to minimise impact. |
| A417 Air Balloon to Cowley | 2 nights in both travelling directions | Installation of temporary Bailey Bridge over existing A417 | Bridge will be prefabricated into large sections for installation |
| A417 Air Balloon to Cowley | 2 nights in both travelling directions | Removal of temporary Bailey Bridge over existing A417 | Bridge will be removed in as large as possible segments. If possible delay until A417 traffic diverted |

### Hard shoulder running

2.3.11 Hard shoulder running is not applicable to this scheme.

### Adjacent roadworks and other traffic management

2.3.12 Liaison would be in place between the scheme and the Highways England Delivery Team, DBFO Contractor to identify future schemes or maintenance within the area so that interfaces can be successfully managed. Representatives of the scheme would attend working groups already established so that adjacent works can be integrated. Monthly TM meetings would also be held with all interested stakeholders (including police, ambulance, fire services).

### Bank Holidays and embargos

2.3.13 Where feasible and practical, traffic management would be removed during bank holiday weekends.

### Significant events and seasonal traffic

2.3.14 Road closures would not be undertaken during the Cheltenham Gold Cup ~~Weekend~~ and the Paddy Power Race Weeks. Other events that may be impacted by the scheme are to be discussed with stakeholders.

### Incident management

2.3.15 The A417 between Cowley Roundabout and A46 Shurdington Junction is a section of road that has seen numerous incidents of heavy snowfall that has led to the road becoming impassable to vehicles and motorists being trapped. The road is particularly high in elevation in this location and in addition there are multiple locations of steep gradient which during incidents of severe weather pose significant risk to vehicles losing traction.

2.3.16 The DBFO Contractor is responsible for maintaining the road during periods of severe weather as part of their contract, and each year they produce a severe weather plan. However, it is recognised that due to the particular high-risk nature

of this section of road, a co-ordinated multi-agency response is required to ensure public safety and prevent motorists becoming stranded in their vehicles. This multi-agency response is detailed in Highways England's A417 Vulnerable Location Plan Version 2.6 in Appendix G (the enclosed version of the Vulnerable Location Plan was issued in 2018 and when available, an updated version of the Plan will be incorporated into this report).

2.3.17 The contractor would be responsible for incident management on the A417 between the extents of the traffic management.

2.3.18 An incident management plan would be developed in conjunction with the DBFO Contractor, Gloucestershire Highways, Highways England Traffic Officers and emergency services.

2.3.19 The Incident Management Plan would include provisions including:

- Free recovery within the roadworks, including details of recovery vehicles, welfare facilities and procedures
- The procedures for recording incidents and identifying any unexpected levels or categories of traffic related incidents
- A formal reporting procedure
- An operational structure
- Outline contingency plan
- Undertaking desktop incident management scenarios

2.3.20 24/7 incident management teams would be located at Cowley roundabout and Brockworth bypass compounds. These teams would include traffic management operatives and recovery teams. Welfare facilities for driver and passengers would be provided in addition to a secure area for the short-term storage of damaged vehicles.

2.3.21 An emergency response store would be maintained, including plant and equipment such as emergency spill kits, mobile lighting and pumps.

2.3.22 A 24/7 Traffic Safety Control Officer (TSCO) presence would be available on site and this individual would be the first point of contact in the event of an incident.

2.3.23 In the event of an incident which requires closures or requires closure of the existing A417, the current strategic network diversion routes would be utilised as detailed in Appendix F.

2.3.24 24/7 Closed Circuit Television (CCTV) would be in operation across the scheme, maintained by the Regional Operations Centre.

2.3.25 Debriefs would be held with emergency services, Highways England and DBFO Contractor following incidents with roadworks.

**Incursion risk management**

2.3.26 An incursion risk assessment is contained within Table 2-4.

## Table 2-3 Incursion Risk Matrix

| | | | | | | |
|---|---|---|---|---|---|---|
| SEVERITY | **5** | **5** | **10** | **15** | **20** | **25** |
| | 4 | 4 | 8 | 12 | 16 | 20 |
| | 3 | 3 | 6 | 9 | 12 | 15 |
| | 2 | 2 | 4 | 6 | 8 | 10 |
| | 1 | 1 | 2 | 3 | 4 | 5 |
| | | 1 | 2 | 3 | 4 | 5 |
| | LIKELIHOOD | | | | | |

Likelihood

1 = Very Unlikely, 2 = Unlikely, 3= Likely, 4 = Very Likely, 5 = Almost Certain

Severity

1 = No Injury, 2 = Minor Injury or Illness, 3 = 3 day Injury or Illness, 4 = Major Injury or Illness, 5 = Fatality, Disabling Injury etc.

## Table 2-4 Incursion Risk Management

| Incursion hazard | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| | Factors of harm | | RISK columns 1x2 | CONTROL MEASURES | Factors of harm | | Residual risk columns 5x6 |
| | Likelihood | Severity | | | Likelihood | Severity | |
| Public Vehicles access the site via works access as a result from following in | 4 | 4 | 16 | 1 Works accesses to be located along sections of road with clear visibility and clear warning signs.<br>2 Site induction will include a traffic management element which will include details of the procedure to be followed for follow ins.<br>3 In the event of a follow in, members of the public will be advised to remain in their vehicle and await escort out of the TM Zone by the TSCO. | 2 | 4 | 8 |
| Deliberate breeches of Road Closures | 4 | 5 | 20 | 1 Design TM as per guidance in raising the bar document<br>2 Install gated, air lock system at closure points.<br>3 Alert and alarm systems at closures to quickly identify breeches and warn workforce.<br>4 Provision in closure TM to protect plant and personnel from errant vehicles.<br>5 Provide signs warning public that CCTV is in operation.<br>6 Report all incursions to Police and HE.<br>7 Provide closure details to local freight and taxi companies to inform staff. | 1 | 5 | 5 |
| Incursion of roadworks from private frontages | 4 | 4 | 16 | 1 Provide temporary access routes for properties within the roadworks.<br>2 Provide TM within closures to manage movements to residences.<br>3 Communications plans for closures shared with effected properties. | 1 | 4 | 4 |
| Incursions from vehicles parked in laybys | 3 | 4 | 12 | 1 Laybys to be closed and coned off at least a day before closures.<br>2 Checks to be carried out by TSCO in advance of closure. | 1 | 4 | 4 |
| Incursions from side roads | 4 | 4 | 16 | 1 Provide higher specification conning or gated access system at side road interface. | 1 | 4 | 4 |
| Incursions from non-motorised users | 4 | 5 | 20 | 1 Divert and clearly sign any Non-motorised User (NMU) routes affected.<br>2 CCTV installed along route to identify breeches and inform TSCO. | 1 | 5 | 5 |

### Driver compliance

2.3.27 A number of different tools would be available to assist with driver compliance through the roadworks. These include:

- Use of VMS to provide accurate up to date information.
- Vehicle activated signs on approach to risk areas such as works accesses and exits.
- Implementation of local stakeholders driving groups to share updates on the traffic management and advise on correct behaviours through roadworks.
- Enforcement of speed restrictions.
- Use of 'Ignore Satellite Navigation Systems' signs during road closures and phasing works.

### Communication plan

2.3.28 The communication plan would be developed during the next PCF stage and would confirm the mechanism by which information would be passed to all the required Stakeholders. The Project Communications Manager and Traffic Manager would interface on a regular basis to ensure accurate and timely information is provided on upcoming traffic management phases, changes to layouts and closures.

2.3.29 Changes to traffic management layouts would be notified in advance via multiple media outlets including:

- Traffic England
- Roadworks.org.
- Gloucestershire Council Website
- Project Website and Social Media/apps (Twitter/Spotify), format to be agreed with Highways England
- Local and National media
- Individual letter / email notifications

2.3.30 Local residents and land owners who may be impacted by any Traffic Management measures would be advised in advance (between 3 and 4 weeks) of the implementation of those measures, to allow them the opportunity to raise any concerns that they may have.

2.3.31 The following stakeholders would be consulted in regard to the format of customer communication:

- Major Projects Customer Service Division
- Service Delivery Operations Manager
- DBFO Contractor
- Control Room Operations Manager

### Diversion route selection

2.3.32 The Diversion routes would be agreed with Highways England, DBFO Contractor, Gloucestershire County Council and Tewkesbury Borough Council.

2.3.33 Diversion routes would be included within the clash management checks (checks to ensure proposed diversions do not clash with any other programmed road

works on or close to the diversion route) and working groups between stakeholders to avoid confusion and disruption on the local network.

2.3.34 It is proposed that the existing diversion routes used by the DBFO Contractor and Gloucestershire County Council would be utilised by the scheme as detailed in Appendix F.

2.3.35 The safety of the travelling public and the workforce would be the first priority of the scheme.

~~2.3.35~~2.3.36 Monitoring of the impact on the existing road network would be carried out. Video surveys of the affected highways would be undertaken prior to construction and upon completion.

### Safety measures

**Table 2-5 Safety measures**

| Customer group | Safety measure |
|---|---|
| Customer | • Free recovery within roadworks.<br>• Speed limit in narrow lanes.<br>• Barrier to separate workforce and travelling public with improved visibility measures. |
| Stakeholder | • Clear, well signed diversion routes risk assessed to ensure suitability for vehicles.<br>• Barrier to separate workforce and travelling public with improved visibility measures.<br>• Closures during bridge lifting and demolition operations. |
| Partner including workforce | • Airlock systems used for closure entry points to prevent unauthorised access.<br>• Suitable and sufficient temporary barrier systems.<br>• Enforced temporary speed limit trough roadworks.<br>• Closures during lifting operations. |
| Community | • Risk assess diversion routes to identify local hazards such as on road parking, bus stops, 24/7 businesses.<br>• Noise assessments for construction work on neighbouring communities. |

~~2.3.36~~2.3.37 All temporary traffic management will be subject to a Stage 3 Road Safety Audit (RSA) audit.

~~2.3.37~~2.3.38 Where there are works proposed adjacent to the running carriageway, the workforce would be protected wherever practical with Varioguard type barrier (or similar). The safety zone outside the working width would be signed on the barrier with accompanying cones and safety line as required.

### Human factors

~~2.3.38~~2.3.39 The ‘Raising the bar 11: Influencing driver behaviour at roadworks’ document provides guidance on how driver behaviour can be influenced to help manage a safe traffic management system. This would be provided in the PCF Stage 5 (Construction Preparation) revision and would detail the principles used for each customer group.

## 2.4 Proposals for management of network occupancy

2.4.1 A Temporary Traffic Regulation Order (TTRO) for the scheme would be raised through the Asset Delivery Local Team. The order would include details of proposed restrictions including:

- Speed reductions.
- Road closures.
- Layby closures.
- Public Right of Way (PROW) Diversions / Cycle route diversions.
- Contra-flow and cross overs.
- Extended closure requirements for bridge construction (installation of bridge beams).

2.4.2 The road space would be booked through the Road Space Team. Look ahead traffic management programmes would be produced on a weekly basis and issued to all stakeholders. Programmes would be reviewed at the Monthly Traffic Management Meetings to determine potential clashes in advance of bookings being raised. Records of the 7-day accuracy for planned closures would be maintained.

2.4.3 Clash management would be undertaken by the scheme Traffic Manager who would liaise with Gloucestershire County Council, DBFO Contractor and Highways England.

2.4.4 Traffic Management and upcoming closures would be communicated as detailed in section 3.3.30.

2.4.5 To ensure Customers and Customer Contact Centre receive diversion route details, ensure the details are submitted via network occupancy forms included with the road space booking.

## 2.5 Implications of traffic management measures

### Intelligent transport service

2.5.1 Traffic flow and queue assessments would need to be undertaken in PCF Stage 5 (Construction Preparation) to determine the impact from any proposed traffic management measures in operations and the Intelligent Transport Service.

### Operations

2.5.2 For further details, see paragraph 2.3.10

### Maintenance activities

2.5.3 The Principle Contractor for the scheme would be responsible for routine maintenance on the A417 between the extents of the traffic management. This would be measured from the 1-mile boards to the end of roadworks sign.

2.5.4 Pre-existing defects or known maintenance issues should be identified to the scheme prior to the commencement of works so that any works could be incorporated into the Traffic Management Plan.

2.5.5 Winter maintenance on the A417 will continue to be the responsibility of the DBFO Contractor. The Traffic Management Manager would be responsible for making regular contact with the Winter Maintenance Team. The Winter Maintenance Team would be kept updated on the changing layout of the scheme and would be notified in advance of any changes to traffic movements.

2.5.6 A Detailed Local Operating Agreement (DLOA) would be developed and agreed with the local highway authorities, operator and maintainer. The DLOA would provide clarity on the various maintenance responsibilities.

**Other service providers**

2.5.7 Abnormal loads will continue to be assessed by the DBFO Contractor. As the scheme progresses through different construction phases, new structures would be opened. The abnormal loads team would be issued with the Approval in Principle (AIP) and Construction Certificate for the structure to allow the abnormal load assessments to be undertaken.

2.5.8 Wide load and abnormal load holding laybys would be provided prior to the traffic management on both carriageways.

2.5.9 Signage would be provided prior to laybys advising wide load drivers and escort vehicles to pull in and contact the TSCO. Information boards would be provided at the laybys with contact details for the TSCO.

2.5.10 The TSCO would be contacted by the abnormal local escort vehicle prior to travelling through the roadworks.

## 2.6 TM plan management

2.6.1 This section will be updated during PCF Stage 5 (Construction Preparation).

# Abbreviations List

| | |
|---|---|
| AIP | Approval in Principle |
| AMOR | Asset Maintenance Operational Requirements |
| ANPR | Automatic Number Plate Recognition |
| AONB | Area of Outstanding Natural Beauty |
| CCTV | Closed Circuit Television |
| CTMP | Construction Traffic Management Plan |
| DBFO | Design, Build, Finance & Operator Contractor (RMS) |
| DCO | Development Consent Order |
| DF | Design Fix Stage |
| DMRB | Design Manual Roads Bridges |
| DVSA | Driver and Vehicle Standards Agency |
| GCC | Gloucestershire County Council |
| HETO | Highways England Traffic Officer |
| HGV | Heavy Goods Vehicle |
| IAN | Interim Advice Notice |
| IRP | Incident Recovery Plan |
| ITS | Intelligent Traffic Services |
| LCPO | Lowest Cost, Practical Option |
| MCDHW | Manual of Contract Documents for Highways Works |
| NMU | Non-Motorised User |
| NOMS | Network Occupancy Management System |
| NRTS | Nation Roads Telecommunications Services |
| OFT | Open for Traffic |
| PCF | Project Control Framework |
| PD | Principle Designer |
| PROW | Public Right of Way |
| RCC | Regional Control Centre |
| ROC | Regional Operations Centre |
| RSA | Road Safety Audit |
| SGAR | Stage Gate Assessment Review |
| SRN | Strategic Road Network |

| | |
|---|---|
| SRW | Scheduled Road Works |
| TO | Traffic Officer |
| TM | Traffic Management |
| TTRO | Temporary Traffic Regulation Order |
| TSCO | Traffic Safety Control Officer |
| TSM | Traffic Signs Manual |
| TVRS | Temporary Vehicle Restraint System |
| VMS | Variable Message Signs |
| WCH | Walking, Cycling, Horse Riding |
| Rolling Block | TTM technique to slow/stop traffic temporarily usually requiring police car or HETO involvement |
| Tie-In | Where new carriageway ties into existing carriageway |

# Appendices

# Appendix A TM Phasing Drawings

## A.1 TM Strategic Plans

PHASE 1

ENVIRONMENTAL + ECOLGICAL MITIGATION

N

Existing air balloon junction to be demolished

Cotswold Way Crossing

Grove Farm Underpass

Proposed route:
2+1 Lanes eastbound
2 Lanes westbound

Gloucestershire Way Crossing

Existing commercial property to be demolished

Crusher compound construction

2nd Compound location

Fly-up 417

Bat Underpass

Shab Hill Junction

New roundabout at entrance to Barrow Wake

Existing Road upgraded to B4070

Existing Underpass retained for B4070 to Birdlip

Cowley bridge

Existing A417 pavement removed and repurposed as WCH route

Access to stockwell to be maintained

Stockwell bridge

Left in / left out junction to maintain link to existing A417

Realigned Local Access Road

Existing Cowley roundabout to be demolished

Existing underpass to provide local access

Main compound construction

0 100 200 300 400 500m

SCALE 1:5000



Notes:
1.
2.

Notes continued:

Key:

- Environment + Ecology Mitigation
- Site Compound
- Existing Roads

| Rev. | Date | Comment | By | Des | Chk | App | Auth |
|---|---|---|---|---|---|---|---|
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Contract: VC0013
Location: A417 MISSING LINK
Title: OPTION 30 ALTERNATIVE GENERAL ARRANGEMENT & LONG SECTION PHASE 1 OF 7

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| Drawing No: | VC0013-VCUKTW-ZZ-XX-DR-Y-0001 |
| Revision: | P01.3 |

N

PHASE 2

- ENVIRONMENTAL + ECOLGICAL MITIGATION

- CONSTRUCTION OF MAINLINE Ch2000-5000 + A436 LINK ROAD

Install Temporary Bailey Bridge

Start construction of new A436 roundabout

Commence earthworks Cut mainline + A436

Traffic Management Measures on Existing A417

Environmental + Ecology mitigation measures in progress

Crusher Compound

Plantcrossing required + maintain access to Rushwood kennels + cattery

2nd Compound Location

Construct New Access to fly up

cut/fill earthworks to mainline A436 shabhill junction Ch2200-Ch4000

Access maintained along cowley lane

Environmental and Ecology Mitigation measures in progress

Construct Realigned Local Access Road

Main Construction Compound

0 100 200 300 400 500m

SCALE 1:5000



Notes:
1.
2.

Notes continued:

Key:

- Existing Roads
- Environment + Ecology Mitigation
- Site Compound
- Work Area
- Structures in Progress

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| Revision: | P01.3 |

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PHASE 3

- STRUCTURES CONSTRUCTION
- MAINLINE CONSTRUCTION OFFLINE

Traffic Management measures on existing A417

Construct new A436 roundabout + tie in

Construct temporary crossover in central reserve

Grove Farm Underpass Construction

Earthworks cut ongoing

Bat Underpass Construction

Northbound offline construction Ch 500-1800

Offline construction of northbound carriageway + new access to Grove farm

Crusher compound

Gloucestershire Way Crossing Bridge Construction

Shab hill junction bridge construction

Construct new B4070 Link

Earthworks + Carriageway construction northbound & southbound

Cowley bridge construction

Construction of carriageway northbound + southband

Stockwell overbridge construction

Construction of new cowley junction (retained seperately)

0 100 200 300 400 500m

SCALE 1:5000



Notes:
1.
2.

Notes continued:

Key:

- EXISTING ROADS
- WORK AREA
- COMPOUND
- STRUCTURES IN PROGRESS

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| Revision: | P01.3 |

N

PHASE 4
- TRAFFIC DIVERTED ONTO NEW A436 TO SHAB HILL THEN NEW A417 TO COWLEY

Dismantling temporary bridge

Structure Complete for Grove Farm Underpass

Traffic Management Measures on Existing A417

New A436 completed Traffic diverted to Shab Hill Junction

Traffic On Existing A417

Traffic On Existing A417

Traffic diverted from existing A417 to enable completion of cutting

A417 Traffic diverted on to A436

Structure complete for Gloucestershire crossing

Cutting + C'way Construction on going

New C'way n/b Completed + Acess to Grove farm

North bound Carriage Complete CH 500 -1800

Structure complete Underpass

Local traffic diverted through Shab Hill Junction

Cutting - plug construction following diversion through Shab Hill Junction

B4070 Complete

A417 Live 2 lane running from CH3000 - Cowley Lane Junction CH5300

Mainline Plug Completed

Traffic diverted on to new Cowley Lane bridge

A417 on mainline 1 lane both direction

Stockwell Farm bridge completed

New junction completed + opened

0 100 200 300 400 500m
SCALE 1:5000

Notes:
1.
2.

