



Existing Culvert Condition Survey

Green Park Village, Reading

Client

St. Edwards
Ref: 11056
Date: Jan 2021

Consulting Engineers

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Issue	Issue date	Compiled	Checked
Preliminary Issue	07 Jan 2021	SFC	MR

Report by: Simon Clare

Checked by: Martin Roberts I Eng, ACIWEM, MCIHT

1 Brief

- 1.1 This report has been prepared for St Edwards in relation to the development at Green Park Village, Reading. No responsibility is accepted to any third party for all or part of this report in connection with this or any other development.
- 1.2 GTA Civils & Transport Limited was appointed by the client to provide a report into the condition of the culvert beneath the existing crossing from Flagstaff Road to an adjacent field intended for use as a temporary contractor's car park and to assess its suitability for that purpose.
- 1.3 The location of the existing culvert is shown in Appendix A
- 1.4 GTA were also to comment on the results from a CCTV survey however this survey was not carried out due to access difficulties. A report on the developer's own visual inspection was provided and is included in Appendix C of this report.

2 GTA Inspection and findings

- 2.1 GTA Civils attended site on the 8th of December 2020 and met representatives from the developer.
- 2.2 A visual inspection was carried out and photographs were taken. The photographs are shown in Appendix B.
- 2.3 The culvert was observed to have a covering of concrete of varying depth up to approximately 300mm thick. Much of the concrete was obscured by a further layer of macadam. The condition of the concrete covering was not possible to ascertain for this reason, though there were no obvious signs of cracking or structural defects visible on the surface.
- 2.4 The walls of the culvert pipe were 100mm thick.
- 2.5 Both ends of the culvert were inspected and found to have no visible signs of significant structural defects. Some minor damage to the exposed concrete was visible.
- 2.6 Standing water within the pipe was observed to a depth of approximately 200mm, along with assorted detritus.

3 Developer's Inspection Report

- 3.1 The planned CCTV survey was not successfully carried out due to access difficulties.
- 3.2 A visual inspection was instead carried out and photographs were taken.
- 3.3 The developer's report is included in Appendix C of this report.
- 3.4 In summary, this inspection made similar findings to the GTA inspection, namely that there were no obvious signs of any structural defects within the pipe and that it was somewhat obstructed by branches etc.

