



TURNER JOMAS & ASSOCIATES

Environmental & Civil Engineers & Transport Planners

Technical note

Project 34 Pole Hill Road
Note Drainage Strategy Addendum
Author Arwyn Norris

Date 04 March 2019
Ref P9853J1049-D101

This technical note is produced as an addendum to the Turner Jomas & Associates Surface Water Drainage Strategy Ref P9853J1049 and provides additional information on the surface water drainage for the scheme to address comments received in regards to condition 11.

The proposed development is currently developed with a residential property and therefore existing drainage is present. The existing public sewer within Pole Hill Road is at a depth of circa 1m with a fall of approximately 1:40 east to west in line with topography.

Sewer invert levels in proximity to the site are at a level of approximately 59.92mAOD which equates to roughly 1.2m depth.

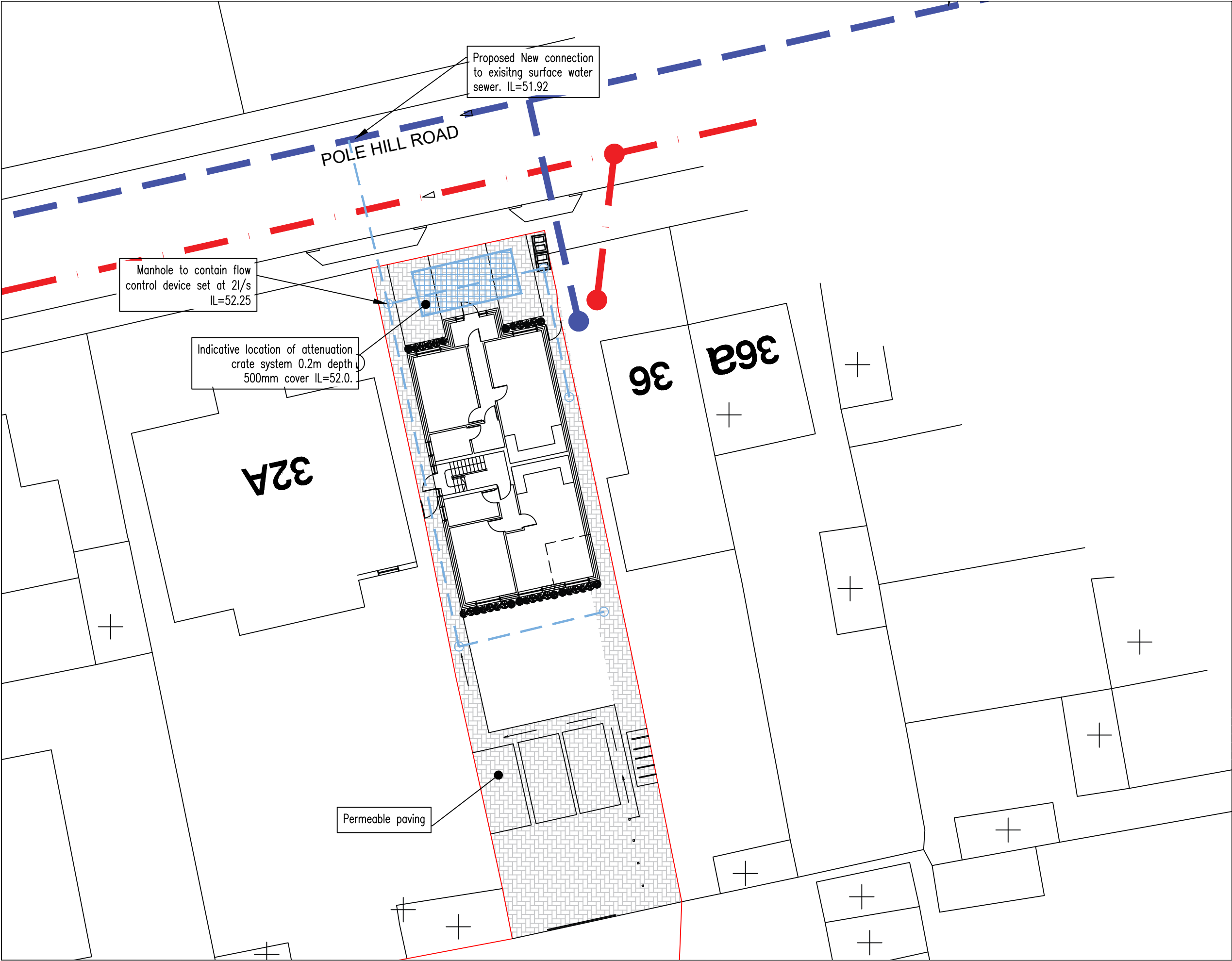
Site levels are roughly level and the proposed drainage strategy is therefore to discharge to the public sewer in Pole Hill Road via a new connection if required. During site clearance works any existing drainage runs shall be checked for suitability and re used where possible.

The proposed attenuation system as identified within the Turner Jomas & Associates Surface Water Drainage Strategy Ref P9853J1049 will be at a maximum depth of 0.7m. This accounts for 500mm of cover. From the invert levels identified of the existing public sewer this would allow for sufficient falls to communicate with the existing public sewer. An updated Drainage strategy Plan is appended to this document.

Calculations have been updated to reflect the intended invert levels of the systems and are appended to this document. Results indicate that the attenuation storage proposed of 2.85m³ would be more than adequate to attenuate flows to the 2l/s as stated.

During detailed design, the type of attenuation system, and management plan can be undertaken. The as built records and any required maintenance in line with the manufacturer's recommendations shall be provided as part of the site O&M manual to be supplied as part of the home owners records.