Notes continued:

Key:
- EXISTING ROADS
- WORK AREAS
- COMPLETED AREAS
- SITE COMPOUND
- STRUCTURES IN PROGRESS
- STRUCTURES COMPLETED

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| Status: | D1 |
| Drawing No: | VC0013-VCUKTW-ZZ-XX-DR-Y-0004 |
| Revision: | P01.3 |

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PHASE 5:

COMPLETE MAINLINE PLUG AREA

Construct Cotswold Way Crossing

North Bound C'way Construction

Complete RW

Traffic running though new A436 Link Road

Traffic on existing A417

North Bound + South Bound traffic in contra flow

Traffic on existing A417

Completed N/B

Completed excavation of Plug + C'way Construction North Bound

B/top + Whiteline C'way

Construction North Bound C'way + Layby

North Bound C'Way Completed CH500 - 1800 but not available for traffic

Complete B/Top + White lining

A417 on mainline 1 lane both directions

Stockwell farm bridge completed

New junction completed + opened

0 100 200 300 400 500m

SCALE 1:5000

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Notes:
1.
2.

Notes continued:

Key:
- EXISTING ROADS
- SITE COMPOUND
- STRUCTURES COMPLETED
- COMPLETED AREAS
- WORK AREAS
- STRUCTURES IN PROGRESS

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| Revision: | P01.3 |

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PHASE 6

SWITCH TRAFFIC
INTO CONTRA FLOW
NORTHBOUND

COMPLETE SOUTHBOUND
CARRIAGEWAY WORKS

Modifications
to Cold Slab

Construction Works

Construction Works

Crossover

Crossover

Traffic in
Contra flow
North Bound
Side

2nd Compound
Location

Traffic switches
into contra flow
North Bound

1 lane
North Bound

1 lane
South Bound

Shab Hill Junction
fully Operational

Cowley Bridge
Complete

A417 on
mainline 1 lane
both directions

Stockwell
bridge
completed

New junction
completed
+ opened

0 100 200 300 400 500m

SCALE 1:5000



Notes:
1.
2.

Notes continued:

KEY:
- EXISTING ROADS
- WORK AREAS
- SITE COMPOUND
- COMPLETED AREAS
- STRUCTURES COMPLETED

| Rev. | Date | Comment | By | Des | Chk | App | Auth |
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Size: A0
Purpose of Issue: PCF STAGE 3
Status: D1
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Revision: P01.3

## A.2 Cowley Junction TM Phasing

STAGE 2

-OFFLINE CONSTRUCTION WORKS

Temporary Compound Access

New Roundabout levels to match existing as best as possible

Tie in works temporary

1. Remove existing splitter island
2. Construct temp road alignment through existing roundabout
3. Construct new minor road temporary alignment and west side of new roundabout
4. New north junction on/off
5. New southbound on/off

Key:

- Traffic Flow
- Construction Areas Offline



| Rev. | Comment | By | Chk | Auth |
|---|---|---|---|---|
| Date | | Des | App | |
| P01.3 | AMENDED AFTER REVIEW | JPC | JM | - |
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| P01.1 | FIRST ISSUE | HR | RH | - |
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Contract: VC0013

Location: A417 MISSING LINK

Title: COWLEY JUNCTION CONSTRUCTION TRAFFIC MANAGEMENT PHASING STAGE 3 OF 5

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| Names shown are valid for current revision | |
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| Size: | A3 |

Purpose of Issue: PCF STAGE 3

Status: D1

Drawing №: VC0013-VCUKTW-CJ-XX-DR-Y-0003

Revision: P01.3

**STAGE 3:**

- SWITCH TRAFFIC TO A417 TEMPORARY ALIGNMENT AND CONTRA FLOW

CONSTRUCT NEW SOUTHBOUND ON/OFF SLIP

TEMPORARY DIVERSION THROUGH ROUNDABOUT

CONSTRUCTION ACCESS ONLY

CONSTRUCT NEW SOUTHBOUND CARRIAGEWAY ALIGNMENT AND BLACKTOP TIE IN

ACCESS TO FIELD MAINTAINED

SWITCH TRAFFIC INTO CONTRA FLOW ON NORTHBOUND CARRIAGEWAY

Birdlip Quarry (disused)

Nettleton Plantation

Castle Hill Copse

Spring

Spring

Quarry Hill Copse

The Granary

ROMAN ROAD

A 417

Def

Elmon Way

264.7m

264.5m

241.8m

50m 0 50m 100m 150m 200m 250m

Key:

- Traffic Flow
- Construction
- Completed Works



| Rev. | Comment | By | Chk | Auth |
|---|---|---|---|---|
| Date | | Des | App | |
| P01.3 | AMENDED AFTER REVIEW | JPC | JM | - |
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| P01.1 | FIRST ISSUE | MAC | RH | - |
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Contract: VC0013

Location: A417 MISSING LINK

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| Size: | A3 |

Purpose of Issue: PCF STAGE 3

Status: D1

Drawing №: VC0013-VCUKTW-CJ-XX-DR-Y-0004

Revision: P01.3

**STAGE 4:**

- SWITCH TRAFFIC TO CONTRA FLOW (SOUTHBOUND)
- CONSTRUCTION OF NORTHBOUND CARRIAGEWAY AND BLACKTOP TIE INS

SINGLE LANE
IN BOTH DIRECTIONS

SINGLE LANE
NORTHBOUND TRAFFIC
SWITCH ACROSS

SWITCH TO CONTRA FLOW
ON SOUTHBOUND CARRIAGEWAY

Nettleton Plantation
Birdlip Quarry (disused)
ROMAN ROAD
A 417
Ermin Way
Castle Hill Barrow
Spring
Quarry Close
The Granary

50m 0 50m 100m 150m 200m 250m

Key:

- Traffic Flow
- Construction
- Removal of Existing Carriageway and Landscape



| Rev. | Comment | By | Chk | Auth |
|---|---|---|---|---|
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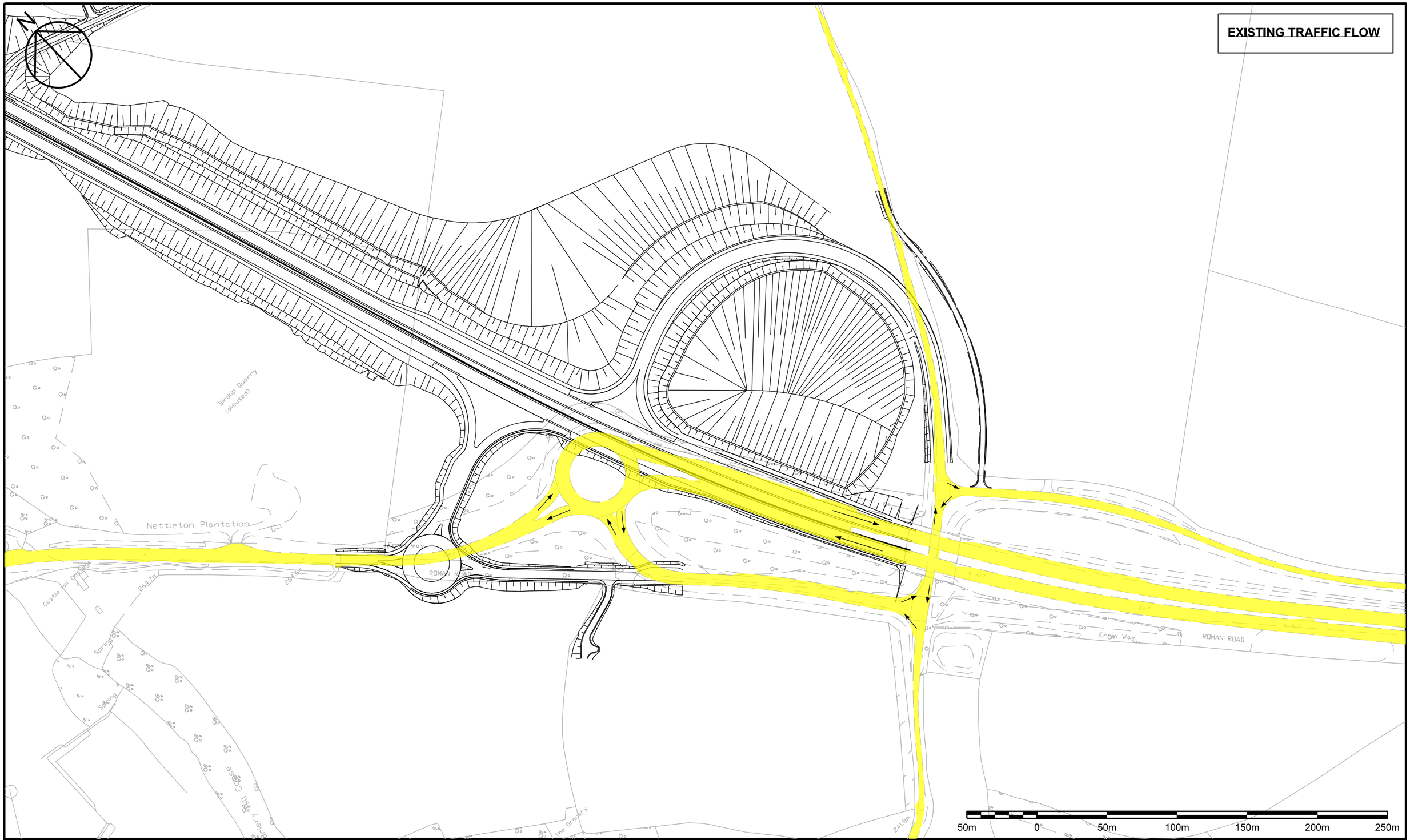
| Purpose of Issue: | PCF STAGE 3 |
| Status: | D1 |
| Drawing №: | VC0013-VCUKTW-CJ-XX-DR-Y-0005 |
| Revision: | P01.3 |

**EXISTING TRAFFIC FLOW**




Notes:
1.
2.

Key:

Traffic Flow



| Rev. | Comment | By | Chk | Auth |
|---|---|---|---|---|
| Date | | Des | App | |
| | | | | |
| P01.2 | AMENDED AFTER REVIEW | JPC | JM | - |
| 06.01.21 | | - | MF | |
| P01.1 | FIRST ISSUE | HR | RH | - |
| - | | - | RH | |

Originator: VINCI CONSTRUCTION UK
Contract: VC0013
Location: A417 MISSING LINK
Title: COWLEY JUNCTION CONSTRUCTION TRAFFIC MANAGEMENT PHASING STAGE 1 OF 5

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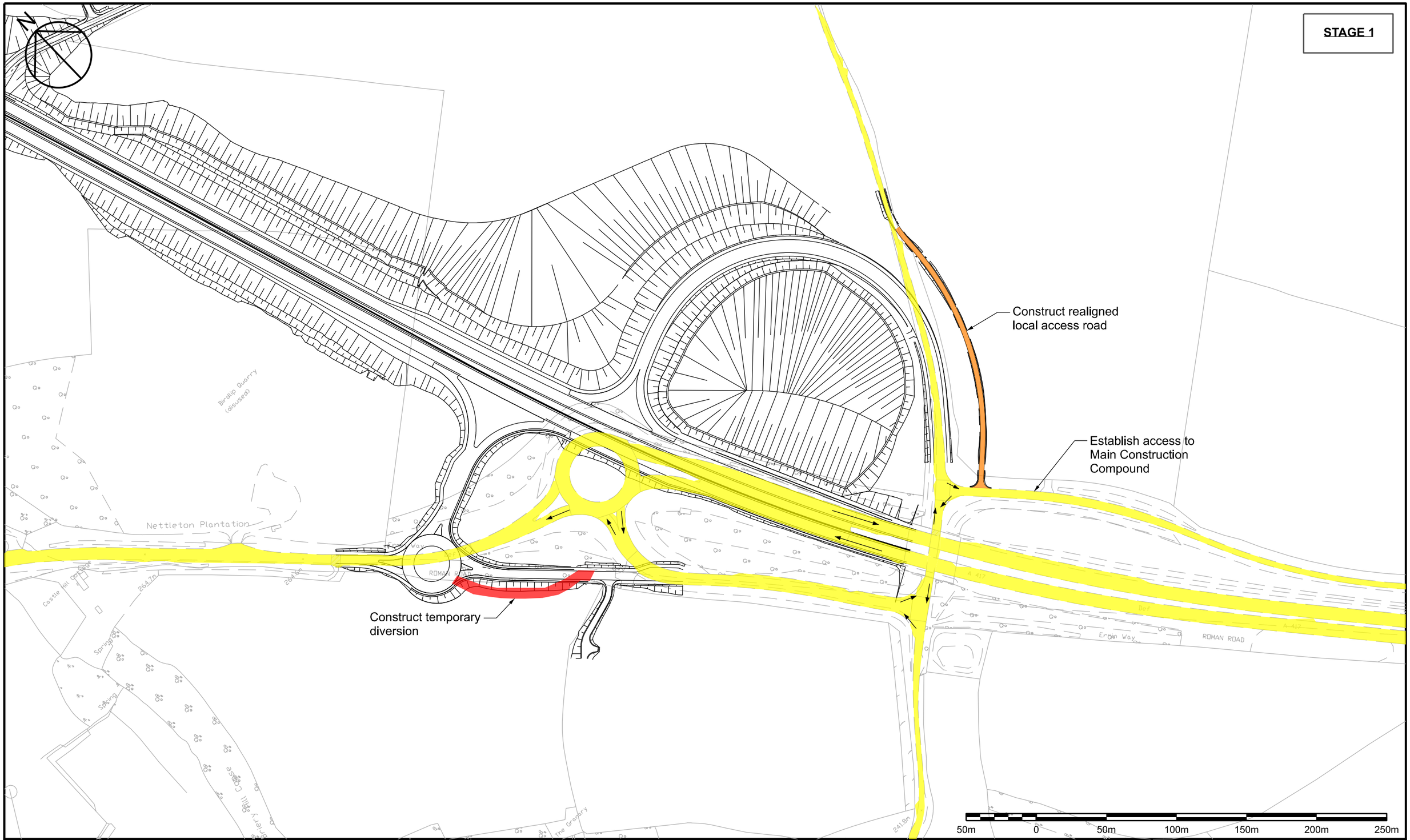
| Approved: | MIKE FINLEY |
| Authorised: | N/A |

Names shown are valid for current revision
Scale: 1:2500
Size: A3
Purpose of Issue: FOR COSTING
Status: D1
Drawing №: VC0013-VCUKTW-CJ-XX-DR-Y-0001
Revision: P01.2

STAGE 1




## Challenges

1. New alignment clashes with existing roundabout
   - -i) Can alignment move right for mainline?
   - -ii) What is cross section level difference at A-A?
2. Can this be moved across slightly to allow temp tie in at 3.?
3. Temp tie in alignment
4. Cross Section Here? Temp cross over for contra flow B-B and C-C
5. Could this move slightly north so can build more of northbound off slip for future TM phases

Key:

- Traffic Flow
- Reservation Areas Offline
- Construction Areas Offline



| Rev. | Comment | By | Chk | Auth |
|---|---|---|---|---|
| Date | | Des | App | |
| P01.2 | AMENDED AFTER REVIEW | JPC | JM | - |
| 06.01.21 | | - | MF | |
| P01.1 | FIRST ISSUE | HR | RH | - |
| 25.09.19 | | - | RH | |

Originator: VINCI CONSTRUCTION UK

Contract: VC0013

Location: A417 MISSING LINK

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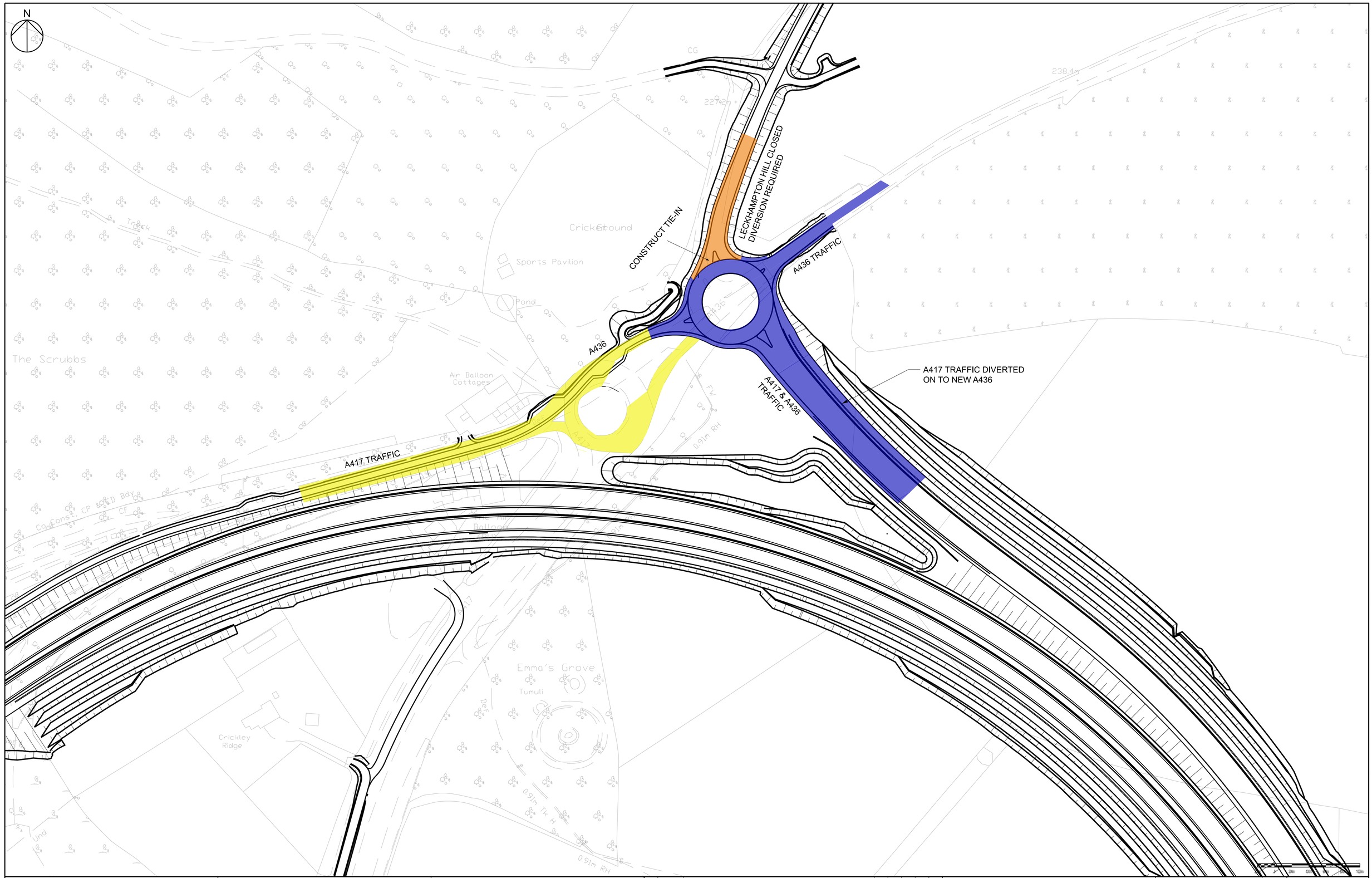
| Authorised: | N/A |
| Names shown are valid for current revision | |
| Scale: | 1:2500 |
| Size: | A3 |
| Purpose of Issue: | FOR COSTING |
| Status: | D1 |
| Drawing №: | VC0013-VCUKTW-CJ-XX-DR-Y-0002 |
| Revision: | P01.2 |

## A.3 A436 Roundabout TM Phasing






KEY:

- CONSTRUCTION
- TRAFFIC
- COMPLETED AREAS

PHASE 3

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| P01.3 | 05/01/21 | AIR BALLOON FOR CONSTRUCTION | JPC | - | JM | MF | - |
| P01.2 | 12/11/19 | AIR BALLOON FOR CONSTRUCTION | HR | - | MF | RH | - |
| P01.1 | 08/11/19 | AIR BALLOON FOR CONSTRUCTION | HR | - | RH | RH | - |

Originator: VINCI CONSTRUCTION UK - WATFORD
Contract: VC0013
Location: A417 MISSING LINK
Title: A436 ROUNDABOUT PHASE 3

