



South Wokingham Distributor Road - Spine Road and Western Gateway Phase 1

Ordinary Watercourse Connection Points - Technical Note

WMHP-TG-SRWG1-TN-DD-0509

Revision: P01

Date: 17/08/2021

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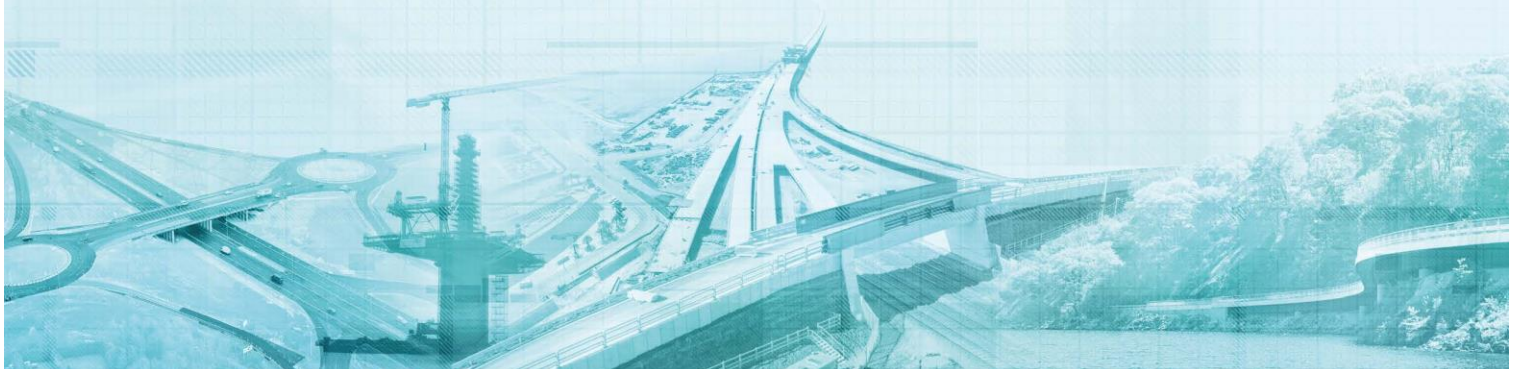
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1. Introduction

The purpose of this technical note is to identify locations where the proposed South Wokingham Distributor Road (SWRD) – Spine Road and Western Gateway Phase 1 (SRWG1), interacts, discharges, and modifies the existing ordinary watercourses.

Ordinary watercourses are identified as all watercourses that are not considered to be main rivers by the EA.