END



GENERAL

1. Do not scale from drawing.
2. All dimensions are in metres, unless stated otherwise.
3. This drawing to be read & printed in colour.
4. This drawing to be read in conjunction with other contract drawings.

DISCLAIMERS

1. The information contained in this drawing is based on a combination of OS and survey data provided by others and Jomas shall not be liable for any inaccuracies or deficiencies.

KEY

Surface Water drain

Proposed surface water manhole

Proposed Attenuation system

Existing Public Sewers

Rev	Date	Comments
A	04/03/19	First Issue

Project: 34 Pole Hill Road, Uxbridge

Drawing: Drainage Strategy

Drawing No.: SK100

Drawn: AN **Checked:** AN **Approved:** AN

Scale: 1:200@ A3 **Revision:** A

Date: 04 March 2019

File

Checked by

Source Control 2017.1

Half Drain Time : 11 minutes.

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	133.840	0.0	3.2	14
30 min Summer	88.785	0.0	4.3	23
60 min Summer	56.129	0.0	5.4	40
120 min Summer	34.254	0.0	6.7	70
180 min Summer	25.291	0.0	7.4	98
240 min Summer	20.257	0.0	7.9	128
360 min Summer	14.799	0.0	8.7	188
480 min Summer	11.836	0.0	9.2	248
600 min Summer	9.944	0.0	9.7	308
720 min Summer	8.621	0.0	10.1	0
960 min Summer	6.877	0.0	10.7	0
1440 min Summer	4.992	0.0	11.7	0
2160 min Summer	3.617	0.0	12.7	0
2880 min Summer	2.874	0.0	13.5	0
4320 min Summer	2.076	0.0	14.6	0
5760 min Summer	1.646	0.0	15.4	0
7200 min Summer	1.374	0.0	16.1	0
8640 min Summer	1.185	0.0	16.6	0
10080 min Summer	1.046	0.0	17.1	0
15 min Winter	133.840	0.0	3.7	15

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Date 04/03/2019 14:16 File	Designed by Arwyn Checked by																															
Innovyze		Source Control 2017.1																														
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<u>Model Details</u> Storage is Online Cover Level (m) 53.000 <u>Cellular Storage Structure</u> Invert Level (m) 52.300 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>15.0</td> <td>0.0</td> <td>0.201</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>0.200</td> <td>15.0</td> <td>0.0</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <u>Hydro-Brake® Optimum Outflow Control</u> Unit Reference MD-SHE-0078-2000-0200-2000 Design Head (m) 0.200 Design Flow (l/s) 2.0 Flush-Flo™ Calculated Objective Minimise upstream storage Application Surface Sump Available Yes Diameter (mm) 78 Invert Level (m) 52.250 Minimum Outlet Pipe Diameter (mm) 100 Suggested Manhole Diameter (mm) 1200 <table border="1"> <thead> <tr> <th>Control Points</th> <th>Head (m)</th> <th>Flow (l/s)</th> </tr> </thead> <tbody> <tr> <td>Design Point (Calculated)</td> <td>0.200</td> <td>2.0</td> </tr> <tr> <td>Flush-Flo™</td> <td>0.107</td> <td>2.0</td> </tr> <tr> <td>Kick-Flo®</td> <td>0.169</td> <td>1.9</td> </tr> <tr> <td>Mean Flow over Head Range</td> <td>-</td> <td>1.5</td> </tr> </tbody> </table> The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> </tr> </thead> <tbody> <tr> <td>0.100</td> <td>2.0</td> <td>1.200</td> <td>4.6</td> <td>3.000</td> <td>7.0</td> <td>7.000</td> <td>10.8</td> </tr> <tr> <td>0.200</td> <td>2.0</td> <td>1.400</td> <td>4.9</td> <td>3.500</td> <td>7.6</td> <td>7.500</td> <td>11.2</td> </tr> <tr> <td>0.300</td> <td>2.4</td> <td>1.600</td> <td>5.2</td> <td>4.000</td> <td>8.1</td> <td>8.000</td> <td>11.5</td> </tr> <tr> <td>0.400</td> <td>2.7</td> <td>1.800</td> <td>5.5</td> <td>4.500</td> <td>8.6</td> <td>8.500</td> <td>11.9</td> </tr> <tr> <td>0.500</td> <td>3.0</td> <td>2.000</td> <td>5.8</td> <td>5.000</td> <td>9.1</td> <td>9.000</td> <td>12.3</td> </tr> <tr> <td>0.600</td> <td>3.3</td> <td>2.200</td> <td>6.0</td> <td>5.500</td> <td>9.6</td> <td>9.500</td> <td>12.6</td> </tr> <tr> <td>0.800</td> <td>3.8</td> <td>2.400</td> <td>6.3</td> <td>6.000</td> <td>10.0</td> <td></td> <td></td> </tr> <tr> <td>1.000</td> <td>4.2</td> <td>2.600</td> <td>6.5</td> <td>6.500</td> <td>10.4</td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	15.0	0.0	0.201	0.0	0.0	0.200	15.0	0.0				Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	0.200	2.0	Flush-Flo™	0.107	2.0	Kick-Flo®	0.169	1.9	Mean Flow over Head Range	-	1.5	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	2.0	1.200	4.6	3.000	7.0	7.000	10.8	0.200	2.0	1.400	4.9	3.500	7.6	7.500	11.2	0.300	2.4	1.600	5.2	4.000	8.1	8.000	11.5	0.400	2.7	1.800	5.5	4.500	8.6	8.500	11.9	0.500	3.0	2.000	5.8	5.000	9.1	9.000	12.3	0.600	3.3	2.200	6.0	5.500	9.6	9.500	12.6	0.800	3.8	2.400	6.3	6.000	10.0			1.000	4.2	2.600	6.5	6.500	10.4		
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