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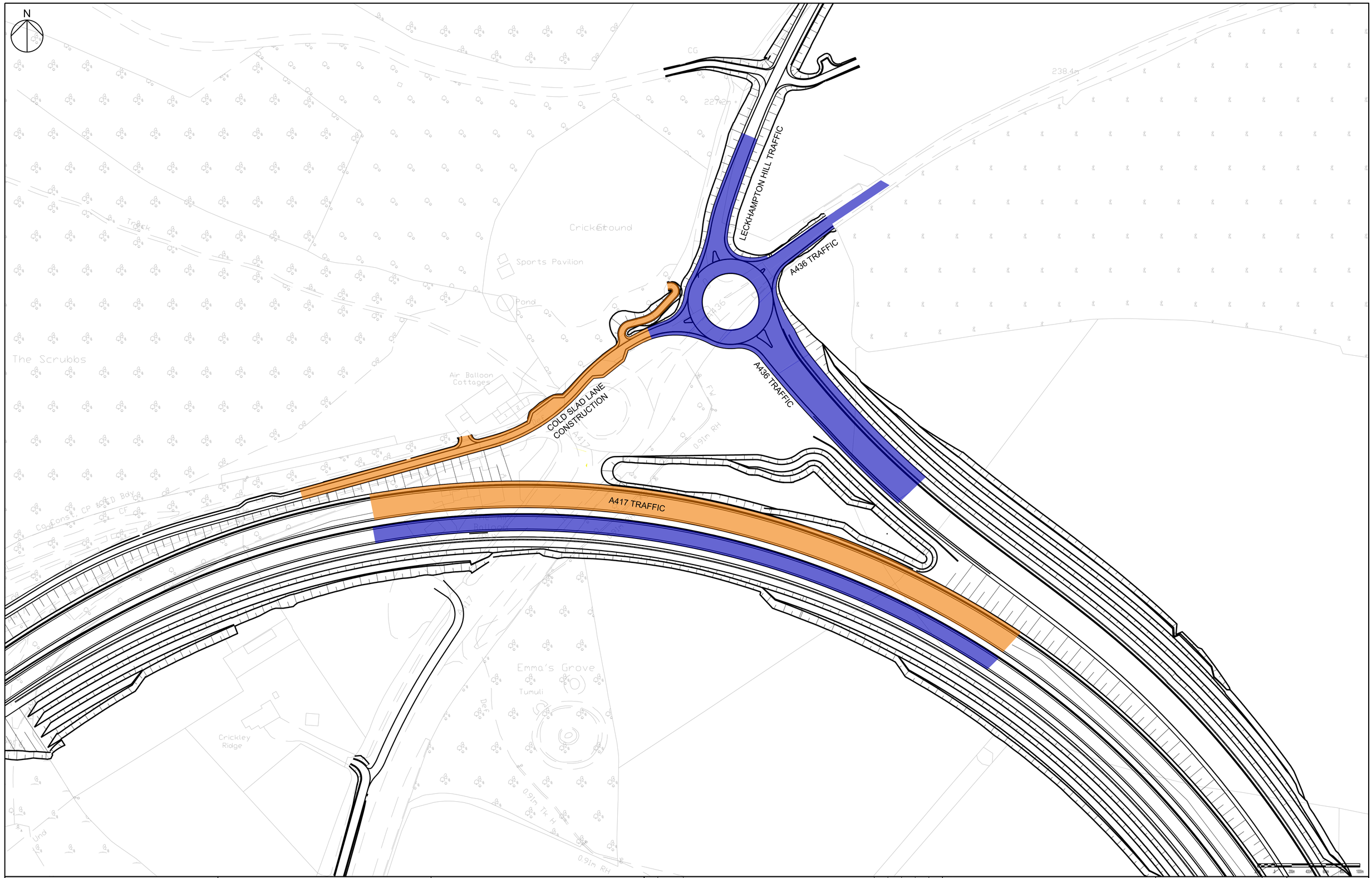
| Authorised: | - |

Names shown are valid for current revision | Scale: 1:100 | Size: A1

Purpose of Issue: AIR BALLOON FOR CONSTRUCTION | Status: D1

Drawing No: VC0013-VCUKTW-V1-XX-DR-Y-0003 | Revision: P01.3






KEY:

- CONSTRUCTION
- TRAFFIC
- COMPLETED AREAS

PHASE 4

| Rev. | Date | Comment | By | Des | Chk | App | Auth |
|---|---|---|---|---|---|---|---|
| P01.3 | 05/01/21 | AIR BALLOON FOR CONSTRUCTION | JPC | - | JM | MF | - |
| P01.2 | 12/11/19 | AIR BALLOON FOR CONSTRUCTION | HR | - | MF | RH | - |
| P01.1 | 08/11/19 | AIR BALLOON FOR CONSTRUCTION | HR | - | RH | RH | - |

Originator: VINCI CONSTRUCTION UK - WATFORD
Contract: VC0013
Location: A417 MISSING LINK
Title: A436 ROUNDABOUT PHASE 4

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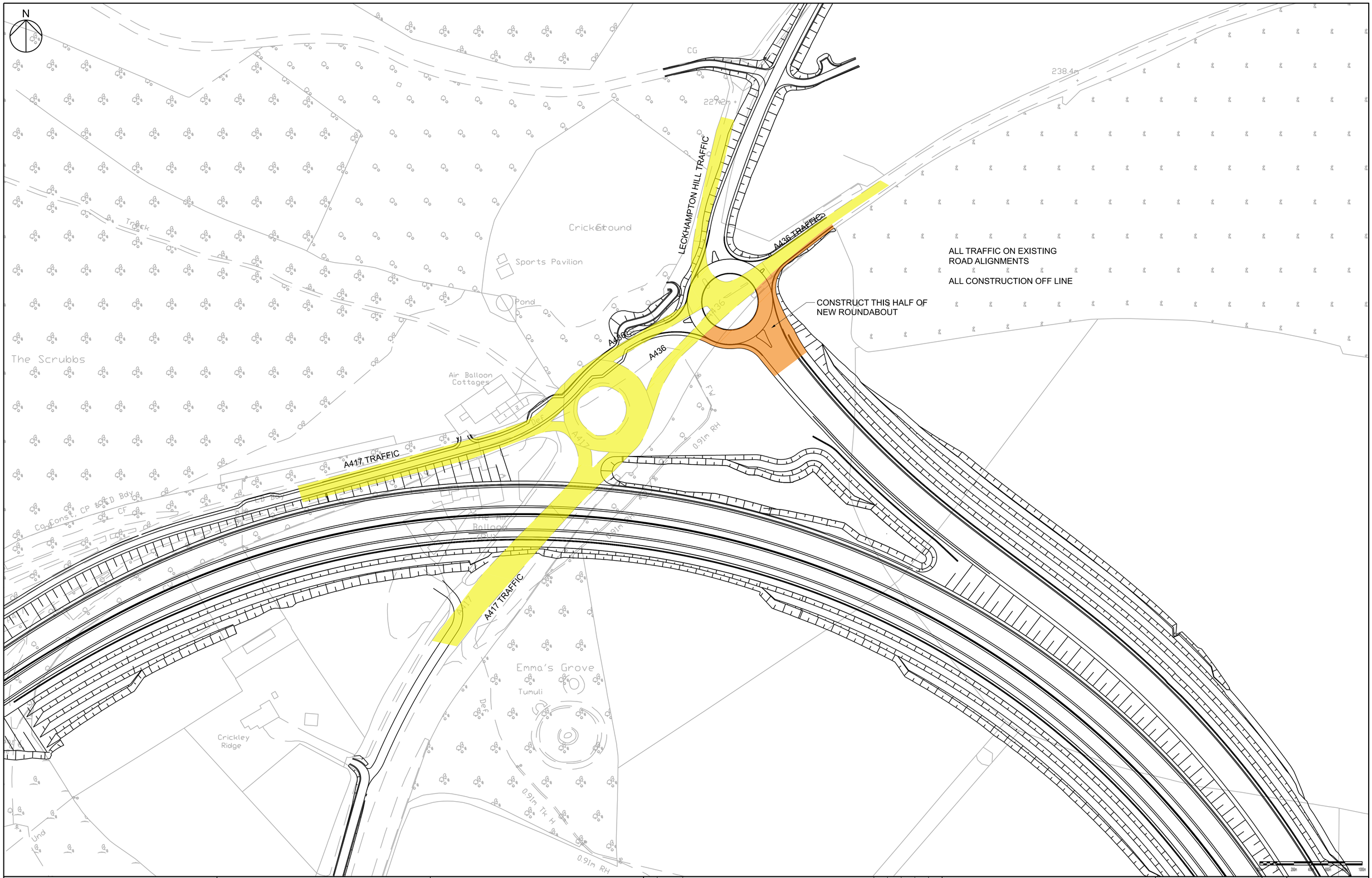
| Approved: | MIKE FINLAY |
| Authorised: | - |
| Names shown are valid for current revision | |
| Scale: | 1:100 |
| Size: | A1 |
| Purpose of Issue: | AIR BALLOON FOR CONSTRUCTION |
| Status: | D1 |
| Drawing No: | VC0013-VCUKTW-V1-XX-DR-Y-0004 |
| Revision: | P01.3 |






KEY:

- CONSTRUCTION
- TRAFFIC

PHASE 1

| Rev. | Date | Comment | By | Des | Chk | App | Auth |
|---|---|---|---|---|---|---|---|
| P01.3 | 05/01/21 | AIR BALLOON FOR CONSTRUCTION | JPC | - | JM | MF | - |
| P01.2 | 12/11/19 | AIR BALLOON FOR CONSTRUCTION | HR | - | MF | RH | - |
| P01.1 | 08/11/19 | AIR BALLOON FOR CONSTRUCTION | HR | - | MF | RH | - |

Originator: VINCI CONSTRUCTION UK - WATFORD
Contract: VC0013
Location: A417 MISSING LINK
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| Designed: | - |
| Checked: | JACK MURONI |
| Approved: | MIKE FINLEY |
| Authorised: | - |

Names shown are valid for current revision | Scale: 1:100 | Size: A1

Purpose of Issue: AIR BALLOON FOR CONSTRUCTION
Status: D1
Drawing No: VC0013-VCUKTW-V1-XX-DR-Y-0001
Revision: P01.3

# Appendix B Roadworks Principles

### Table B-1 Customer View Requirements

| Reference | Principle | Detail | Implementation on Scheme |
|---|---|---|---|
| | **Planning and design of traffic management** | | |
| 01 | Better integration with other roadworks | • Plan and integrate better with other roadworks and infrastructure projects so that the total customer impact is understood and mitigated. | • Integrated traffic management meetings with Asset Delivery Southern Team, adjacent projects and Cormac to avoid clashes and share resource.<br>• Single point of communication with stakeholders receiving one combined set of information. |
| 02 | Find ways to deliver projects quicker | • Explore ways to reduce the time roadworks take but not if this increases disruption to customers, particularly during peak times. | • Value Engineering to be undertaken during detailed design development.<br>• Undertake scenario testing of programme to understand impacts of efficiency plans. |
| 03 | Shorten the length of “live” roadworks | • Seek shorter lengths of roadworks, staggering activity to minimise disruption to any one customer journey. | • Scheme has been designed with the majority of the new route off line.<br>• Use of temporary carriageways at junction locations to maintain traffic flow. |
| 04 | Widen “narrow” lanes | • Widen non-standard /temporary “narrow” lanes within roadworks | • To be reviewed in detailed traffic management design in regard to minimum road widths and available working<br>• space at site access/exit points along the existing carriageway. |
| 05 | Vary speed limits | • Use variable speed limits, and update these to better reflect road conditions and the level/nature of current activity. | |
| 06 | Improve line demarcation. | • Improve demarcation of temporary lines, especially at night/in bright sunlight. | • Implement permanent lining in cases were lines are required for a duration greater than 3 months, |
| 07 | Improve varioguard visibility | • Improve the visibility of the Varioguard (or similar approved), especially in narrow lanes. | • Regular cleaning of the reflectors on the barrier system.<br>• Use white line paint to increase visibility of the barrier. |

| Reference | Principle | Detail | Implementation on Scheme |
|---|---|---|---|
| 08 | Explore options for temporary lighting | • Consider using temporary lighting during roadworks to improve the visibility of lanes and the Varioguard (or similar approved). | • Undertake risk assessment to determine need for temporary lighting through scheme. |
| | **Information Provision** | | |
| 09 | Give more advance notice | • Give advance notice of works – a minimum of four weeks prior to their start at the roadside. | • Weekly updates on project website.<br>• Weekly updates via stakeholder distribution lists.<br>• VMS signs at ports<br>• Updates on Traffic England and Roadworks.org.<br>• Information on electronic billboards on roadside on approach to scheme and on strategic road network. |
| 10 | Use more billboards to display reasons and timescales for the works. | • For billboards to be effective they need to be located at the start of the works and repeated after each junction. | • Regular VMS signs along route providing project updates.<br>• Major Project Instruction (MPI) 48: Use Billboard signage to communicate scheme information to customers. Undertake review to determine if duplicate<br>• signing is required at intermediate junctions along A30. |
| 11 | Use more electronic signage | • Electronic signage is preferred by customers and tends to be trusted as more up-to-date. | • Travel time reports to be shown on VMS trough the scheme.<br>• Travel time for diversion routes to be displayed.<br>• Notification of road closures utilising strategic VMS by contacting vmsrequests@highwaysengland.co.uk 21 days prior to closure |
| 12 | Use more travel time variable message signs (TTVMS) | • Make more use of TTVMS – ideally, using this repeatedly through roadworks. | • Include TTVMS to inform customers prior to the A417 works. |
| 13 | Design a progress-o-meter | • Update customers about overall progress via signage within roadworks (and through other media), particularly for less tangible projects. This should be allied to updates on key milestones and what has been completed. | • Provide VMS detailing next milestone event on the scheme and countdown to completion. |
| | **Engaging and Communicating with Customers** | | |

| Reference | Principle | Detail | Implementation on Scheme |
|---|---|---|---|
| 14 | Engaging local communications and outreach. | • Improve communications and outreach to local residents. Widen the catchment area, going beyond those immediately impacted and reaching those living along diversion routes and at local commuter hubs. | • Include within the scheme communication plan<br>• Engage local communities in the scheme, arrange open door weekends and request feedback on traffic management via project website/social media feed. |
| 15 | Use multiple media channels, regularly. | • Provide information frequently and via multiple methods including social media and roadside. | • Project website, with contact details for enquiries and complaints.<br>• Project social media page<br>• Information boards at ports, airports and service areas<br>• Information included on travel website pages/booking pages for ports/airports/football clubs.<br>• MPI 55: Daily checks of the details provided on Traffic England to be undertaken by the traffic management manager for the scheme.<br>• Follow guidance in the Project Managers guide: Accurately updating Network Occupancy Management System (NOMS) and our digital channels available on the MP Customer Division Portal.<br>• Provide regular briefings and frequently asked questions document to Customer Contact Centre. |
| 16 | Adopt impactful messages | • As well as the need to communicate “facts” – what is happening, the duration of the works and the complete schedule – use messages which resonate positively with customers including meeting local<br>• priorities, delivering safety benefits and reducing disruption to customers. | • Include milestone achievements on the project website including details/records of the works undertaken during closures. |
| 17 | Explain no activity | • Find ways to explain why no visible activity is taking place within roadworks. This should help to reduce an important source of customer frustration. | • Detail specific activities when this may take place for instance, testing and commissioning. |
| 18 | Organise a customer reality-check of new traffic management | • Organise an early drive through new traffic management to spot issues, improvements, behaviours and any unintended consequences. | • Invite stakeholders to undertake drive through and request feedback. Undertake bus drive through with TSCO, |

| Reference | Principle | Detail | Implementation on Scheme |
|---|---|---|---|
| | | | emergency services and representatives from local stakeholders. Request feedback from NMU user groups. |
| 19 | Collect and monitor customer experience | • Seek and act on feedback from customers on delivery, but also to scope and evaluate changes to traffic management. Use this alongside other sources of evidence and insight. | • Develop a customer feedback tool which can be completed on line. |
| 20 | Complete the feedback loop | • Seek how customer input has influenced delivery and project management. Highlight benefits to customer when these are realised. | • Monthly customer audits of the roadworks<br>• Implement you said we did feedback page on the project website |

# Appendix C Customer Impact Assessment Tool

### Table C-1 Customer Requirements Log

| Customer Group | Who is affected by this project? | What are their requirements and how are they impacted? | How has the TM Plan taken these requirements into account and proposed mitigations using the customer principles? |
|---|---|---|---|
| Customer | HGV Driver | • Journey time reliability<br>• Advance warning of closures and/or diversions<br>• Appropriate diversion routes<br>• Maximised lane widths where possible | • Sufficient notification of closures<br>• Closure clashes – not having closures on alternative routes – attendance at Working Groups to deconflict closures<br>• Diversion routes avoid narrow roads and low bridges |
| | Disabled Car Driver | • Method of recovery that is suitable for PRMs and their vehicles<br>• Suitable roadside facilities for disabled users | • Recovery vehicles are wheelchair accessible<br>• Welfare points with disabled access<br>• A417 Vulnerable Location Plan |
| | Road Drivers | • Journey time reliability<br>• Advance warning of closures & diversions<br>• Appropriate diversion routes | • Sufficient notification of closures<br>• Closure clashes – not having closures on alternative routes – attendance at Working Groups to deconflict closures<br>• Provision of journey time information on HE strategic signs |
| Stakeholder | Local Businesses | • Journey time reliability<br>• Advance warning of closures & diversions | • Routes clearly signed through Traffic Management<br>• Sufficient notification of closures |
| | Emergency Services | • Clear details of restrictions on routes<br>• Access through works areas and haul routes during emergencies<br>• Suitable diversion routes<br>• Advance warning of closures & diversions | • Process and procedure for allowing blue-light travel though the works/haul routes<br>• Diversion routes avoiding narrow roads and low bridges<br>• Sufficient notification of closures<br>• Robust Incident Management Plan<br>• Liaise with hospital and emergency service |

| Customer Group | Who is affected by this project? | What are their requirements and how are they impacted? | How has the TM Plan taken these requirements into account and proposed mitigations using the customer principles? |
|---|---|---|---|
| | County Councils | • Early notification of closures / diversions that may impact on the highway maintenance activities such as winter maintenance.<br>• Clash management of closures and diversion routes with the local highway authority.<br>• Early engagement to establish the frequency and level of liaison. Identify points of contact in the organisation. | • Representative to be invited to traffic management meetings to share upcoming closures details.<br>• Advance notification of closures/diversions.<br>• Emergency Plan to include call in process between the contractor's TSCO and the duty managers. |
| | Parish Councils | • Closures / diversions and traffic management that may impact on journey time reliability.<br>• Advanced notification of disruptive works.<br>• Early engagement to establish the frequency and level of liaison. Identify points of contact in the organisation and agree format of information provided for presentation to customers. | • Sufficient notification of closures on the project website,<br>• Provide link to project website. |
| Partner | Aggregate Suppliers / Disposal | • Clear route for ease of delivery<br>• Journey time reliability to site<br>• Suitable access and egress | • Manage haul roads to facilitate site deliveries<br>• Access and egress points clearly marked and close to delivery site |
| | Emergency Services | • Access through site during emergencies, suitable diversion routes<br>• Advance warning of closures and/or diversions<br>• Debriefing following incidents. | • Process and procedure for allowing blue-light travel through the works.<br>• Diversion routes avoid narrow roads and low bridges<br>• Sufficient notification of closures<br>• Advance planning with emergency services of Traffic management proposals<br>• Major Projects Instruction (MPI) 58: Debriefing of all incidents within the roadworks and sharing learning with Highways England and wider supply chain. |

| Customer Group | Who is affected by this project? | What are their requirements and how are they impacted? | How has the TM Plan taken these requirements into account and proposed mitigations using the customer principles? |
|---|---|---|---|
| | DBFO contractor | • Early engagement to establish the frequency and level of liaison. Identify points of contact in the organisation and agree format of information provided for presentation to customers,<br>• Early notification of closures/diversion routes for maintenance works and winter maintenance. | • DBFO Team representatives to be consulted in the development of this plan.<br>• Integrated traffic management meetings to avoid clashes on the strategic network and local diversion routes.<br>• Representative from DBFO Contractor to join TM meetings.<br>• DBFO Compound manager to receive weekly updates of the traffic management schedule.<br>• 24/7 contract number for compound to be included in the emergency plan.<br>• Detailed Local Operating Agreement to include communication details between contractor and winter maintenance manager. |
| | Highways England Customer Call Centre | • Notified of works and diversion routes.<br>• Receive regular updates on scheme progress | • Provided with weekly updates of the traffic management schedule.<br>• Develop a Frequently Asked Questions Document.<br>• Provide monthly project updates detailing scheme progress. |
| Community | Local Residents | • Advance warning of closures and / or diversions<br>• Sensitivity to local requirements e.g. market days<br>• Minimal disruption due to works, including environmental factors (e.g. noise, dust, lighting) and diversion routes. | • Notification and liaison with individuals and / or local group representatives<br>• Activity curfews e.g. no piling between 22:00-06:00<br>• Diversion route signs and information to meet driver requirements and optimise usability to reduce opportunities for error and therefore reduce congestion<br>• No construction traffic through the village of Birdlip. |
| | Local Events e.g. Cheltenham Gold Cup Weekend | • Minimum disruption due to works to and from venue | • Closures/diversions to avoid such events and/or simultaneous activities |

# Appendix D Dynamic Roadworks Benchmarking Template

**MAJOR PROJECTS: DYNAMIC ROAD WORKS OVERVIEW AND TEMPLATE V2.0**

Based on customer feedback the Major Projects Executive recently agreed a dynamic road works vision. The full vision can be found here (https://haportal.net/way-we-work/pcf-zproduct/trafficmanagementplan.html), within the traffic management plan section of the project control framework.