2. Location 1

Diversion of Luckley Brook Water Course

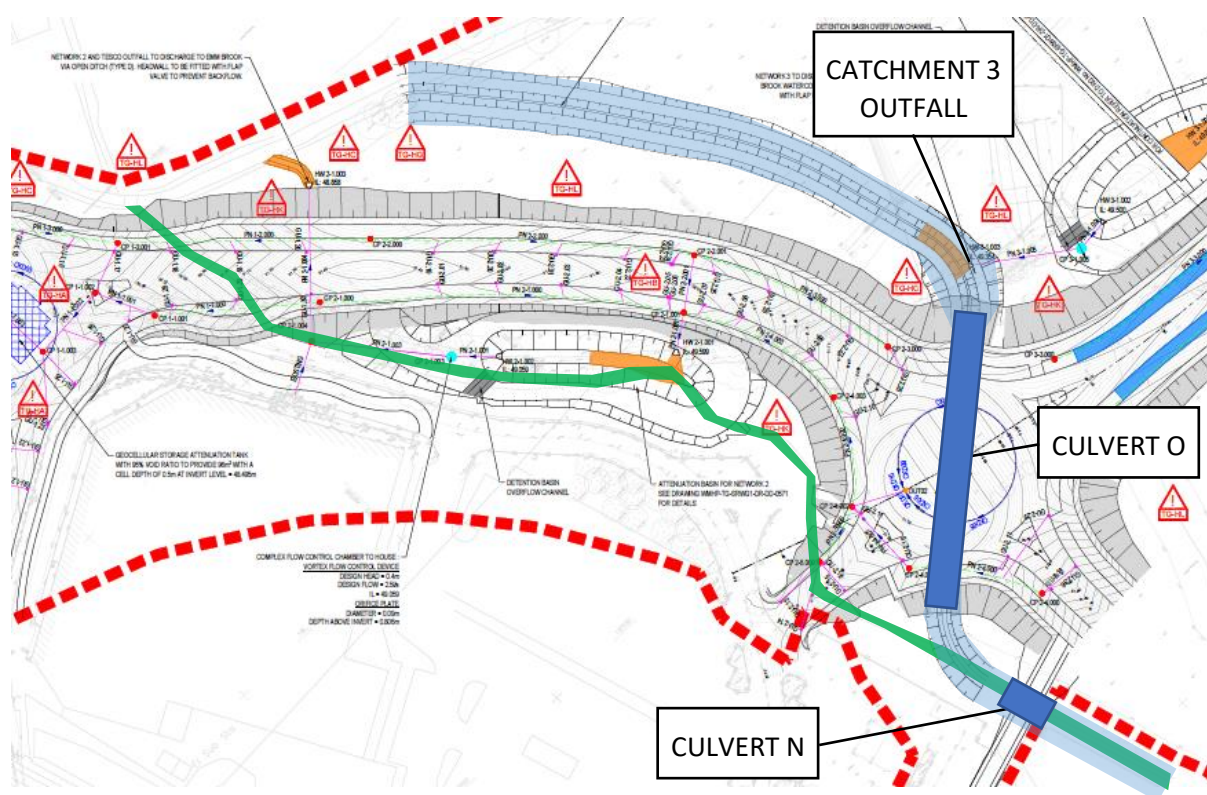


Figure 1: Annotated Extract from Drawing WMHP-TG-SRWG1-DR-DD-0501

The original route of Luckley Brook is shown above in green, with the proposed diversion shown in blue. More information of the diversion can be found in the Post Development Hydraulic Modelling Addendum – 66439-HMA-01, produced by WSP.

Two culverts are required on the diverted route, Culverts N and O to pass the diverted watercourse under the proposed alignment. Culvert N is a 2.0x2.0m concrete box culvert 4m in length, detailed on drawings WMHP-TG-SRWG1-DR-SE-0581 and 0582. Culvert O is a 2.1x2.1m concrete box culvert, 68m in length, detailed on drawings WMHP-TG-SRWG1-DR-SE-0587 and 0588.

Additionally, the catchment 3 outfall discharges into the diverted watercourse at approximately 11.60m/s for the 1 in 100 + 40%CC rainfall event, this is inline with greenfield

rate flows. The outfall pipe is 225mm diam. laid at 1:170. The bed and banks of the diverted watercourse are protected from scour at the outfall using erosion protection matting. Refer to drawing WMHP-TG-SRWG1-DR-DD-0571 for details of the attenuation structure and outfall.

3. Location 2

Diversion of the Upper Emm Brook Tributary

The proposed highway alignment between the tie in with Eastern Gateway and Easthampstead Road crosses the existing Upper Emm Brook tributary in a number of locations. In order to satisfy technical requirements it is proposed to re-align and improve the Upper Emm Brook tributary to two-stage channel. As with the Luckley Brook Diversion more information can be found on the proposed diversion in the Post Development Hydraulic Modelling Addendum – 66439-HMA-01, produced by WSP.

As part of the diversion the tributary is culverted in several locations.