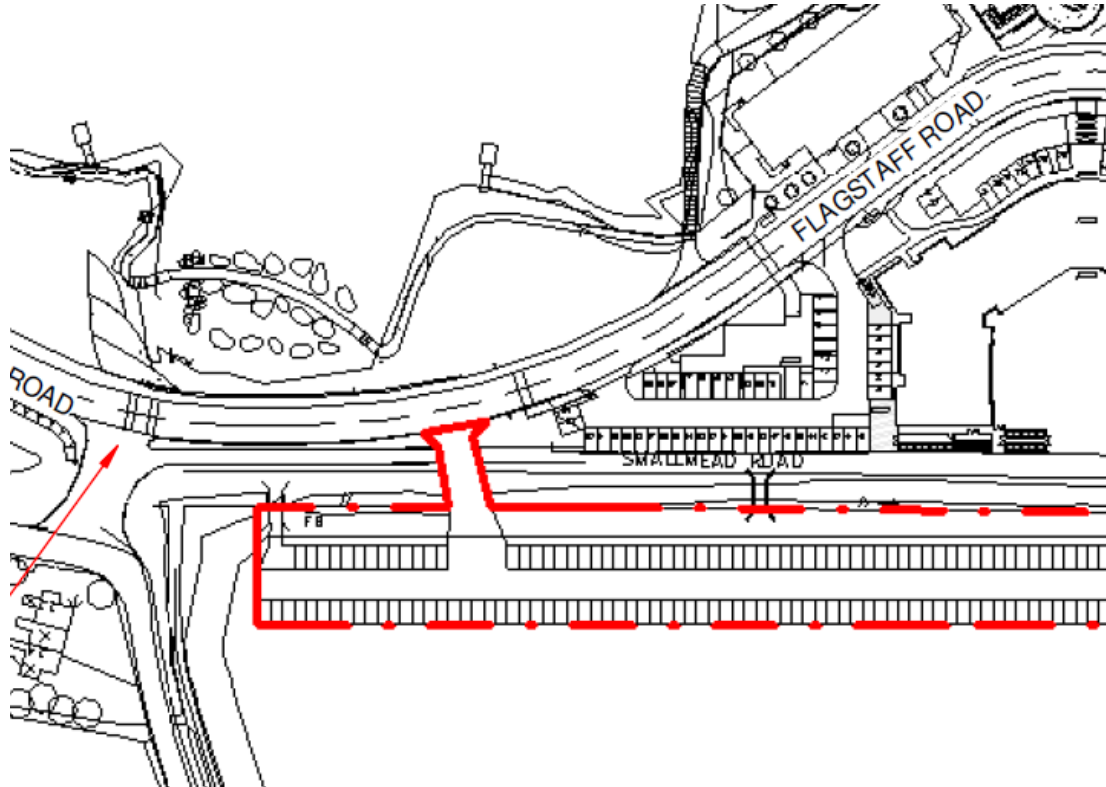
4 Recommendations

- 4.1 Based on the visual inspection, the culvert is generally suitable for continued use beneath this access to the temporary parking area, though it will be necessary to increase the depth of cover so that loads are distributed more effectively.
- 4.2 Currently there is approximately 300mm of cover to the culvert and this cover is predominantly concrete with a layer of Macadam.
- 4.3 In order for vehicular loads to be distributed such that the long term use of the culvert is safe, a further 900mm-1200mm of conventional road construction needs to be added. Alternatively, if this amount of additional cover is not possible then additional protective concrete can be used; the thickness of which will need to be designed by a structural engineer.
- 4.4 The existing ditch crossing is approximately 1 metre lower than both the adjacent field and the road from which the new car park will be accessed, so the addition of 1000mm of road construction across the culvert is likely to be required in order to stop vehicles grounding as they pass.
- 4.5 Suitable barriers will need to be added to prevent vehicles from falling into the ditch should they accidentally leave the access as they turn in to it. The addition of barriers would reduce the available width for traffic, possibly requiring the access to be a single lane with appropriate traffic control.
- 4.6 It would be advisable to clear the vegetation from inside and adjacent to the culvert to make maintenance easier and for the ditch downstream of the culvert to be cleared so that standing water does not accumulate within the pipe.
- 4.7 Once the culvert is cleared a thorough inspection of the culvert should be undertaken to confirm the absence of structural defects.

- End of Report -

Appendix A

Culvert Location



Appendix B

GTA Site Inspection Photographs



View across existing crossing, towards north-west



View across existing crossing, towards north-west



View across existing crossing, towards north-east



View along culvert route, looking east.



Western end of culvert



Western end of culvert



Eastern end of culvert



View across culvert, looking west, showing difference in level to the newly built road

Appendix C

Developer's Inspection Report

To: Gerard Connolly ; Nic Finden ; Maija Hayward ; Harry Jest

From: Osama Salih

cc: David Ridler; Ranj Kalaranjan ; Basil Thangarajah

Date: Monday, December 14, 2020

Re: **Contractors Parking Culvert Condition Survey**

Culvert Existing Condition

The existing condition of the culvert looks good, there are no signs of any cracks or weakening of the inner lining of the pipe. There are signs of silt buildup at the bottom of the pipe which is natural and expected. Upstream of the pipe (Western Boundary) there is an existing tree branch which is growing inside the pipe and is restricting the natural flow of water through the pipe causing the water levels to rise slightly.



Figure 1: Culvert view Eastern Boundary



Figure 2: Culvert view Western Boundary

The cover on the exiting culver seems to be about 100 to 200 mm thick, this will need to be built up if the culvert is going to be used for traffic.

Further Works

In order to get access to the inside of the culvert, the following has to be done:-

- Vegetation clearance works including the removal of the tree stump
- Temporary Sandbag gap to block the flow temporarily to clear the inside of the pipe
- Water tanker to remove the water and silt
- Material removal by security
- Building of new access ramp to allow water tanker
- Camera survey of culvert once cleaned and cleared



Recommendations

Due to the nature of the existing culvert and the cost of mobilization for completing the survey. The cost of replacing the water pipe and culvert at the end of the project could be a more cost effective option. However as Considerate Constructors, we should get the tree removed from the inside of the culvert in order to improve the water flow through the culvert and not to cause any future problems with flow restriction. General clearance of the ditch is also needed in order to reduce the environmental impact and future lights and CCTV will possibly be needed. The area is isolated and is susceptible to fly tipping.

Photo's