The vision describes 5 key areas where we are looking to change our approach to road works.

1. Varying the speed limits so they are appropriate for the work taking place
2. Shortening the length of road works
3. Appropriate use of full road closures and associated diversions
4. Delivering road works quicker
5. Explaining clearly what activities are, or are not, taking place

Due to the content of this vision it is acknowledged that it cannot be achieved in the short-term. For this reason, each programme within Major Projects will soon begin to develop transition plans with the objective of working towards the vision in RIS1 (Road Investment Strategy) period, with a view to achieving it in RIS2

Whilst these transition plans are being developed it has been agreed that each project currently in design or construction will be benchmarked to determine how the scheme is achieving (or planning to achieve) the dynamic road works vision.

To capture this information a simple template has been developed to benchmark schemes. The below table should be completed to record the benchmark scores allocated.

| **Vision** | **Green/Amber/Red/NA/Not yet known** |
|---|---|
| 1. Speeds | Amber |
| 2. Length | Amber |
| 3. Closures and diversions | Amber |
| 4. Delivering quicker | N/A as offline scheme |
| 5. Explaining activity | Amber |

To support the benchmark scores, a form has been developed and any supporting evidence to justify the benchmark scoring should be provided as required.

| | Green (aligned to vision) | Amber (just outside vision) | Red (well outside vision) |
|---|---|---|---|
| Speeds | Over 50% of the project (in distance and time) is at the permanent speed limit | Less than 50% is at the permanent speed limit, but there is clear evidence showing what alternative methods of construction were used. | Less than 50% is at the permanent speed limit, and there is no evidence showing what alternative methods of construction were used. |
| Length | The total length of TM on any one 'journey' (i.e. on 2 arms of a roundabout that could form a realistic journey) is shorter than 6km, or 1 link if on a motorway.<br><br>Or, the total length of TM is more than 6km (or 1 link if a motorway) but there is evidence the increased length is proportional to a reduced delivery time.<br><br>Or, the total length of TM is more than 6km (or 1 link if a motorway) but the additional length is operating at a minimum of 60mph.<br><br>AND the average journey time created by the road works is not more than an additional seven minutes thirty seconds. | The total length of TM is more than 6km (or 1 link if a motorway) and there is evidence that the reduced delivery time is halfway proportional to the increased length. e.g. a fifty percent increase in length for a 25% reduction in the time taken to deliver the additional length.<br><br>AND the average journey time created by the road works is not more than an additional seven minutes thirty seconds. | The total length of TM is more than 6km (or 1 link if a motorway) and there is no evidence of reduced delivery time even halfway proportional to the increased length, nor is the additional length a minimum of 60mph.<br><br>AND/OR the average journey time created by the road works is more than an additional seven minutes thirty seconds. |
| Closures & diversions | No more than 1 full closure every 3 months<br><br>And / or the diversion route has a comparable journey time, and impact on communities along the diversion route are minimal | No more than 1 full closure every month | More than 1 full closure every month |
| Delivering quicker | Benefits are delivered to the customer before full opening (NA if offline scheme)<br><br>AND construction is undertaken at least 6 days a week | Benefits are delivered to the customer before full opening (NA if offline scheme)<br><br>OR construction is undertaken at least 6 days a week | No benefits are delivered to the customer before full opening (NA if offline scheme)<br><br>NOR is construction undertaken at least 6 days a week |

| | | | |
|---|---|---|---|
| | AND restrictions are lifted during embargo periods (unless full productivity is maintained) | OR restrictions are lifted during embargo periods (unless full productivity is maintained) | NOR are restrictions lifted during embargo periods (and full productivity isn't maintained) |
| Explaining activity | There is evidence of a comprehensive on-road/off-road communications approach, which updates customers as required of activities undertaken, works completed and progress made. | Evidence of an off-road only communications approach, which updates customers as required of activities undertaken, works completed and progress made. | No evidence of a communications approach which updates customers as required of activities undertaken, works completed and progress made. |

**NA** – This part of the vision is not applicable to this scheme e.g. the scheme may be a new road so there is no need to report on speeds/length etc

**Not yet known** – The scheme cannot yet provide this information. If this option is chosen, then scheme must provide supporting evidence on a) why it is not yet know and b) when the information is expected to be available.

| Scheme | A417 The Missing Link |
|---|---|

**1) Varying the speed limits so they are appropriate for the work taking place**
(Green/Amber/Red/NA/Not yet known)

- Proposed reduction from national speed limit to 40mph along the existing A417 up Crickley Hill to Air Balloon roundabout.

2) **Shortening the length of road works**
(Green/Amber/Red/NA/Not yet known)

Total length of restrictions between the start of the speed limit at the bottom of Crickley Hill southbound to end of restrictions at Cowley is 5.5km. This is the worst case scenario when contraflow or narrow lane running is implemented at all site locations. As the scheme progresses new elements, such as the new carriageway between Cowley and Shab Hill will become operational, reducing the lengths of carriageway under temporary speed restrictions.

Average **additional** journey time with 40mph limit through 5.5km is 1 minute 41 seconds

**3) Appropriate use of full road closures and associated diversions**
(Green/Amber/Red/NA/Not yet known)

Road closures are detailed in section 3.3.6 of the TMP. Closures required for Green Bridge construction and traffic management switches. In addition, Leckhampton Hill needs to be closed to enable vertical alignment reprofiling. Over 50% of scheme is offline with minimal closure requirements.

**4) Delivering road works quicker.**
(Green/Amber/Red/NA/Not yet known)

N/A as predominately an offline scheme

**5) Explaining clearly what activities are, or are not, taking place**
(Green/Amber/Red/NA/Not yet known)

Proposals will be confirmed by the delivery contractor in the PCF stage 5 update of the traffic management plan and detailed in the communications plan, to enable this to be green.

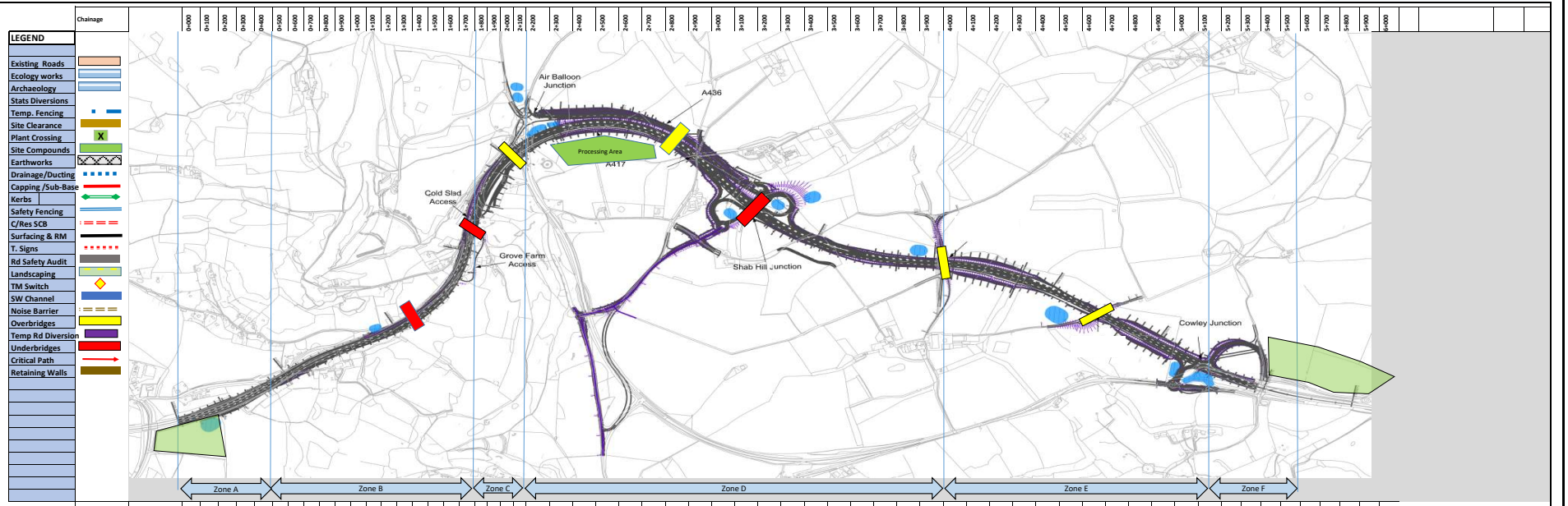
# Appendix E Time Chainage Programme

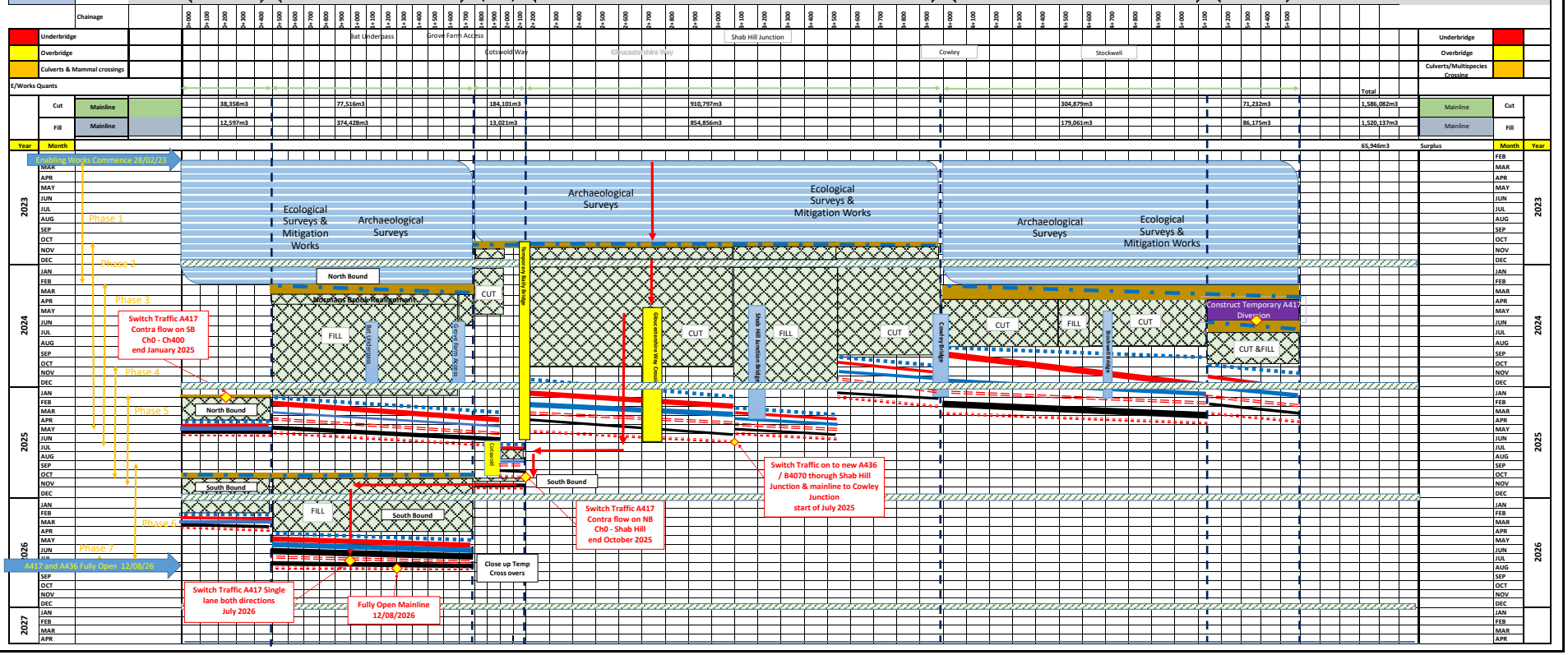
together @ VINCI

# A417 (8% Gradient) Missing Link Option 30 - A436 Alt 2

## TIME CHAINAGE PROGRAMME

TAYLOR WOODROW



# Appendix F Strategic Diversion Routes

CHELTENHAM BOROUGH COUNCIL WITHIN GLOUCESTERSHIRE C. C.

TEWKESBURY BOROUGH COUNCIL WITHIN GLOUCESTERSHIRE C. C.

COTSWOLD DISTRICT COUNCIL WITHIN GLOUCESTERSHIRE C. C.

A 417 closed
Alternative route follow
R2DS1

A 417 Northbound closed
Alternative route follow
R2DS2

A 417 Northbound closed
Alternative route follow
R2DS4

Diverted traffic
R2DS3

A46 SHURDINGTON ROAD

AIR BALLOON ROUNDABOUT

1S 2S 3S 4S 5S 6S 7S 8S 9S 10S 11S 12S 13S 14S 15S 16S 17S 18S 19S 20S 21S 22S
1N 2N 3N 4N 5N 6N 7N 8N 9N 10N 11N 12N 13N 14N 15N 16N 17N 18N 19N 20N 21N 22N 23S 24S 25N 26N
16/5 15/7

NOTES

Closure Length = 3.7km
Diversion Length = 16km
No. of Flap Signs = 6
No. of Finger Post Signs = 40

KEY

Closure
Diversion
Council Boundaries
Photograph Reference 1E

| Version | Amendment | Originated by and date | Checked by and date | Approved by and date |
|---|---|---|---|---|
| D | Photographs Reference Changed | P.T. 28/09 | M.I. 28/09 | M.I. 28/09 |
| C | Diversion Signs Amended | C.D. 04/07 | M.I. 04/07 | M.I. 04/07 |
| B | Sign Photographs Reference Added | R.E. 12/06 | M.I. 12/06 | M.I. 12/06 |
| A | First issue | C.D. 03/05 | G.S. 03/05 | B.R. 03/05 |

mouchelparkman

Client: Highways Agency
Project: A417–419 Swindon to Gloucester
Purpose: For Construction
Drawing Title: DIVERSION ROUTE 02
Draft / Issue ●
Scale (at A1 size): 1:1250
Issuing Office: Ellesmere Port
Telephone: 0151 356 5555
Drawing Number: 28713/DR/02
Version: D

| **A417 Northbound Closed between Burford Road Interchange and Air Balloon Roundabout** | **Route 3** |
|---|---|

Close A417 Northbound Carriageway at Burford Road Interchange

Open trigger signs at roundabout exit slip

Reverse procedure at end of closure

Diversion Route – Follow symbol:

Diversion Distance: 22.5 miles

Leave A419 at Burford Road Interchange Exit slip.

At 1st Roundabout take 3rd Exit A429 Stow(over A419 to Roundabout).-(Picture 1)

At 2nd Roundabout take 2nd Exit A429 Stow.- ( Picture 2 )

-( Picture 3 )

At 1st set Traffic Lights Turn Left A429 Stow.

-( Picture 4,5,6 )

At 2nd set Traffic Lights continue straight on.

-( Picture 7 )

At Roundabout take 1st Exit A40 Cheltenham.-( Picture 8 )

-(Picture 9,10,11 )

At Traffic Lights take left slip Lane turn Left A436 Gloucester (A417).-( Picture 12 )

-( Picture 13 )

At Roundabout take 1st Exit M5 Gloucester A436.-( Picture 14 )

-( Picture 15 )

At 2nd Roundabout take 2nd Exit M5 Gloucester A436.-( Picture 16,17 )

-( Picture 18 )

At Air Balloon Roundabout rejoin A417.

-( Picture 19 )

| **A417 Northbound Closed between Burford Road Interchange and Air Balloon Roundabout** | **Route 3** |
|---|---|

Close A417 Northbound Carriageway at Burford Road Interchange

Open trigger signs at roundabout exit slip

Reverse procedure at end of closure

Diversion Route – Follow symbol:

Diversion Distance: 22.5 miles

Leave A419 at Burford Road Interchange Exit slip.

At 1st Roundabout take 3rd Exit A429 Stow(over A419 to Roundabout).-(Picture 1)

At 2nd Roundabout take 2nd Exit A429 Stow.- ( Picture 2 )

-( Picture 3 )

At 1st set Traffic Lights Turn Left A429 Stow.

-( Picture 4,5,6 )

At 2nd set Traffic Lights continue straight on.

-( Picture 7 )

At Roundabout take 1st Exit A40 Cheltenham.-( Picture 8 )

-(Picture 9,10,11 )

At Traffic Lights take left slip Lane turn Left A436 Gloucester (A417).-( Picture 12 )

-( Picture 13 )

At Roundabout take 1st Exit M5 Gloucester A436.-( Picture 14 )

-( Picture 15 )

At 2nd Roundabout take 2nd Exit M5 Gloucester A436.-( Picture 16,17 )

-( Picture 18 )

At Air Balloon Roundabout rejoin A417.

-( Picture 19 )

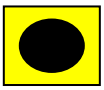
| **A417 Southbound Closed between Air Balloon Roundabout and Burford Road Interchange** | **Route 3** |
|---|---|

Close A417 Southbound Carriageway at Air Balloon Roundabout

Open trigger signs before Roundabout on A417

Reverse procedure at end of closure

Diversion Route – Follow symbol:



Diversion Distances: 22.5 miles

-( Picture 1)

At Air Balloon Roundabout take 1st exit A436 Stow in the Wold.

-( Picture 2,3 )

At Roundabout take 1st Exit A436 to Stow .

-( Picture 4 )

At 2nd Roundabout take 3rd Exit A436 to Stow .–( Picture 5 )

-( Picture 6,7 )

At Traffic Lights Turn Right Oxford A40 Stow (A429).- (Picture 8 )

-(Picture 9,10,11 )

At Roundabout take 3rd Exit A429 Cirencester.- ( Picture 12 )

-(Picture 13 )

At Traffic Lights continue straight ahead.