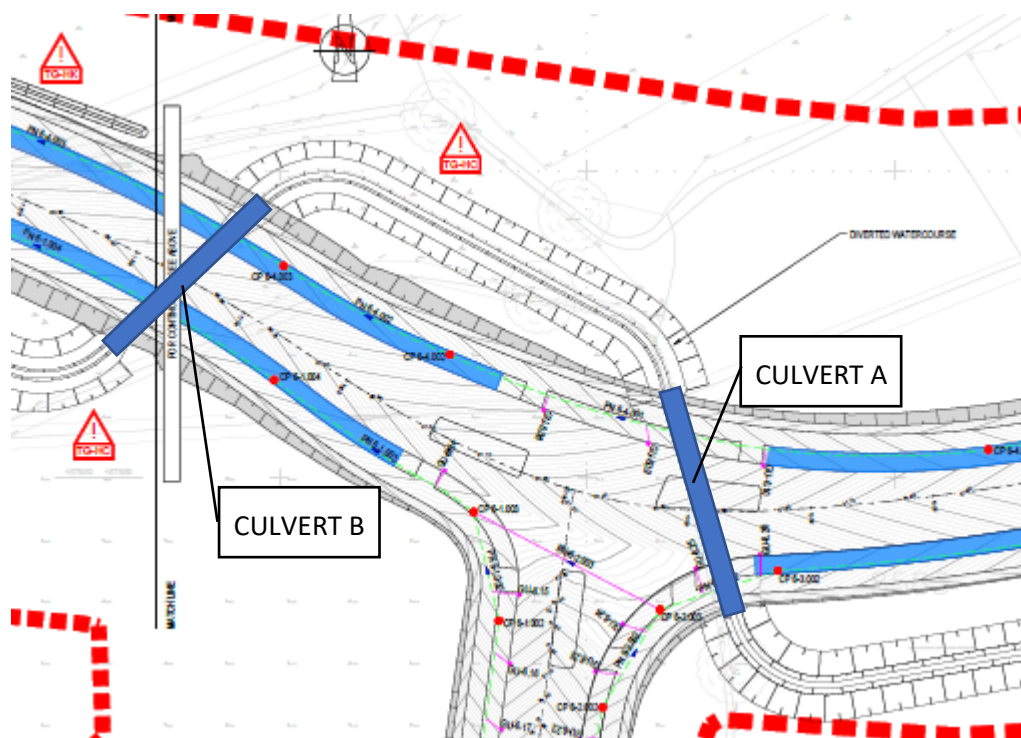


Figure 2: Annotated Extract from Drawing WMHP-TG-SRWG1-DR-DD-0506

Culvert A consists of 4 no. 600mm internal diameter parallel concrete pipes 48.6m in length, detailed on drawings WMHP-TG-SRWG1-DR-DD-0535. Culvert B consists of 3 no. 900mm internal diameter parallel concrete pipes 48.6m in length, detailed on drawings WMHP-TG-SRWG1-DR-DD-0534.