-( Picture 14 )

At Traffic Lights turn Right A419 Swindon, A429 Cirencester.-( Picture 16 )

-( Picture 17 )

At Roundabout take 1st Exit Southbound M4 & A419 Swindon.-( Picture 18 )

# A417 NORTHBOUND

# CLOSED BETWEEN BURFORD ROAD INTERCHANGE AND AIR BALLOON ROUNDABOUT

Diversion Route Symbol

Action Points

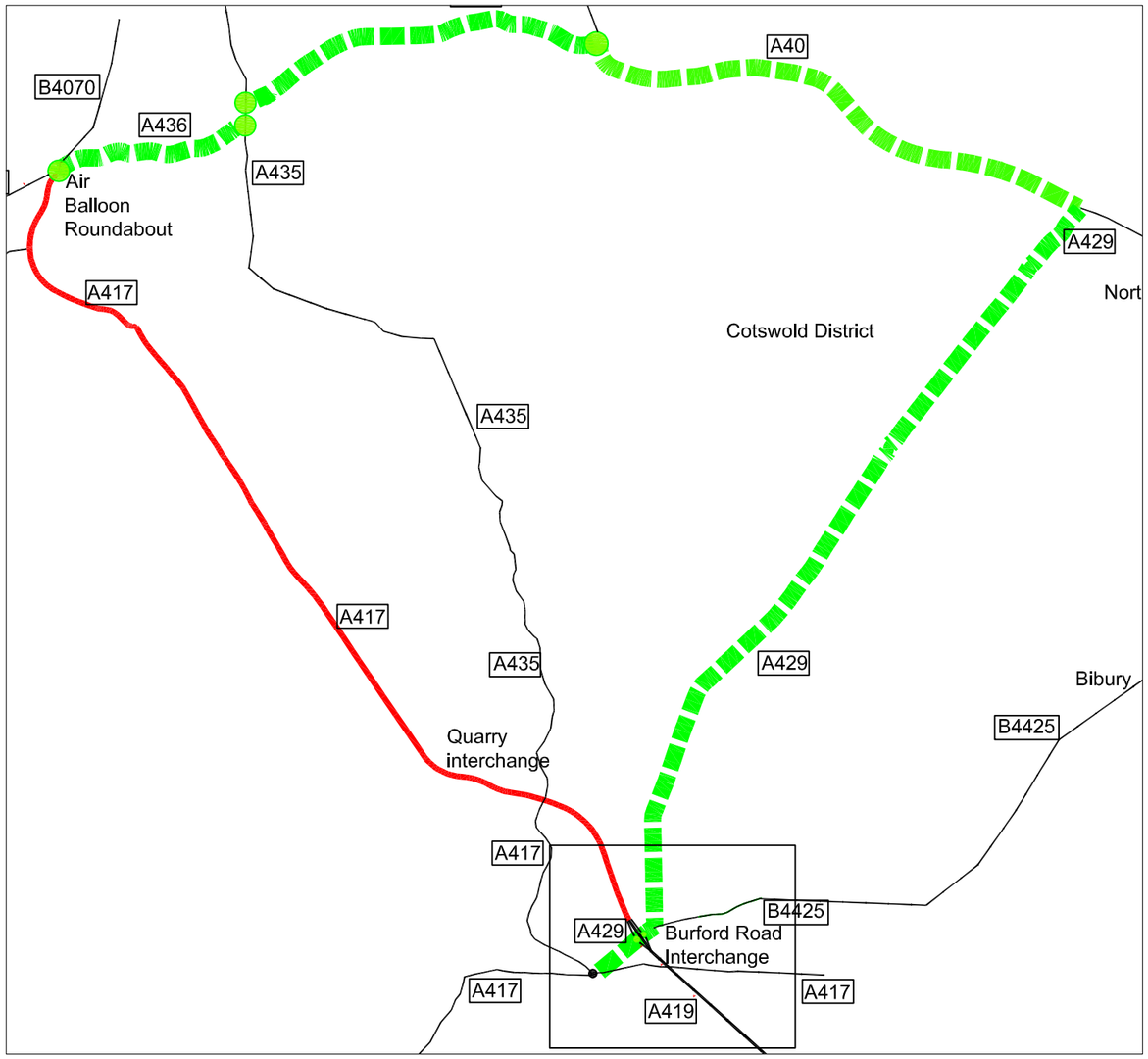
Step 1: Close A417 Northbound carriageway at Burford Road Interchange.

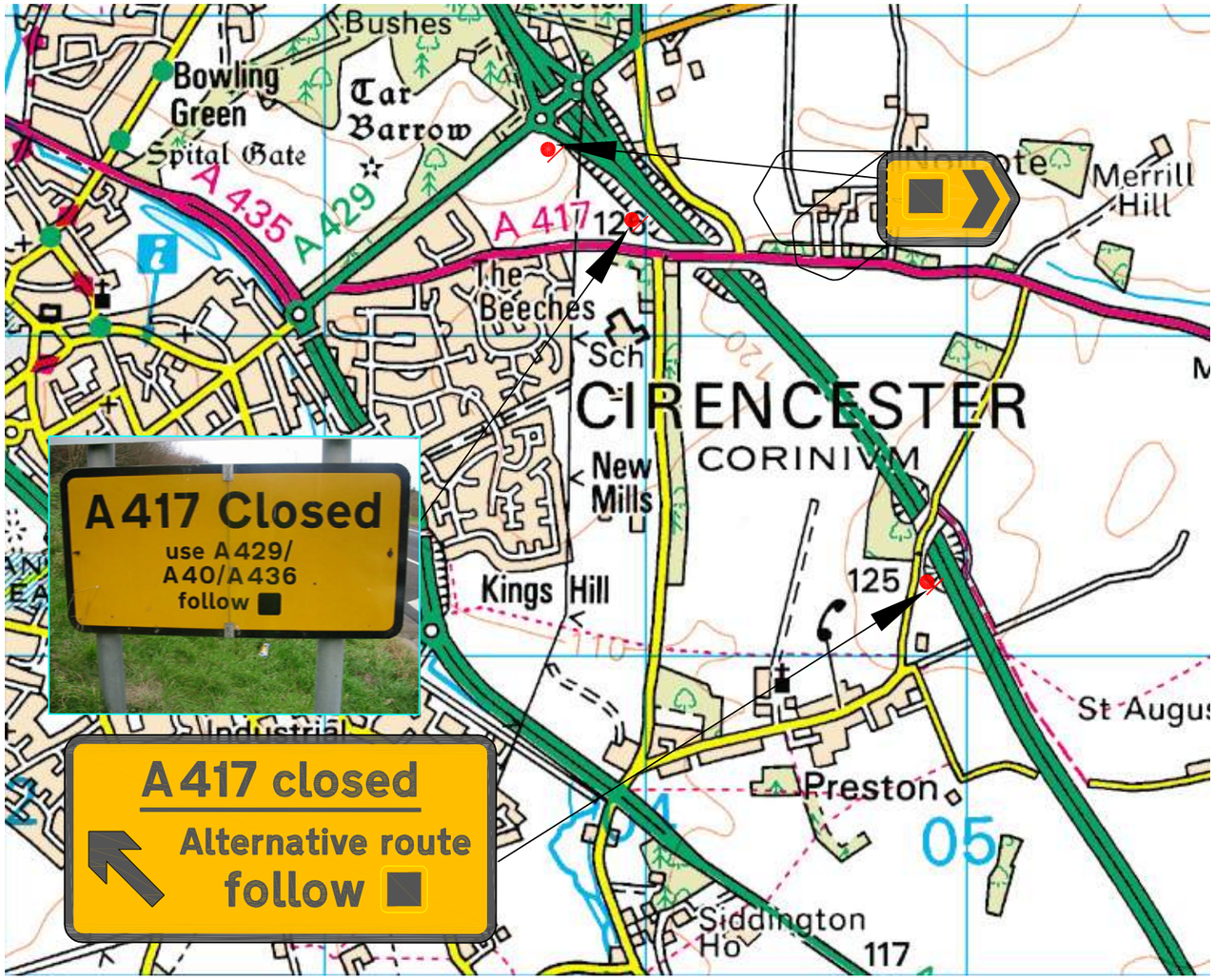
Step 2:Open trigger sign on A417 Northbound carriageway and on Northbound Exit Slip Road.

Reverse procedure at end of closure.

A417 Northbound carriageway at Burford Road Interchange

Standard Road Closure to TMC requirements




This route was agreed as the preferred option by the following parties during 2007:
Highways Agency, R.M.S. Gloucestershire Police and Gloucester County Council

HIGHWAYS AGENCY

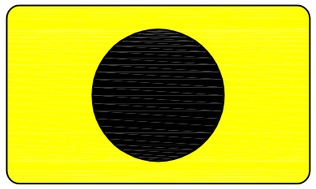
mouchel

| Drawing Title | Version |
|---|---|
| Diversion Route 3 (Northbound) | B |
| Date | |
| Dec 2009 | |

# A417 SOUTHBOUND

# CLOSED BETWEEN AIR BALLOON ROUNDABOUT AND BURFORD ROAD INTERCHANGE

Diversion Route Symbol

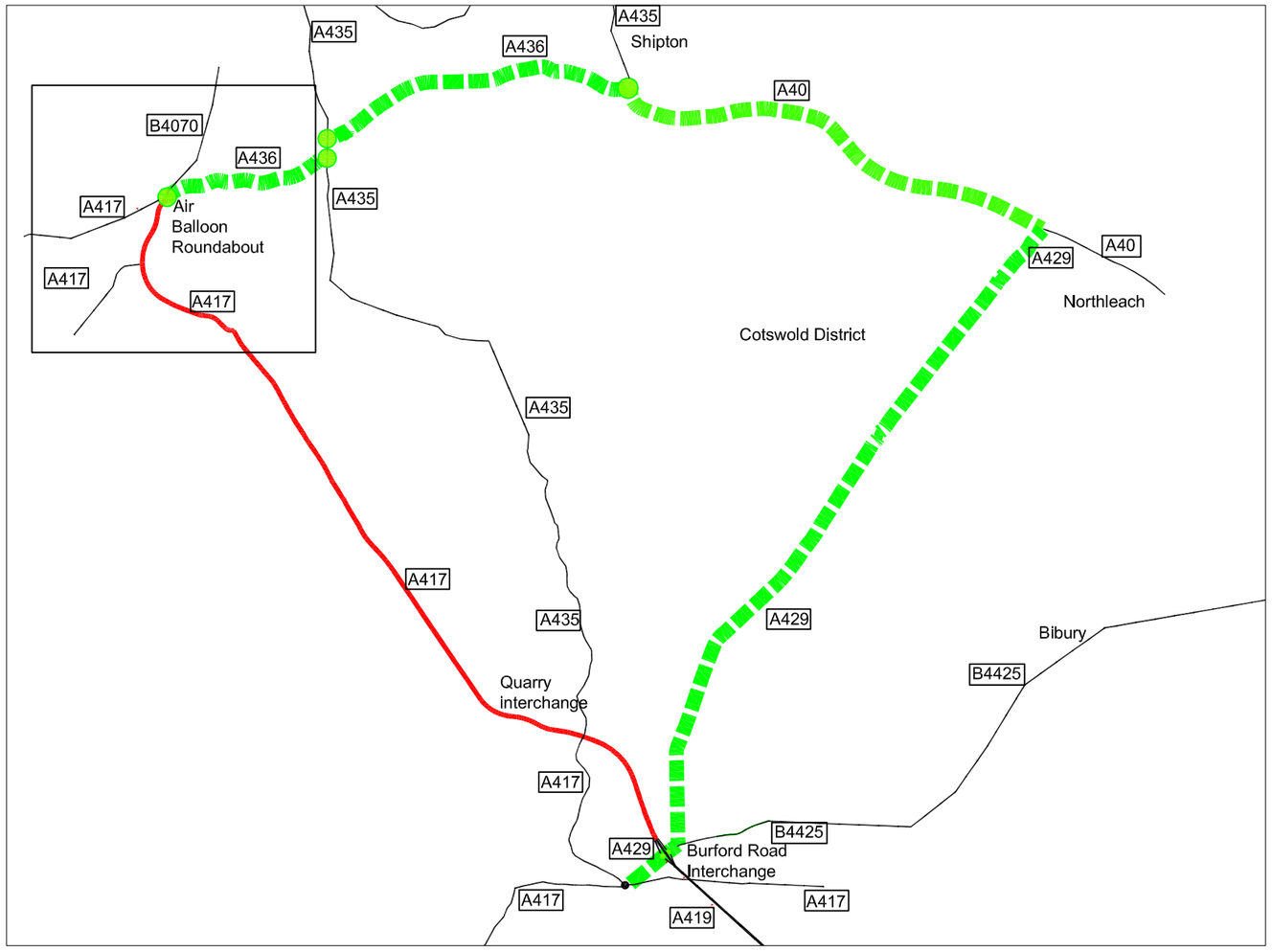


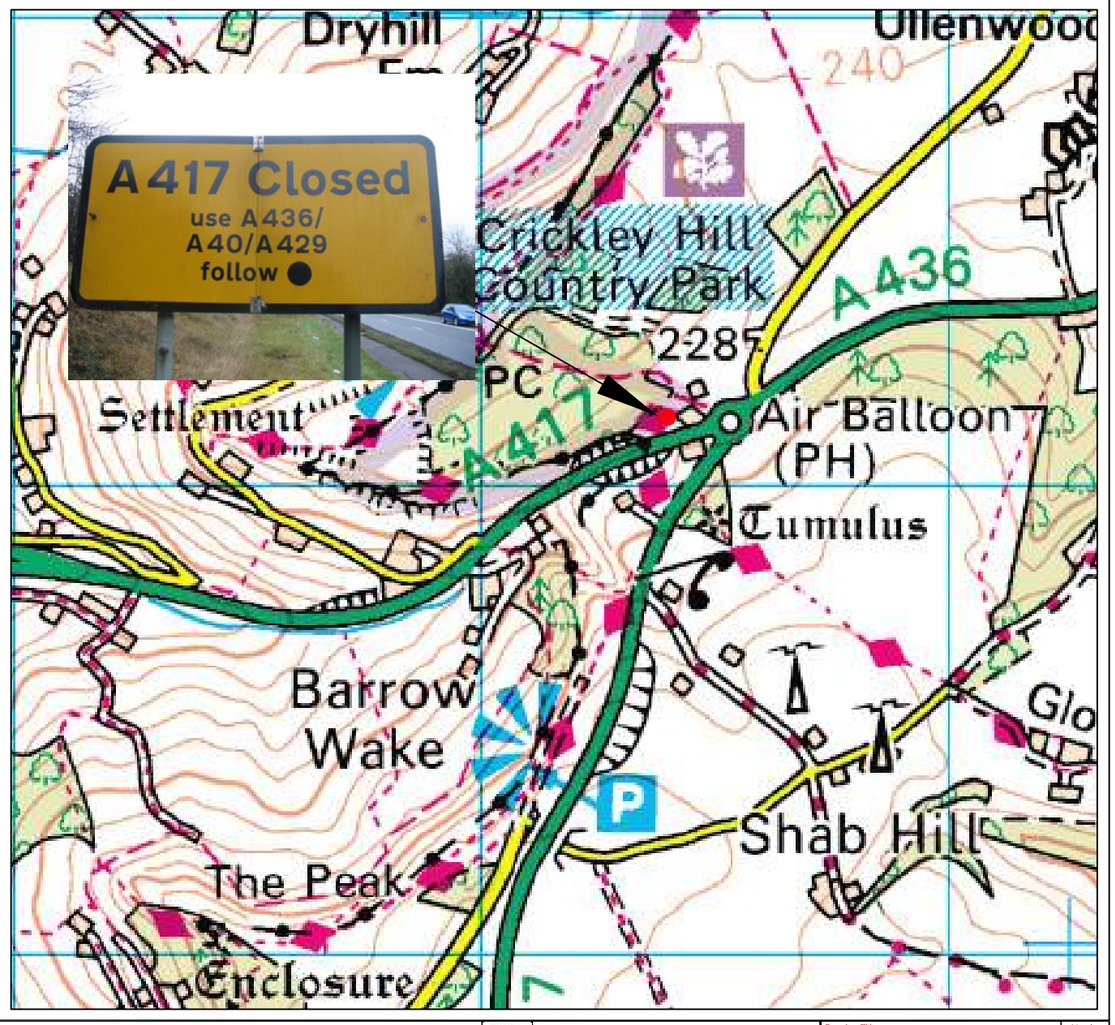
Action Points

Step 1: Close A417 Southbound carriageway at Air Balloon Roundabout.
Step 2:Open trigger signs on A417 Southbound approach to Air Balloon Roundabout.
Reverse procedure at end of closure.

A417 Southbound carriageway at Air Balloon Roundabout

Standard Road Closure to TMC requirements




This route was agreed as the preferred option by the following parties during 2007:
Highways Agency, R.M.S. Gloucestershire Police and Gloucester County Council

HIGHWAYS AGENCY

RMS

mouchel

Drawing Title: Diversion Route 3 (Southbound)

Version: B

Date: Dec 2009

| **A417 Northbound Closed between Air Balloon Roundabout and A46 Junction** | **Route 2** |
|---|---|

Close A417 Northbound Carriageway at Air Balloon Roundabout Junction with A436

Open trigger signs at Air Balloon Roundabout Northbound approach road.

Ensure symbol below is showing.

Diversion Route – Follow symbol:

Diversion Distance 10 Miles

From the Air Balloon roundabout take 2nd exit signed Stow-on-the-Wold A436.-(Pictures 1,2)

At the Seven Springs roundabouts take the first exit at the first roundabout and take the 2nd exit at the second roundabout signed Cheltenham A435.-(Pictures 3,4,5)

At Traffic Lights merge with A40 straight ahead.-(Picture 6)

Turn left at the junction with Sandford Mill Road signed (M5) Gloucester A40 Stroud (A46).-(Pictures 7,8)

-(Pictures 9,10,11)

At Cox's meadow roundabout take the 1st exit signed (M5) Gloucester A40.-(Picture12)

At A40 roundabout take 2nd exit onto Thirlestaine Road signed Gloucester A40.-(Pictures 14,15)

-(Picture 16)

At Traffic Signals turn left onto Bath Road signed Stroud A46.-(Picture 17)

At the 1st roundabout at Leckhampton take 2nd exit signed Stroud A46.-(Picture 18,19)

At 2nd roundabout take 1st exit signed Stroud A46.-(Picture 20)

At A417 roundabout take 3rd exit signed Gloucester A417.-(Picture 21)

Re-join A417 Northbound carriageway.–(Picture 22)

# A417 NORTHBOUND

# CLOSURE BETWEEN AIR BALLOON ROUNDABOUT AND A46 JUNCTION

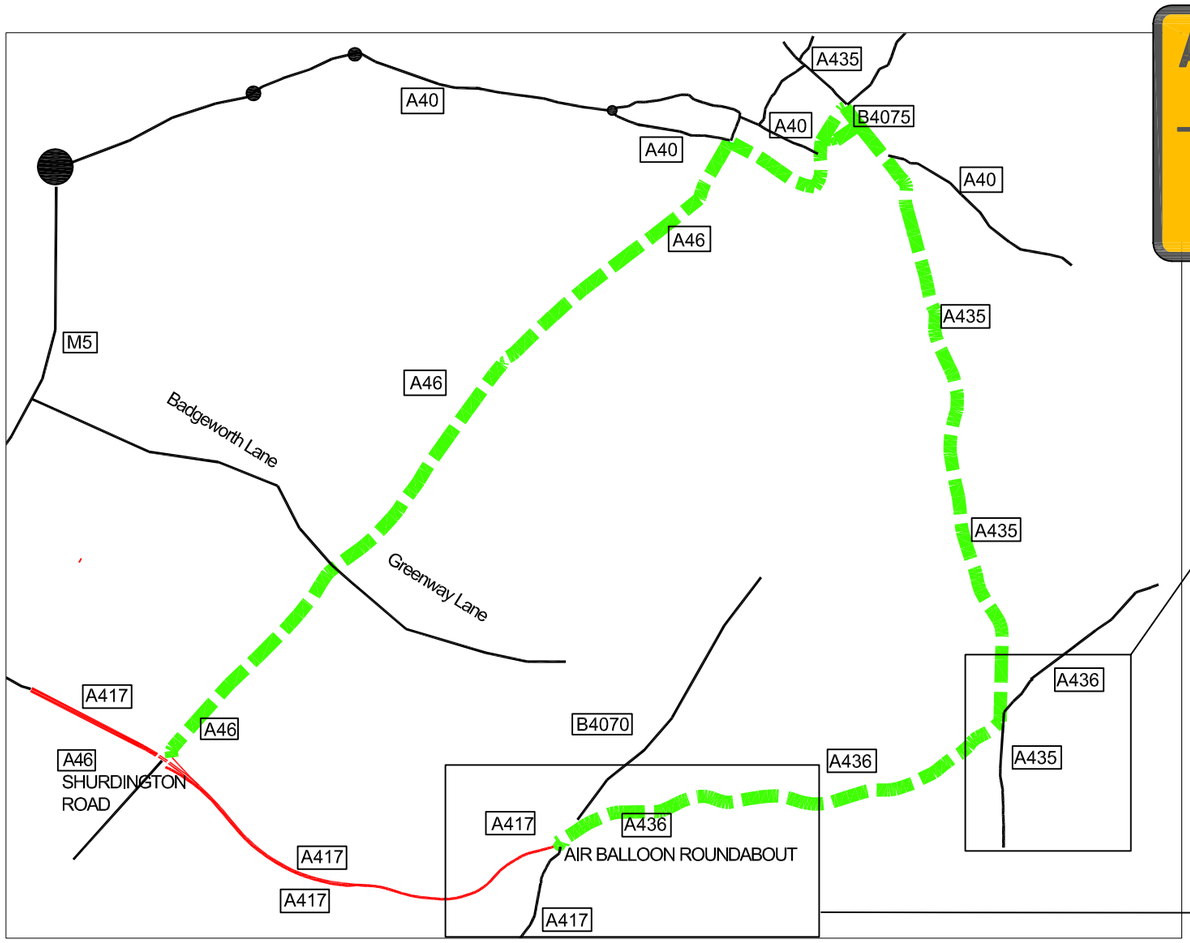
Diversion Route Symbol

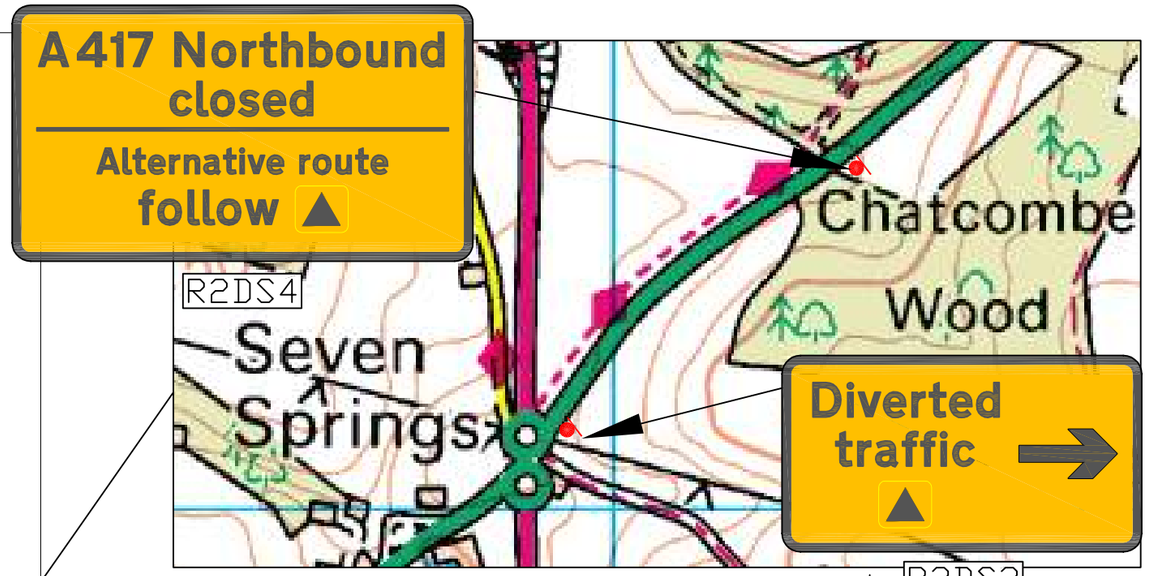
Action Points

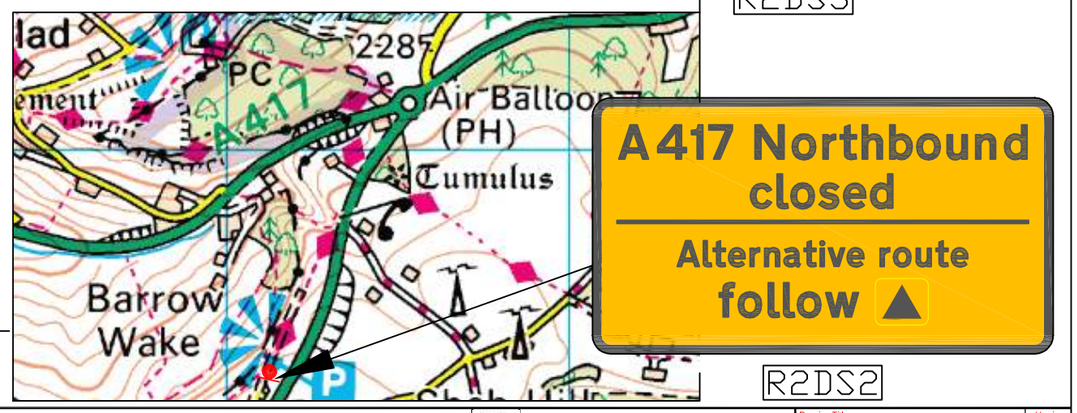
Step 1: Close A417 Northbound carriageway at Air Balloon Roundabout junction with A436.
Step 2:Open trigger sign on A417 Northbound Approach to Air Balloon Roundabout.
Step 3:Open trigger signs on A436 Westbound Approach to Seven Springs.

A417 Northbound at Air Balloon Roundabout.

Standard Road Closure to TMC requirements




This route was agreed as the preferred option by the following parties during 2007:
Highways Agency, R.M.S. Gloucestershire Police and Gloucester County Council

HIGHWAYS AGENCY

RMS

mouchel

| Drawing Title | Version |
|---|---|
| Diversion Route 2 (Northbound) | B |
| Date | |
| Dec 2009 | |

# Appendix G Highways England's A417 Vulnerable Location Plan Version 2.6

# A417 Vulnerable Location Plan

**Date: 10th October 2018** **Version: 2.6**

## Document Control

| | |
|---|---|
| **Document Title** | A417 Vulnerable Location Plan |
| **Author** | Rob Llewellyn |
| **Owner** | Highways England |
| **Distribution** | All Stakeholders |
| **Document Status** | FINAL VERSION |

## Revision History

| Version | Date | Description | Author |
|---|---|---|---|
| 1.0 | 1 September 2012 | First Draft | Chris Pope & Heather Lang Highways Agency |
| 2.0 | 16 November 2012 | Update and re-formatting of plan | Rob Llewellyn HA Emergency Planning Team |
| 2.1 | 1 December 2013 | Annual review and update of the plan | Rob Llewellyn HA Emergency Planning Team |
| 2.2 | 19 September 2014 | Annual review and update of the plan | Gareth Price HA Emergency Planning Team |
| 2.3 | 5 October 2015 | Annual review and update of the plan | Gareth Price HE Emergency Planning Team |
| 2.4 | 28 September 2016 | Annual review & update of the plan – minor adjustments throughout & addition of JESIP | Teresa Williams HE Emergency Planning Team |
| 2.5 | 27 September 2017 | Annual review & update of the plan – minor adjustments throughout | Hannah Alexander HE Network Resilience Team |
| 2.6 | 10 October 2018 | Annual Review – Minor Adjustments | John Ingram – Network Resilience Planner |

## Approvals

| Name | Signature | Title | Date of Issue | Version |
|---|---|---|---|---|
| Paul Vosper | | Highways England | | |
| Jenny Goodson | | Gloucestershire County | | |
| Dave Collicott | | Gloucestershire Police | | |

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## APPENDICES

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| **Appendix A** | Contact Directory |
| **Appendix B** | A417 Teleconference Protocol |
| **Appendix C** | Highways England Traffic Officer Guidance |
| **Appendix D** | Road Closure Action Card - A417/A46 Shurdington Road Junction |
| **Appendix E** | Road Closure Action Card - A417/A429 Burford Road Junction, Cirencester and A417 Cowley Roundabout |
| **Appendix F** | JESIP Principles for Joint Working |
| **Appendix G** | JESIP Shared Situational Awareness |
| **Appendix H** | JESIP Joint Decision Model |
| **Appendix I** | Diversion route card for A417 closure between A46 Shurdington Road and Air Balloon Roundabout both directions and for Air Balloon Roundabout to Burford Road, Cirencester both directions |

# 1 INFORMATION

## 1.1 Introduction

The A417 in Gloucestershire between Cowley Roundabout and A46 Shurdington Junction is a section of trunk road network that has seen numerous incidents of heavy snowfall in previous years that has led to the road becoming impassable to vehicles and motorists becoming trapped.

The road is particularly high in this location and in addition there are multiple locations of steep gradient which during incidents of severe weather pose significant risks to vehicles losing traction.

RMS, the DBFO Company for A419/A417, is responsible for maintaining the road during periods of severe weather as part of their contract and each year they produce a severe weather plan that describes how they will do this. However it is recognised that due to the particular high risk nature of this section of trunk road network, a coordinated multi-agency response is required to ensure public safety and prevent motorists becoming stranded in their vehicles.

## 1.2 Purpose

The purpose of this plan is to outline the multi-agency response to incidents of severe weather on the A417 between Cowley Roundabout and A46 Shurdington Junction in Gloucestershire. The plan also identifies the roles, responsibilities and actions on each responding agency.

Each organisation has their own individual severe weather response plans that will be activated in the event of snowfall on the A417; therefore this plan only contains information relevant to the multi-agency response to such an incident.

## 1.3 Scope

This plan pertains to the identified vulnerable locations on the A417 between Cowley Roundabout and A46 Shurdington Junction. This includes the locations of Nettleton Bottom, Birdlip, Birdlip Hill, Air Balloon Roundabout, Crickley Hill and Brockworth Bypass.

Appendix D provides a map of the area.

## 1.4 Plan Ownership

This plan is owned by Highways England but is a multi-agency plan and has been agreed by the following parties:

- Highways England Traffic Officers
- Highways England Department's Representative for Area 31 (A417/A419)
- RMS (Area 31 DBFO Company for A417/A419)
- Tri Force Roads Policing
- Gloucestershire County Council

## 1.5 JESIP

The Civil Contingencies Act 2004 imposes a legal duty on Category one responders to assess risk and plan for and respond to emergencies and also to co-operate and share information with other emergency response organisations.
The focus for the Joint Emergency Service Interoperability Principles (JESIP) is primarily the operational response in the initial stages of a major or complex incident of:

- **Police Services**
- **Fire & Rescue Services**
- **Ambulance Services**

However the principles are also applicable to the wider range of Category 1 & 2 response organisations including Highways England. It can be applied to large and smaller scale incidents, emergencies and pre-planned operations.
It is important that other emergency response organisations are aware of these principles and of the Joint Doctrine. The Joint Doctrine and supporting training programme and awareness packages has resulted in a more coordinated and efficient command structure for incidents. The clarity that JESIP aims to bring to the integration of the activities of wider responders, easier and more beneficial for all.

When considering or actually implementing the A417 Vulnerable Location Plan, the principles for joint working and shared situational awareness contained at **Appendix F and G** should be used as should the decision model at **Appendix H**.

Below is a link to the JESIP website

[redacted]

## 1.6 Summary of Previous Severe Weather Issues

Over the past few years, heavy snowfall, drifting snow, ice and fog have been witnessed on the A417 between Cowley Roundabout and A46 Shurdington Junction in Gloucestershire. This is in addition to the usual slow moving and queuing traffic that is experienced on this section of road during morning and evening peak times.

Many of the incidents of disruption during previous winters in these locations have involved LGVs. These vehicles regularly have difficulty climbing Crickley Hill and Birdlip Hill southbound also Nettleton Bottom northbound. The problem is exacerbated when snow has fallen, causing LGVs to lose traction and resulting in them being either unable to climb the hills or jack-knifing and obstructing the carriageway.

The table below outlines the specific vulnerable locations and identifies the issues that have occurred in previous years:

| Location | Problem (brief summary) |
|---|---|
| Crickley Hill | Icing - A417 is 3-lane single carriageway (2 up & 1 downhill lane) on a continuous 10% grade. A roundabout joins Crickley & Birdlip Hills. |
| Birdlip Hill | Icing - A417 is 3-lane single carriageway (2 up & 1 downhill lane) on a continuous 10% grade, reducing to a 2-lane single carriageway at the summit. |
| Birdlip Bypass | Icing - A417 is a 2-lane single carriageway carried on an exposed embankment. |
| Nettleton Bottom | Icing - A417 is a 2-lane single carriageway through a dip; short steep gradients take the road into & out of the dip. |
| Birdlip Bypass / Daglingworth | Fog - A417 is single 2-lane and high speed dual carriageway |
| Air Balloon Roundabout | Queuing Traffic - Morning & Evening Peak Times |
| Birdlip/Nettleton | Slow traffic - Morning & Evening Peak Times |
| Cowley Roundabout | Queuing Traffic - Evening (Northbound) Peak Times |

Table 1 – Summary of Previous Severe Weather Issues

# 2 STRATEGIC INTENT

## 2.1 Aim

The aim of this plan is to ensure an effective and coordinated multi-agency response to incidents of severe weather on the A417 between Cowley Roundabout and A46 Shurdington Junction in Gloucestershire.

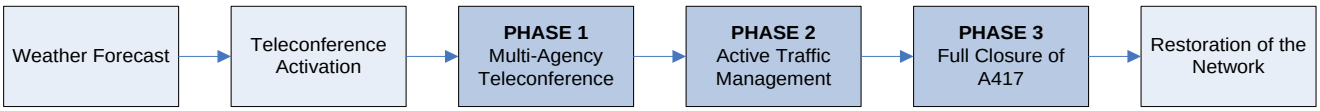
## 2.2 Objectives

The objectives of the plan are the following:

- Ensuring a coordinated and effective traffic management operation to try and maintain the A417 during periods of severe weather.
- Ensuring a coordinated and effective operation to manage the welfare of motorists in the event of them becoming stranded in their vehicles on the A417.
- Ensuring a joined up media strategy between all agencies during periods of severe weather on A417.

# 3 METHOD

There are three primary phase's to the A417 Vulnerable Location Plan:




The plan is designed on an escalating scale, dependant on the weather and road conditions. The threat of disruption from severe weather is risked assessed in the weather forecast and this is used as the trigger to activate the multi-agency teleconference.

The aim of the multi-agency teleconference is to agree the appropriate response to the forecast and if required activate the full A417 Vulnerable Location Plan. If the snowfall experienced is so severe that retaining the road open no longer becomes viable then the A417 closure plan can be invoked. Once the snowfall has passed the network can then be restored.

The next two sections of the plan outline these phases in detail.

## 3.1. Teleconference Trigger Levels

The plan will be triggered by the RMS Duty Officer upon receipt of advance warning forecasts with high confidence of snow accumulations on the ground in the area of A417 between Cowley Roundabout and A46 Shurdington Junction. In the event of a discrepancy between RMS forecast provider Met Desk and HE Forecast provider, Met Office forecasts, discussions will centre on the worst case forecast. Trigger levels will be determined by RMS decision makers.

In the event of an incorrect forecast or a 'no notice' severe weather event that wasn't forecast, then the plan can also be triggered by any one of the agencies signed up to the plan, if they are

aware of snow falling on the A417 anywhere between Cowley Roundabout and A46 Shurdington Junction.

### 3.2 Teleconference Activation

To activate the plan either the RMS Duty Officer or other agency will contact Highways England's South West Regional Operations Centre (SW ROC) on either 0117 316 5723 or the dedicated phone number used by their organisation to contact the SW ROC.

When contacting the SW ROC the requesting person will identify themselves and their organisation and ask the SW ROC to activate the A417 Vulnerable Location Plan.

Upon receipt of this request the SW ROC will escalate to the HE SW Duty Operations Manager who will arrange an 'A417 Multi-Agency Teleconference' and invite all parties listed below:

- RMS Duty Officer
- Highways England's Department Representative A417/A419 (during office hours)
- Met Office Forecaster (based in HE National Traffic Operations Centre)
- Highways England South West Network Resilience Team Member
- Gloucestershire County Council Highways Representative
- Gloucestershire Police Force Incident Manager
- HE SW Maintenance & Response Contractor - Ringway Infrastructure Services
- HE Press Officer

Refer to Appendix A for contact numbers and email addresses.

### 3.3 PHASE 1 – A417 Multi-Agency Teleconference

Please refer to Appendix B – A417 Teleconference Protocol.

A417 Multi-Agency Teleconference will take place on the following phone number:

**Highways England Teleconference Line 0300 470 4123 AND ENTER PIN 728628**

The teleconference will be chaired by the HE Duty Operations Manager and will follow the standard agenda contained in Appendix B. In order to keep the conference call to a manageable size, only one representative from each of the above should dial in (with the exception of RMS who manages the route).

The meeting will commence with an updated weather forecast from the Met Office forecaster (based in the HE National Traffic Operations Centre), following which the teleconference attendees will consider whether to initiate PHASE 2 – Active Traffic Management.

The invite email that is sent to participants to attend the teleconference should be followed up by a telephone call to ensure invitation has been received.

The participant list and agenda for the A417 Multi-Agency teleconference is contained in Appendix B – A417 Teleconference Protocol, however it's also listed below:

### 3.3.1 Teleconference Participant List

1. Highways England – Duty Operations Manager (Chair)
2. RMS – Duty Officer
3. Met Office – Duty Forecaster (at HE National Traffic Operations Centre)
4. Highways England – Department's Representative for A417/A419 (if during office hours)
5. Highways England – SW Network Resilience Team
6. Highways England – National Vehicle Recovery Manager Representative
7. Gloucestershire Police - Force Incident Manager
8. Gloucestershire County Council Highways
9. Highways England – Duty Press Officer (if required)

### 3.3.2 Teleconference Agenda

| | Item | Individual |
|---|---|---|
| 1 | Introduction | Chair and participants in order of list |
| 2 | Outline of Conference Protocols | HE Moderator (or Chair) |
| 3 | Update on Situation and Weather Forecast | Chair (and Met office Forecaster) |
| 4 | Reports from Responding Agencies | Chair and participants in order of list |
| 5 | Key Issues and Decisions | Chair and participants in order of list |
| 6 | Media Strategy | Media Representatives |
| 7 | Recovery and Medium/Long Term Issues | Chair and participants in order of list |
| 8 | Any Other Business | Chair and participants in order of list |
| 9 | Time of Next Conference Call | Chair |

## 3.4 PHASE 2 – Active Traffic Management & Resource Management

One of the objectives of the A417 Vulnerable Location Plan is to ensure a coordinated and effective traffic management operation to try and maintain the A417 during periods of severe weather.

To achieve this, additional resource from RMS, Traffic Officers and HE's recovery contractors will be positioned on the A417. The resource to be provided by RMS is outlined in their severe weather plan. The positioning of resources from the Traffic Officers and the HE recovery contractor are outlined in this plan.

Therefore if the decision is taken at the teleconference to initiate PHASE 2 - Active Traffic Management then the following actions will be taken by RMS and Highways England:

1. RMS will deploy full range of resources to the Air Balloon (gritters/tractors/ploughs) in line with their severe weather plan. The snow route gritter is also the standby gritter to

cover for breakdowns within the fleet and will only be deployed if not otherwise committed.

2. SW ROC will instigate pre-positioning of recovery vehicle/s from their contractor.
3. SW ROC will make best endeavours to provide resources to enable two HETO patrols to be put on standby. Best endeavours will include consideration for support/mutual aid cover for beat 11 (Gloucester) and beat 21 (Membury) from neighbour regions to enable resources to be freed up to be put on standby.
4. If available resources can be provided, one patrol will be located on standby at **Cherry Tree Lane RMS Depot (Cirencester)** and the other patrol to be located on standby at **Bamfurlong (J11, M5)** to be able to instigate full closures of the road if required.
5. If there are insufficient patrols available to support (risk that this would be the case overnight) then the SWROC will inform Gloucestershire Police to request them to provide appropriate resources to be positioned at the locations outlined above, to be able to instigate full closures of the road if required. This should be agreed at the teleconference.
6. SWROC will prepare the Duty Team Manager to attend A417 if required.
7. SWROC will request NTIC to set pre-agreed VMS to state A417 HEAVY SNOW HGV USE M5/M4.This message is to be set J7-J11A M5, J13-15 M4 and J18-J15 M4.

### 3.4.1 Pre-Positioning of Recovery

Once the decision is taken to initiate PHASE 2 – Active Traffic Management, the HE Duty Operations Manager will authorise the pre-positioning of NVRM assets on A417 through the SW ROC.