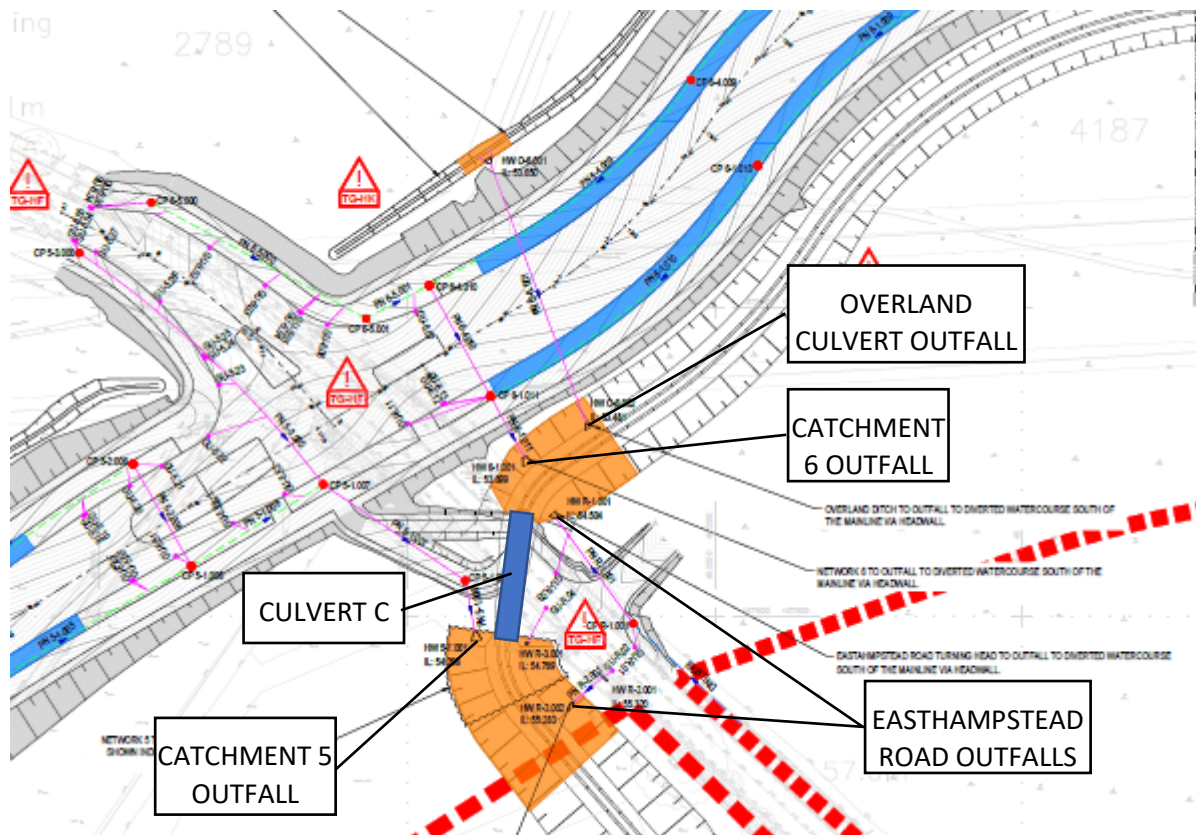


Figure 3: Annotated Extract from Drawing WMHP-TG-SRWG1-DR-DD-0505

Culvert C culverts the realigned upper Emm Brook tributary under the existing alignment of Easthampstead Road, and the proposed turning head and pedestrian link from the SWDR to Easthampstead Road. The culvert is a 3.6x2.1m concrete box culvert, 20m in length, detailed on drawings WMHP-TG-SRWG1-DR-SE-0597 and 0598.

Highway drainage catchments 5 and 6 also discharge in this location. These outfalls freely discharge into the watercourse, with attenuation provided downstream in the multiuse SANG basin area. Catchment 5 is a 500mm diam. pipe at 1:157, incorporated into the wingwall of culvert C. Catchment 6 is a 450mm diam. pipe at 1:341. Additionally two new outfalls are introduced to discharge the existing Easthampstead Road Drainage, these are both 225mm diam. pipes.

Finally there is an overland culvert outfall, which distributes collected overland flows from a ditch to the north of the distributor road to the south. This is a 300mm diam. pipe laid at 1:265.

The bed and banks of the diverted watercourse through this section are protected from scour using erosion protection matting.

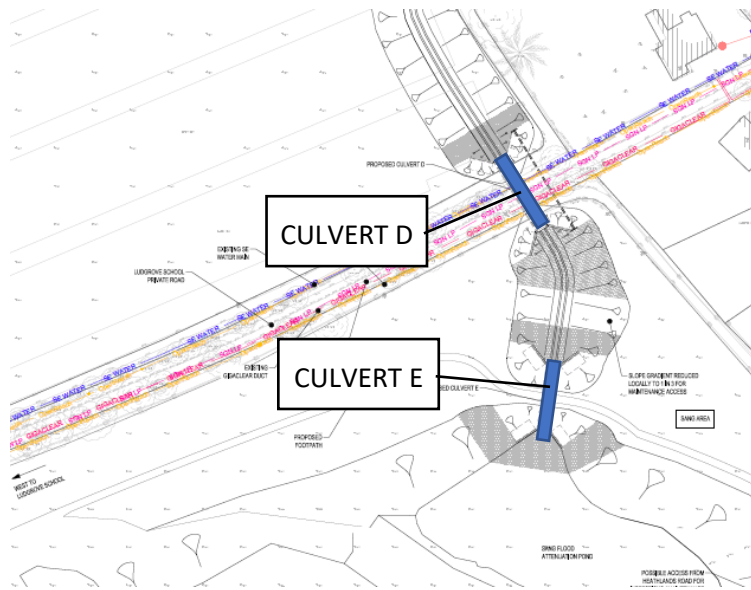


Figure 4: Annotated Extract from Drawing WMHP-TG-SRWG1-DR-SE-0590

Culverts D and E are the final two Culverts on the diverted Upper Emm Brook Tributary. Culvert D culverts the watercourse under Ludgrove Schools private access road and Culvert E discharges the tributary into the SANG Basin, passing under a pedestrian footpath.

Culvert D is 3.0x3.0m concrete box culvert 22.0m in length, detailed on drawings WMHP-TG-SRWG1-DR-SE-0591 and 0592. Culvert E is 3.0x3.0m concrete box culvert 18.0m in length, detailed on drawings WMHP-TG-SRWG1-DR-SE-0593 and 0594.