The two identified locations for the recovery assets to be positioned are at Nettleton Bottom (Cowley Roundabout end of A417) and Cold Slad (on Crickley Hill). **However the final decision on locating the recovery assets will be made by the recovery operator in line with their own risk assessments, taking into account the weather situation and likely driver behaviour. Above all the recovery operator must be satisfied that the locations chosen are as safe as possible for their staff to work within. When recovery is in place, they are to contact the SWROC with exact location and full contact details.**

### 3.4.2 Nettleton Bottom

The Golden Heart Public House access road at Nettleton Bottom is the southern identified location. This is the best position to access the problem area enabling a clear view of incidents as they happen. The lay-by at the top of the hill is a convenient location to tow the vehicle to and an adjoining road facilitates the truck turn round and return.

### 3.4.3 Cold Slad

The Cold Slad Junction on Crickley Hill is the northern identified location. This is the best position for it to access the problem area and to view an incident as it happens (also being close to Birdlip Hill they can help with any incidents at this location). Stranded vehicles can be towed up Birdlip Hill and released at the top.

Before towing the stranded vehicle, the recovery unit will communicate with the other recovery unit at Nettleton Bottom and if possible will subsequently switch locations to ensure that both ends of the A417 between Cowley Roundabout and A46 Shurdington Junction are covered at all times.


## 3.5 PHASE 3 – Full Closure of A417

In the event of heavy snow making the A417 impassable then the road will be closed and vehicles diverted to prevent motorists becoming stranded in their vehicles. **This should only be used as a last resort when all other alternatives have been exhausted**.

In line with section 3.4 PHASE 2 – Active Traffic Management, there will be either Traffic Officers or Gloucestershire Police units pre-positioned at J11A on M5 and at Cirencester on A417. The role of these units is to implement the full ETM closure of A417 as and when required.

A diagram of the diversion route can be found in appendix I

The closure plan is outlined as follows:

- Closure of A417 southbound at A46 Shurdington Junction.
- Closure of A417 northbound at Cowley Roundabout and divert traffic back south along the A417 towards Cirencester and Swindon for alternative routes.
- Closure of A417 northbound at A429 Burford Road Junction, Cirencester.

- Traffic will only be released past these 3 points on to Crickley Hill and through Nettleton Bottom when it is declared safe to do so by lead at scene (likely to be Police).
- Consideration should be given to closing Air Balloon Roundabout – Burford Road junction only if Crickley Hill is still a viable route.

### 3.5.1 Activation and Implementation of A417 Full Closure

The decision to implement a full closure of the A417 will be a joint decision by Highways England, RMS and Gloucestershire Police.

Implementation of the plan will be as follows:

1. Once the decision is made to close the A417, RMS to telephone SW ROC and Gloucestershire Police with a network conditions situation report.

2. SW ROC to contact NTIC and request them to set pre-agreed VMS to state 'A417 CLOSED AT A46' for southbound traffic and 'A417 CLOSED AT A429' for northbound traffic.

3. SW ROC to instruct the Traffic Officer units on standby to implement closure of the A417 at the A46 Shurdington Junction, Cowley Roundabout and A429 Burford Road Junction, Cirencester.

4. SW ROC to deploy NPG Duty Team Manager to scene.

5. The northern Traffic Officer unit will proceed to and implement the closure of the A417 at the A46 Shurdington Roundabout.

6. The southern Traffic Officer unit will proceed to and close the Cowley Roundabout, sending all traffic back along the A417 towards Cirencester, Swindon for alternative routes.

7. The southern Traffic Officer unit will proceed to and close the A417 at the A429 Burford Road Junction, Cirencester.

8. RMS / Gloucestershire Police will close the Air Balloon roundabout and implement the appropriate local diversions at that location. Closures at Seven Springs junction (A435 / A436) will also be required. These will be carried out by Police or Gloucestershire County Council Highways.

### 3.5.2 A417 Closure Procedures

Closure Points
- A46 Shurdington Road Junction
- Cowley Roundabout
- A429 Burford Road Junction

See appendix D and E action cards for further information

## 3.6 Restoration of the Network

RMS will utilise snow ploughs and salt spreaders to treat the road surface to enable recovery vehicles to move in and remove any stranded vehicles from the road. Once all stranded vehicles have been removed a full carriageway snow clearance and salt spreading treatment will commence to return the network to operational use.

Once complete RMS will communicate with both the SW ROC and Gloucestershire Police to confirm the road is safe to be reopened. The HE Duty Operations Manager will confirm with the Gloucestershire Police Incident Commander that reopening should be instigated. This process will be carried out using a teleconference. If agreed then Traffic Officer and/or Gloucestershire Police units on closure points will be instructed to remove all ETM and reopen the road. RMS to consult with Gloucestershire Highways to confirm the status of their road conditions.

## 3.7 Welfare Provision to Stranded Motorists

In the event of vehicles becoming stranded in snow and the welfare of the public becoming at risk then Gloucestershire Police will make the decision to evacuate motorists from their vehicles. It is likely this decision would be made within a tactical co-ordination group (TCG) at which Highways England should be represented.

Several public houses and hotels may be temporarily available to shelter people in such an event and they are listed below:

- Golden Heart (A417 at Nettleton Bottom)
- Highwayman (A417 at Elkstone, south of Cowley Roundabout)
- Air Balloon (A417 at Air Balloon Roundabout)
- Premier Inn (Little Witcombe)
- Royal George (Birdlip)
- Premier Inn (Brockworth)
- Travelodge (Cirencester)
- Premier Inn (Cirencester)

Contact details for all these establishments are contained in Appendix A.

## 3.8 Welfare Considerations for Staff

Consideration should be given to staff welfare whilst they are deployed using this plan. Regular contact should be maintained with staff during severe weather and the rotation of staff should be considered to enable staff to take their breaks.

# 4 COMMAND, COORDINATION & COMMUNICATION

## 4.1 Command

The command of the operation to maintain the A417 during snowfall will remain responsibility of Highways England until such time that the road is impassable.

If the joint decision (between Highways England, RMS and Gloucestershire Police) is made to close the A417 then the operation will become Gloucestershire Police led as they are the most appropriate organisation to coordinate a multi-agency response to incidents affecting public safety, including the managed evacuation of stranded motorists if required.

Individual agencies will retain control of their resources unless otherwise directed by their operational or tactical commanders.

Whilst the incident will be Police led, the winter maintenance operation will at all times be led by RMS.

## 4.2 Coordination

The coordination of the operation to maintain the A417 during snowfall will be undertaken through teleconferences hosted and chaired by Highways England (as outlined in section 3.3).

If the joint decision (between Highways England, RMS and Gloucestershire Police) is made to close the A417 then this will be communicated to other agencies as speedily as possible. The coordination of the closure operation and any evacuation of stranded motorists will be led by Gloucestershire Police, but is likely to involve the use of the teleconference facility and the co-location of Traffic Officer, RMS and Gloucestershire Police Bronze Commanders at an RVP on the A417.

In addition, operational coordination will be conducted between each organisation's control rooms and resources deployed on the ground in the normal manner.

Prior to any reopening of A417, a teleconference will be held as per section 3.3, to confirm that the road is ready to be reopened and all agencies are aware.

## 4.3 Communication

Operational communications by resources deployed to the A417 will be managed in the normal manner. For Traffic Officer and Gloucestershire Police this will be via airwave radio, supported by mobile phones. For all other agencies communication will primarily be via mobile phone.

Communication between control rooms will also be managed in the normal manner. Highways England and Gloucestershire Police have an electronic interface between their control rooms and this will be the primary method of communication. For all other control rooms, communication will primarily be via phone.

A list of contact numbers for all organisations involved in this plan is contained at Appendix A

## 4.4 Roles and Responsibilities

There are a large numbers of roles and actions to be undertaken during any severe weather event on A417. For the purposes of the A417 Vulnerable Location Plan the table below outlines the responsibilities for each role / action:

| Roles | Who is Responsible |
|---|---|
| Initiate Telephone Conference | RMS Duty Officer |
| Winter Preparations | RMS Duty Officer |
| Winter Operations | RMS Duty Officer / Ringway |
| Weather Treatment Decisions | RMS Duty Officer |
| Instructing Of Gritters | RMS Duty Officer |
| SWIS | RMS Duty Officer |
| Extra Resources Request | RMS Duty Officer |
| National Vehicle Recovery | Highways England |
| Media | Highways England |
| Media (Police Lead) | Gloucestershire Police |
| Matrix/VMS Signing On Motorways | Highways England (SW ROC) |
| Abandoned Vehicles | Gloucestershire Police |
| Debris In Live Carriageway | Gloucestershire Police |
| Road Closing Decision | RMS / HE / Gloucestershire Police |
| Road Closure Implementation | RMS / HE / Gloucestershire Police |
| Directing Of Traffic | Gloucestershire Police / HE TOS |
| Road Opening Collaborative Decision | RMS / HE / Gloucestershire Police |

## 4.5 Media Management

Highways England will lead on all media activity during the operation to maintain the A417 during snowfall until such time that the road is impassable.

If the joint decision (between Highways England, RMS and Gloucestershire Police) is made to close the A417 then the media lead will pass to Gloucestershire Police led as they are the most appropriate organisation to coordinate a multi-agency media response to incidents affecting public safety, including the managed evacuation of stranded motorists if required.

# 5 HEALTH & SAFETY

All organisations involved in the instigation of the A417 Vulnerable Location Plan have their own health and safety arrangements to which all their staff must abide. The health and safety information contained in this plan provides some additional guidance for organisations to consider when deploying their staff to implement the A417 Vulnerable Location Plan. SWROC are responsible under lone working procedures for the NVRM crews.

## 5.1 Personal Protective Equipment

All operational staff deployed from any organisation to the A417 operation should be dressed in full PPE as per their own organisation's health and safety policies. As the operation will only be invoked during severe weather, all staff should ensure they also dressed appropriately in regards to warm clothing beneath their PPE.

## 5.2 Road and Operating Conditions

Road conditions on the A417 are likely to be difficult during any snowfall, with accumulations of snow and ice to some considerable depth in certain places. All staff should ensure they drive to the conditions and in line with their organisation's policies, utilising available driving aids such as four wheel drive, where applicable.

All staff should be aware that some members of the public may not be experienced or competent drivers in severe weather and therefore should exercise extreme caution when conducting traffic management on foot. All staff should extra vigilant for vehicles that take longer to stop in snow conditions, and for vehicles stuck on gradients as they may move without warning.

All staff should also be aware that a number of winter service vehicles and other heavy plant (such as tractors or recovery vehicles) could be deployed onto the A417 during severe weather and they should ensure they take extra care when moving on foot amongst these vehicles.

## 5.3 Effects of Cold

Whilst all staff deployed to the A417 during severe weather are likely to be exposed to the effects of the cold, if at any point of the operation any member of staff begins to feel the effects to such an extent that their operational effectiveness is impaired or they are concerned for their own safety, they should immediately inform their organisation's Bronze Commander or their organisation's control room.

Symptoms of hypothermia include:

- violent shivering
- confusion
- loss of judgement or reasoning
- loss of coordination
- drowsiness
- slurred speech
- slow shallow breathing

All staff should ensure that they inform their organisation's Bronze Commander or their organisation's control room if they witness any of the symptoms listed above in any colleagues deployed on the operation.

# APPENDIX A – CONTACT DIRECTORY

Whilst operational communications should be via normal procedures and contact numbers, the phone numbers listed below are the agreed numbers for the various 24/7 control rooms that any communication should be made on:

| Name | Contact Number |
|---|---|
| Highways England SW Regional Control Centre Team Manager | [redacted] |
| Duty Operations Manager Mobile | [redacted] |
| Highways England National Traffic Operations Centre | [redacted] |
| Highways England Duty Press Officer | [redacted] |
| Highways England Dept. Rep for A417/A419 (Paul Vosper) | [redacted] |
| RMS (A417/A419 Road Manager and Team) | [redacted] |
| Highways England National Vehicle Recovery Manager | [redacted] |
| RMS Duty Officer (mobile) | [redacted] |
| RMS Duty Officer (Backup Pager) | [redacted] |
| Ringway (Winter Service Contractor for A417/A419) | [redacted] |
| Gloucestershire Police Control Room | [redacted] |
| Gloucestershire County Council Highways Control Room | [redacted] |
| Bob Skillen, Gloucestershire County Council Highways | [redacted] |
| Kath Haworth, Gloucestershire County Council Highways | [redacted] |
| Gloucestershire County Council Civil Protection Team | [redacted] |
| **Public Houses / Hotels** (potentially providing welfare to stranded motorists) | |
| Golden Heart (A417 at Nettleton Bottom) | [redacted] |
| Highwayman (A417 at Elkstone, south of Cowley) | [redacted] |
| Air Balloon (A417 at Air Balloon Roundabout) | [redacted] |
| Premier Inn (Little Witcombe) | [redacted] |
| Royal George (Birdlip) | [redacted] |
| Premier Inn (Brockworth) | [redacted] |
| Travelodge (Cirencester) | [redacted] |
| Premier Inn (Cirencester) | [redacted] |

**Email Addresses:**

HE Duty Operations Manager: [redacted]

HE SWROC Control room email - [redacted]

Gloucestershire Police: [redacted]

Gloucestershire County Council: [redacted]

Gloucestershire County Council [redacted]

RMS: [redacted] Note: not to be used for communication during emergency (not accessible)

The HE Met Office rep at the NTIC, Quinton: [redacted]

FMG Regional Roadside Manager: Andrew Dworsky [redacted]

# APPENDIX B – A417 TELECONFERENCE PROTOCOL

**Section 1 – Joining Instructions**

1. To join the teleconference dial **0300 470 4123 AND ENTER PIN 728628** a few minutes before start time

2. Conference will commence when all participants have joined or at discretion of the chairperson.

**Section 2 – Important Notes for Participants**

- Ensure you have the relevant “Agenda” and “Participant’s List” for the conference.
- Participants are expected to be authorised to make the necessary decisions on behalf of their organisations.
- The chair will lead the conference. All participants will be contacted in order as per the “Participant’s List”.
- To facilitate speedy and efficient conference calls:

    a. Participants need to speak only when requested or in order of Participant’s List.

    b. Before speaking clearly state your name and organisation.

    c. Use ‘mute’ when not speaking to reduce background noise. To mute/un-mute press *6*.

    d. The chair may ask groups or certain individual organisations to stay online after the conference to discuss particular subjects in more detail.

**Section 3 – Participants List**

1. Highways England – Duty Operations Manager (Chair)
2. RMS – Duty Officer
3. Met Office – Duty Forecaster (at HE National Traffic Operations Centre)
4. Highways England – Department’s Representative for A417/A419 (if during office hours)
5. Highways England – SW Network Resilience Team
6. Gloucestershire Police Force Incident Manager
7. Gloucestershire County Council Highways Representative
8. Highways England – Duty Press Officer (if required)

**Section 3 – A417 Conference Call Standard Agenda**

| | Item | Individual |
|---|---|---|
| 1 | Introduction | Chair and participants in order of list |
| 2 | Outline of Conference Protocols | HE Moderator (or Chair) |
| 3 | Update on Situation and Weather Forecast | Chair (and Met office Forecaster) |
| 4 | Reports from Responding Agencies | Chair and participants in order of list |
| 5 | Key Issues and Decisions | Chair and participants in order of list |
| 6 | Media Strategy | Media Representatives |
| 7 | Recovery and Medium/Long Term Issues | Chair and participants in order of list |
| 8 | Any Other Business | Chair and participants in order of list |
| 9 | Time of Next Conference Call | Chair |

# APPENDIX C – HE TRAFFIC OFFICER GUIDANCE

Small sections of the A417 are single carriageway which HETO patrols may have to travel upon to reach the standby points/closure locations. If HETO patrols come across incidents in the single carriageway section which are live lane, they should deal with using the Guidance: Incidents on Local Road Networks - Applicable to Motorways and All Purpose Trunk Roads (see below). In every case HETOs will not take actions that exceed their responsibility, equipment and training. This route is a Highways England road, so we can exercise our powers (stop, direct) without jurisdiction challenges.

This guidance outlines that:

- Traffic Officer crew will assess the severity of the incident and inform the ROC and remain at the scene until the Police / other emergency services arrive, and provide first aid if necessary in accordance with the first aid procedure and brief the emergency service on arrival
- ROC will inform the emergency services (if appropriate) and request attendance and pass full details of the nature and severity of the incident

It is important that when emergency services arrive, Traffic Officers go status 2 at the earliest opportunity to be in position/standby for the severe weather plan.

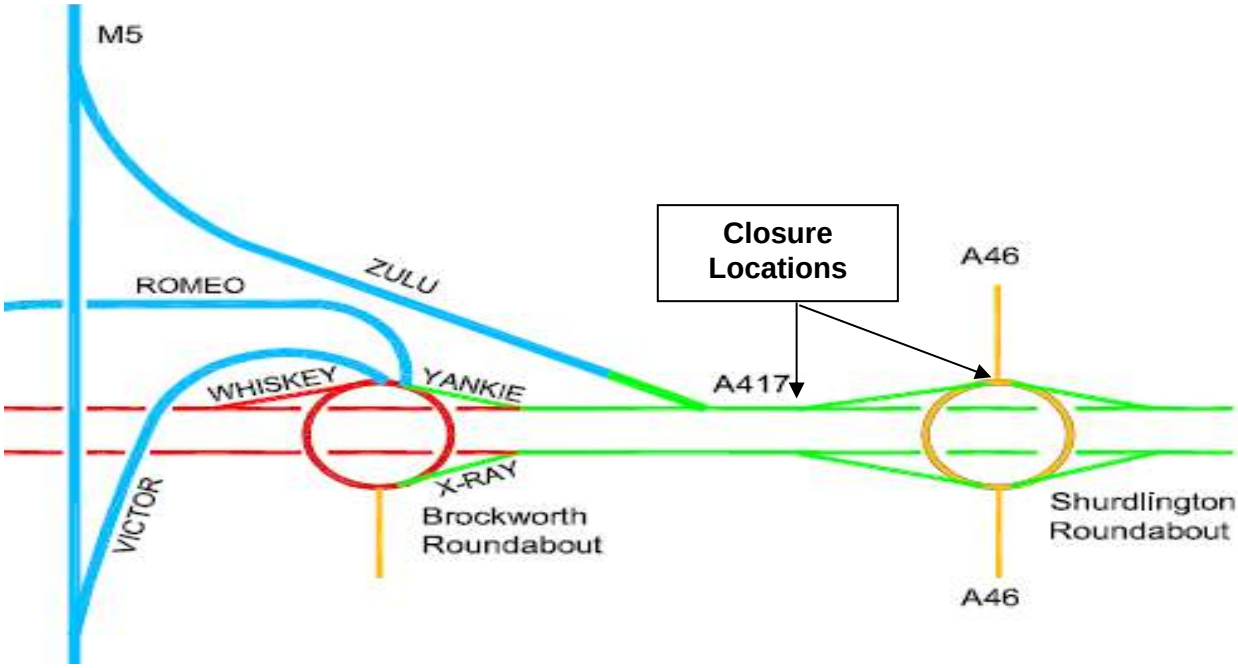
# APPENDIX D - ROAD CLOSURE ACTION CARD

**A417/A46 Shurdington Road Junction**

The A417 at this location is three lanes wide, with the nearside lane for vehicles exiting the A417 via the off-slip onto the roundabout, the other two lanes carrying the A417 underneath the junction on towards Crickley Hill. The exit slip is marked with 300m, 200m and 100m counters. The off slip marker post is 50/6. There is no hard shoulder at this location, only soft grass verges. Sign Bin padlock code number: 9119


The main A417 carriageway (lanes 2 & 3) should be closed by ETM coning in accordance with procedures starting from the 200m marker, after the crew has got the appropriate level of traffic under control either by a rolling road block or live lane stop. The on slip from the roundabout to the A417 to Crickley Hill must be closed in the normal way.

## APPENDIX D continued




**Key**

- Highways England SW Region Motorway
- Highways England SW Region APTR
- RMS
- Gloucestershire County Council

# APPENDIX E - ROAD CLOSURE ACTION CARD

**A417/A429 Burford Road Junction, Cirencester**

The A417 at this location is two lanes wide with a slip road .The main carriageway and northbound entry slip road at this junction should be closed using normal TOS procedures.