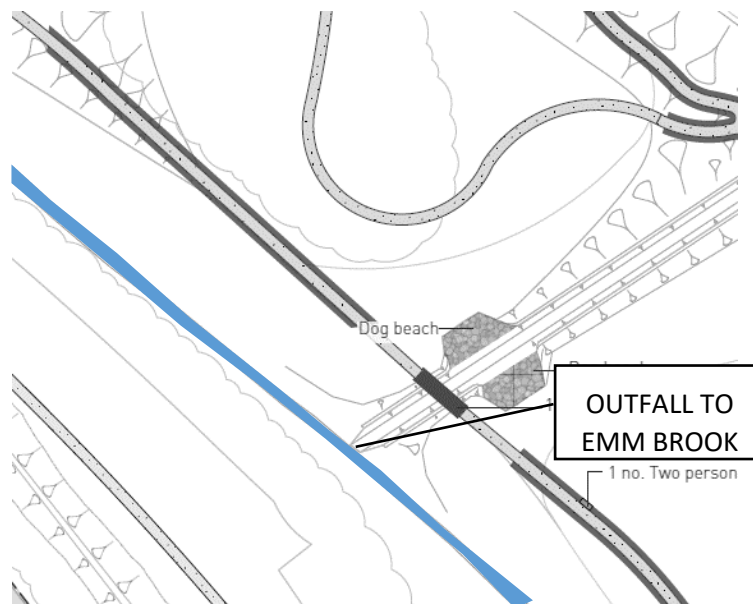


Figure 5: SANG Basin Outfall

Finally, the SANG discharges to the Emm Brook via an open 4.5m wide trapezoidal channel. The channel discharges to the Emm Brook at approximately $0.29\text{m}^3/\text{s}$.

4. Location 3

Realignment of Ditch Parallel to Easthampstead Road and discharge of Catchment 7

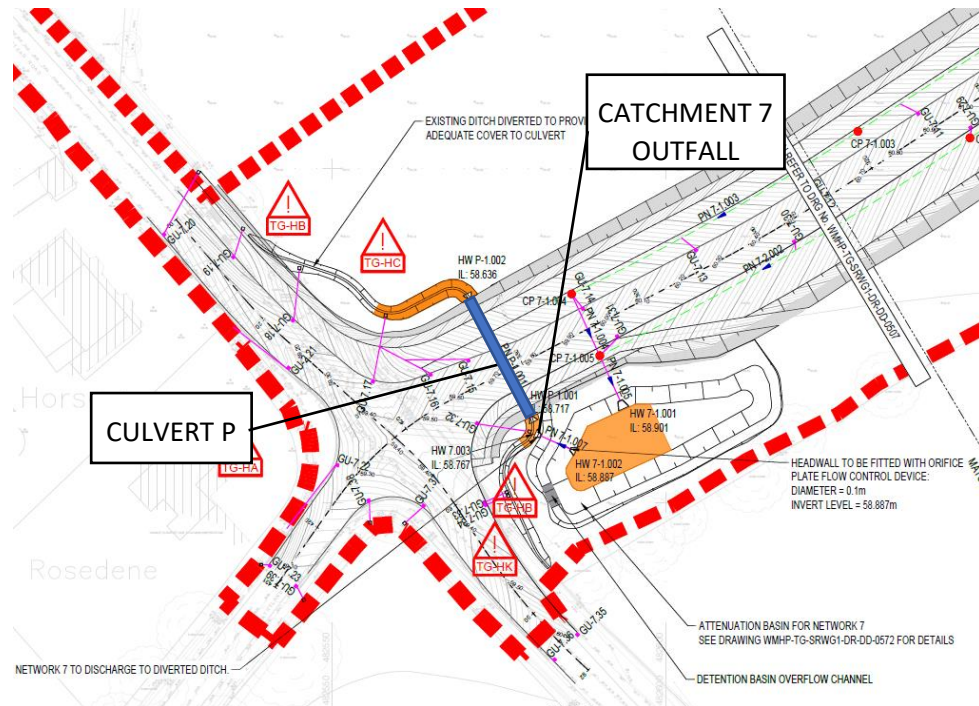


Figure 6: Annotated Extract from Drawing WMHP-TG-SRWG1-DR-DD-0507

The existing highway drainage ditch that runs parallel to Easthampstead Road has been diverted and culverted, through culvert P, to pass under the proposed alignment. The proposed cross section of the ditch is proposed to match the existing cross section to maintain existing capacity. Culvert P is a 300mm diam. pipe, 20m in length.

Catchment 7 basin discharges into the realigned ditch at a maximum 16l/s for the 1 in 100 + 40%CC rainfall event, controlled by an orifice plate. The outfall pipe is 300mm diam. laid at 1:245. The bed and banks of the diverted watercourse are protected from scour at the outfall using erosion protection matting. Refer to drawing WMHP-TG-SRWG1-DR-DD-0571 for details of the attenuation structure and outfall.