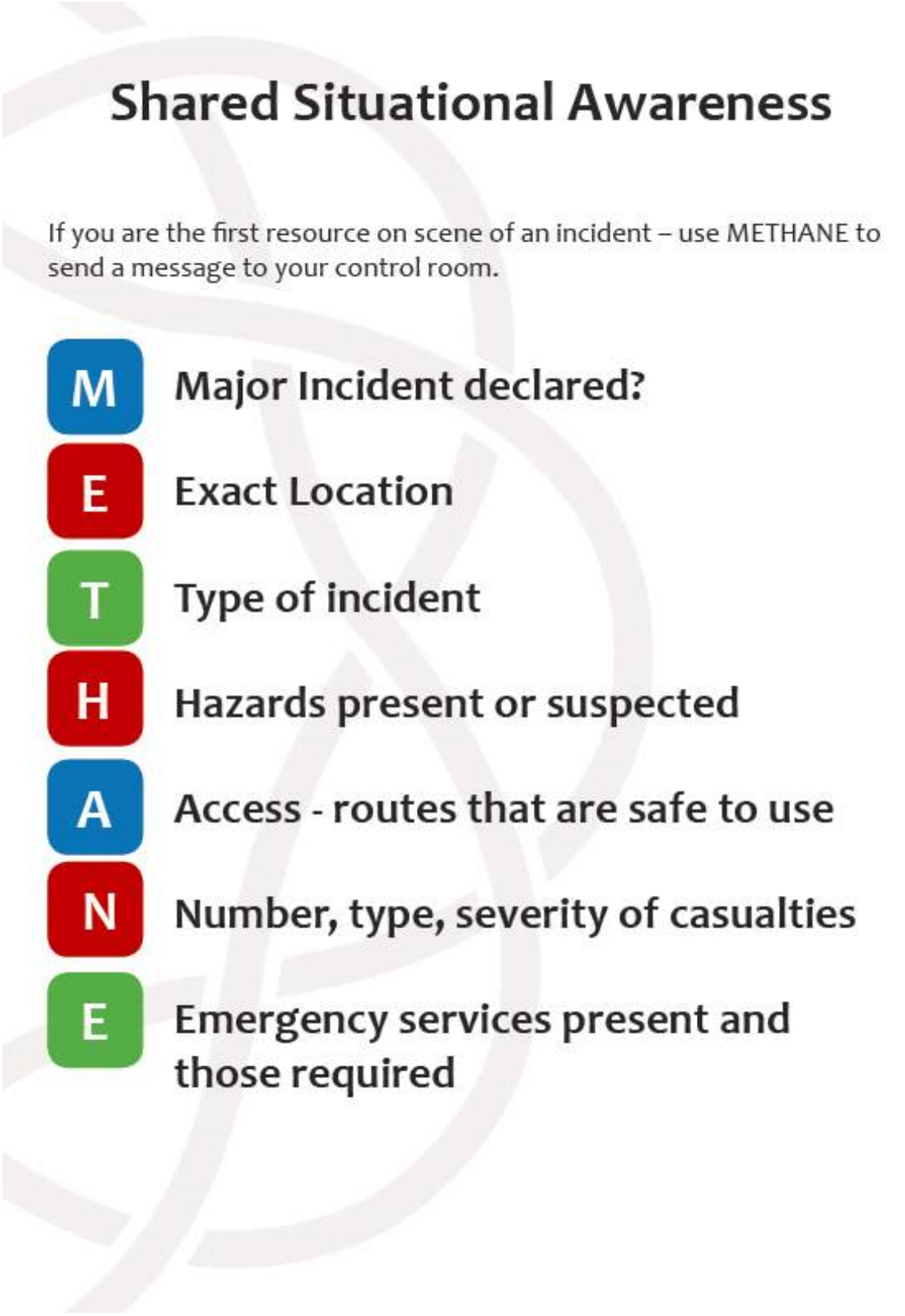

**A417 Cowley Roundabout**

A unit should place three cones and a ‘No Entry’ sign across the A417 single lane exit from the roundabout towards Nettleton Bottom. Cones and signs have been prepositioned on site within the sign store on Cowley Roundabout. The code for the combination lock is 9119.

# APPENDIX F

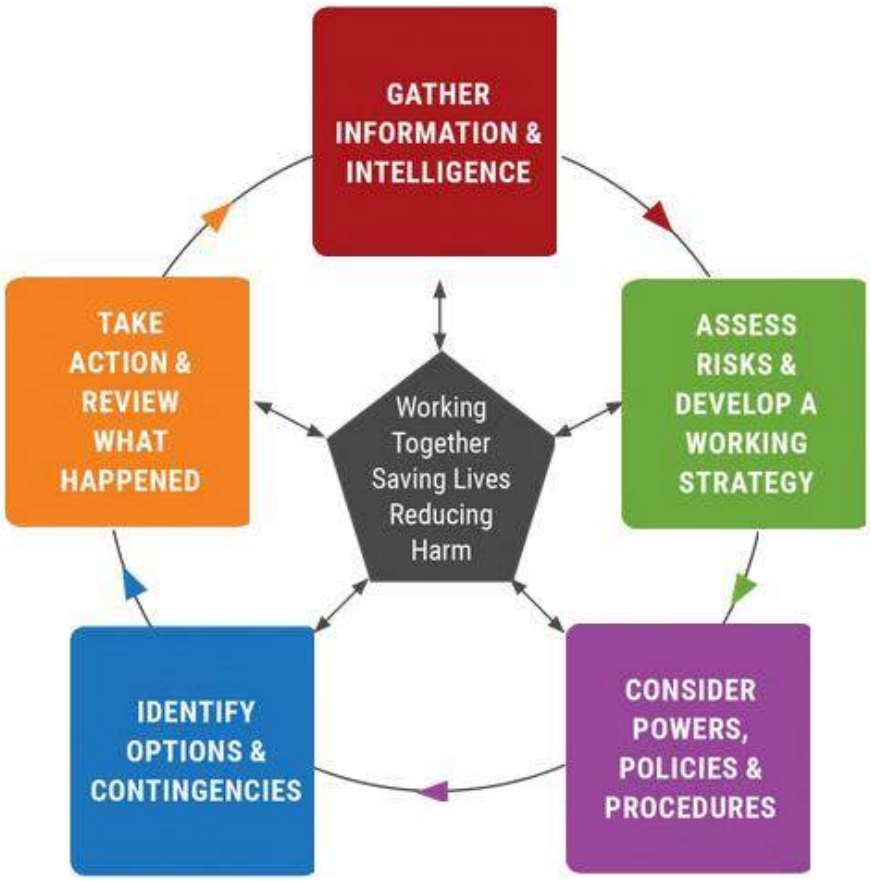
**JESIP Principles and Shared Situational Awareness**

## APPENDIX G


Shared Situational Awareness
If you are the first resource on scene of an incident – use METHANE to send a message to your control room.
M
Major Incident declared?
E
Exact Location
T
Type of incident
H
Hazards present or suspected
A
Access - routes that are safe to use
N
Number, type, severity of casualties
E
Emergency services present and those required

# APPENDIX H

## JOINT DECISION MODEL



highways england

# A417 NORTHBOUND

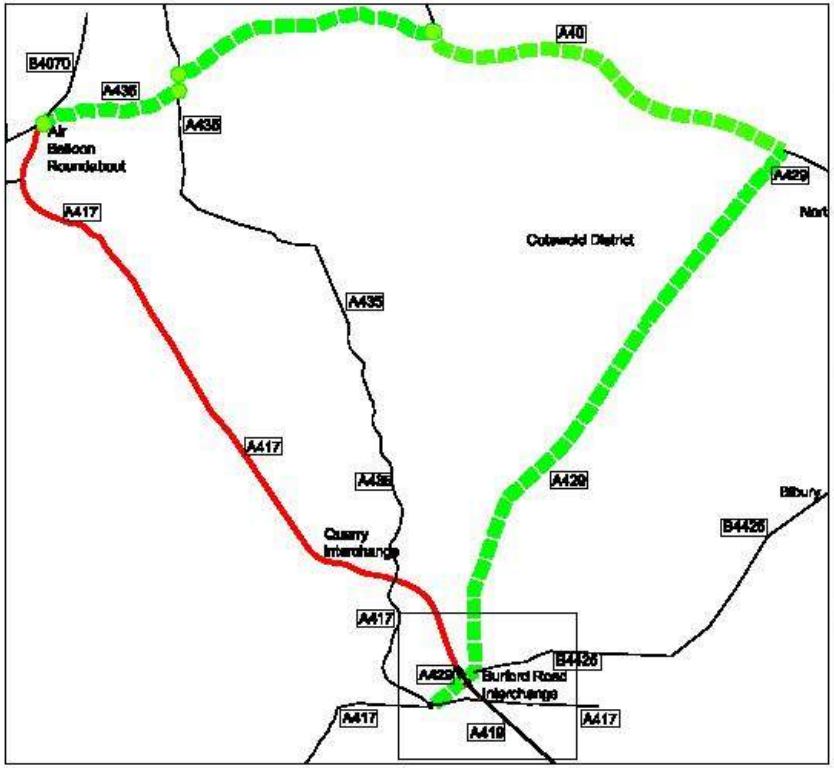
## CLOSED BETWEEN BURFORD ROAD INTERCHANGE AND AIR BALLOON ROUNDABOUT

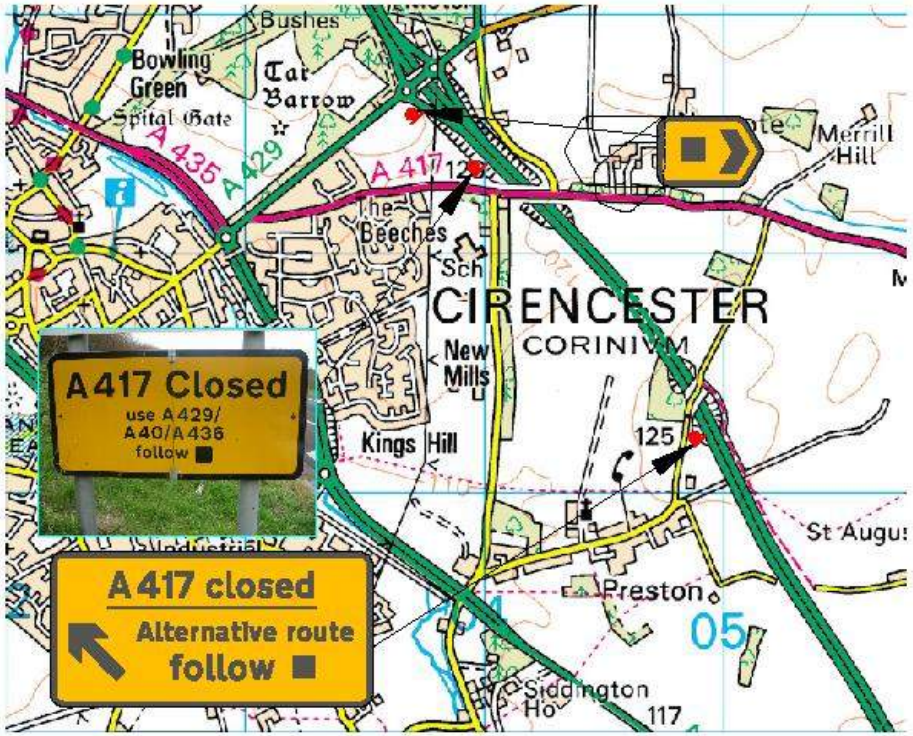
**Diversion Route Symbol**

**Action Points**
Step 1: Close A417 Northbound carriageway at Burford Road Interchange.
Step 2:Open trigger sign on A417 Northbound carriageway and on Northbound Exit Slip Road.
Reverse procedure at end of closure.

**A417 Northbound carriageway at Burford Road Interchange**

Standard Road Closure to TMC requirements




This route was agreed as the preferred option by the following parties during 2007:
Highways Agency, R.M.S. Gloucestershire Police and Gloucester County Council

HIGHWAYS AGENCY

mouchel

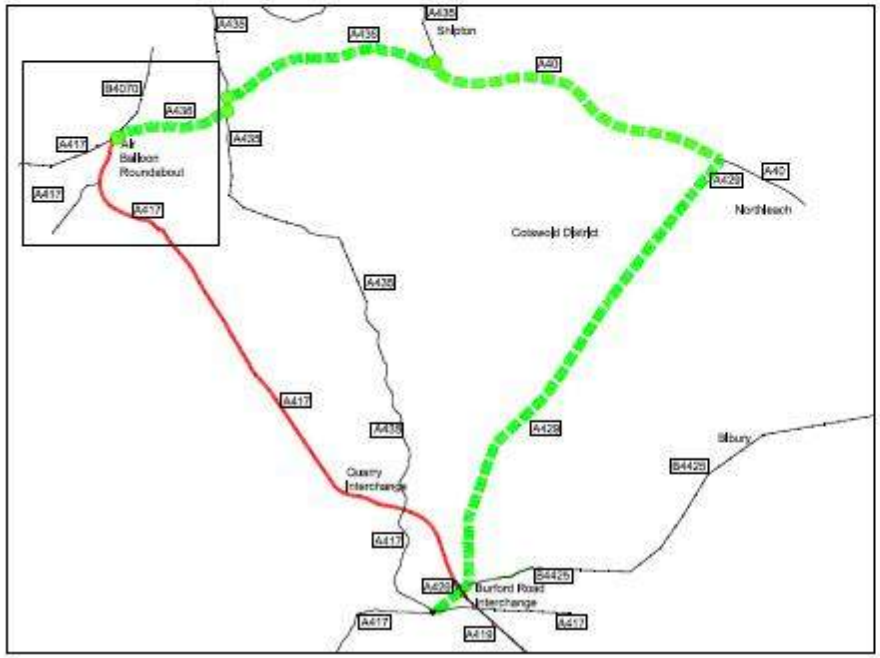
Diversion Route 3 (Northbound) B

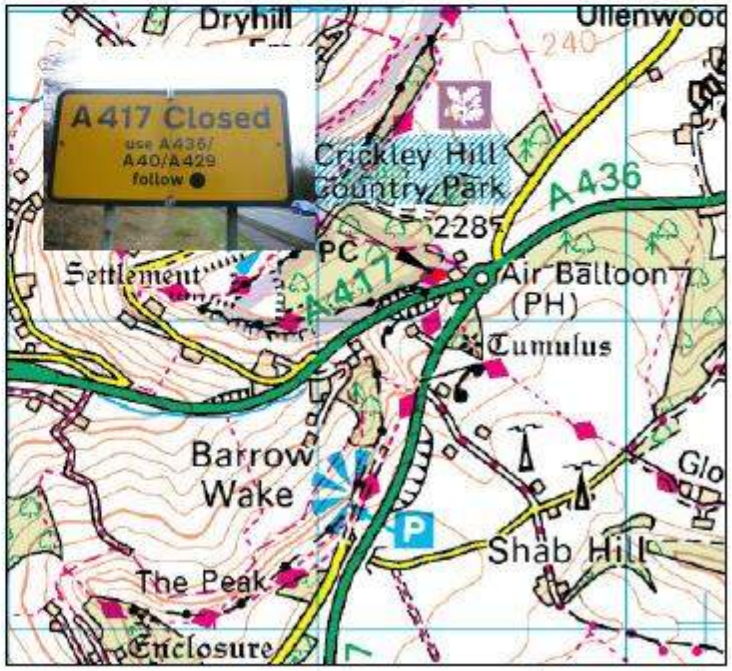
Dec 2009

# A417 SOUTHBOUND

## CLOSED BETWEEN AIR BALLOON ROUNDABOUT AND BURFORD ROAD INTERCHANGE

| Diversion Route Symbol | Action Points | A417 Southbound carriageway at Air Balloon Roundabout |
|---|---|---|
|  | Step 1: Close A417 Southbound carriageway at Air Balloon Roundabout.<br>Step 2:Open trigger signs on A417 Southbound approach to Air Balloon Roundabout.<br>Reverse procedure at end of closure. | Standard Road Closure to TMC requirements |

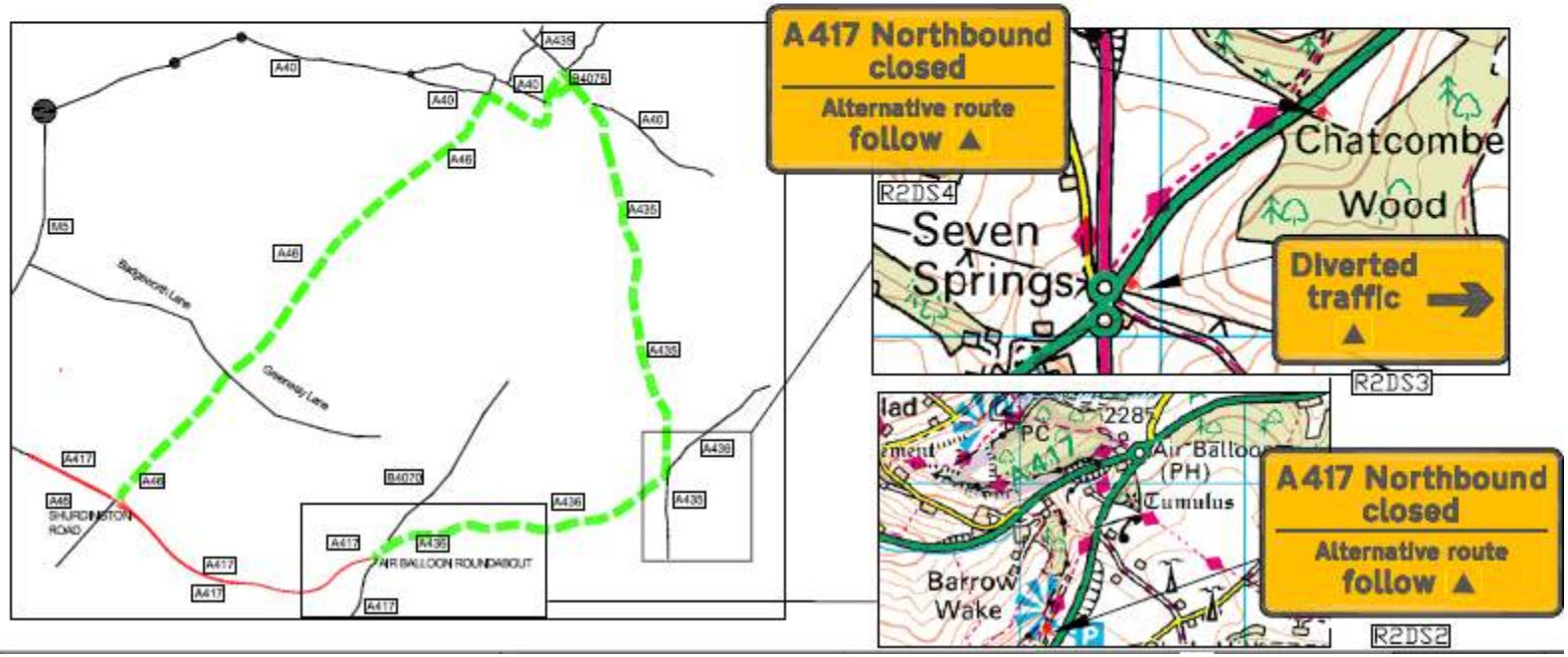


# A417 NORTHBOUND

## CLOSURE BETWEEN AIR BALLOON ROUNDABOUT AND A46 JUNCTION

| Diversion Route Symbol | Action Points | A417 Northbound at Air Balloon Roundabout. |
|---|---|---|
|  | Step 1: Close A417 Northbound carriageway at Air Balloon Roundabout junction with A436.<br>Step 2:Open trigger sign on A417 Northbound Approach to Air Balloon Roundabout.<br>Step 3:Open trigger signs on A436 Westbound Approach to Seven Springs. | Standard Road Closure to TMC requirements |



# A417 SOUTHBOUND

## CLOSED BETWEEN A46 JUNCTION AND AIR BALLOON ROUNDABOUT.

| Diversion Route Symbol | Action Points | A417 Southbound Main Carriageway at A46 Southbound Exit Slip Road. |
|---|---|---|
|  | Step 1: Close A417 Southbound carriageway at junction with A46.<br>Step 2: Open trigger signs at exit slip A46.<br>Step 3: Ensure symbol below is showing. | Standard Road Closure to TMC requirements |