# Norwich Western Link

# Environmental Statement

# Chapter 12: Road Drainage and the Water Environment

# Appendix 12.1: Drainage Network Water Quality Assessment

# Sub Appendix B: Routine Runoff on Groundwater Quality Data

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# Contents



## Tables

# 1 HEWRAT assessment of routine runoff on groundwater quality

1.1.1 **Table 1.1** to **Table 1.6** below provide a full summary of the input parameters and results for each individual basin assessed.

**Table 1.1 – Basin 1 results**

| Source / Pathway | Parameter | Value | Risk | Weighting factor | Score |
|---|---|---|---|---|---|
| Source | Traffic flow | 63,605 (Total)<br>47,120 (Proposed Scheme)<br>16,485 (NDR) | Medium | 10 | 20 |
| Source | Rainfall depth | 683 | Low | 10 | 10 |
| Source | Drainage area ratio | Drainage area 4.91ha (Total)<br>1.31ha (Proposed Scheme)<br>3.6ha (NDR)<br>Basin area 2,783m² (NDR)<br>Ratio 17.6 | Low | 10 | 10 |
| Pathway | Infiltration Method | Region | Medium | 15 | 30 |
| Pathway | Unsaturated Zone | 1 - 5m | High | 20 | 60 |
| Pathway | Flow Type | Mixed fracture and intergranular | Medium | 20 | 40 |

| Source / Pathway | Parameter | Value | Risk | Weighting factor | Score |
|---|---|---|---|---|---|
| Pathway | Unsaturated Zone Clay content | ≥15% clay minerals | Low | 5 | 5 |
| Pathway | Organic Carbon | ≤1% soil organic matter | High | 5 | 15 |
| Pathway | Unsaturated Zone Soil pH | pH≤5 | High | 5 | 15 |

**Table 1.2 – Basin 2 results**

| Source / Pathway | Parameter | Value | Risk | Weighting factor | Score |
|---|---|---|---|---|---|
| Source | Traffic flow | 47,120 | Low | 10 | 10 |
| Source | Rainfall depth | 683 | Low | 10 | 10 |
| Source | Drainage area ratio | Drainage area 2.91ha<br>Basin area 7,533.8m²<br>Ratio 3.9 | Low | 10 | 10 |
| Pathway | Infiltration Method | Region | Medium | 15 | 30 |
| Pathway | Unsaturated Zone | 1 - 5m | High | 20 | 60 |

| Source / Pathway | Parameter | Value | Risk | Weighting factor | Score |
|---|---|---|---|---|---|
| Pathway | Flow Type | Mixed fracture and intergranular | Medium | 20 | 40 |
| Pathway | Unsaturated Zone Clay content | ≥15% clay minerals | Low | 5 | 5 |
| Pathway | Organic Carbon | ≤1% soil organic matter | High | 5 | 15 |
| Pathway | Unsaturated Zone Soil pH | pH≤5 | High | 5 | 15 |

**Table 1.3 – Basin A1067 results**

| Source / Pathway | Parameter | Value | Risk | Weighting factor | Score |
|---|---|---|---|---|---|
| Source | Traffic flow | 18991 | Low | 10 | 10 |
| Source | Rainfall depth | 683 | Low | 10 | 10 |
| Source | Drainage area ratio | Drainage area 0.27ha<br>Basin area 1,427.3m²<br>Ratio 1.9 | low | 10 | 10 |
| Pathway | Infiltration Method | Region | Medium | 15 | 30 |
| Pathway | Unsaturated Zone | 1 - 5m | High | 20 | 60 |
| Pathway | Flow Type | Mixed fracture and intergranular | Medium | 20 | 40 |
| Pathway | Unsaturated Zone Clay content | ≥15% clay minerals | Low | 5 | 5 |
| Pathway | Organic Carbon | ≤1% soil organic matter | High | 5 | 15 |
| Pathway | Unsaturated Zone Soil pH | pH≤5 | High | 5 | 15 |

**Table 1.4 – Basin 3 results**

| Source / Pathway | Parameter | Value | Risk | Weighting factor | Score |
|---|---|---|---|---|---|
| Source | Traffic flow | 47,120 | Low | 10 | 10 |
| Source | Rainfall depth | 683 | Low | 10 | 10 |
| Source | Drainage area ratio | Drainage area 0.68ha<br>Basin area 2,801.8m²<br>Ratio 2.4 | Low | 10 | 10 |
| Pathway | Infiltration Method | Region | Medium | 15 | 30 |
| Pathway | Unsaturated Zone | 1 - 5m | High | 20 | 60 |
| Pathway | Flow Type | Mixed fracture and intergranular | Medium | 20 | 40 |
| Pathway | Unsaturated Zone Clay content | ≥15% clay minerals | Low | 5 | 5 |
| Pathway | Organic Carbon | ≤1% soil organic matter | High | 5 | 15 |
| Pathway | Unsaturated Zone Soil pH | pH≤5 | High | 5 | 15 |

**Table 1.5 – Basin 4 results**

| Source / Pathway | Parameter | Value | Risk | Weighting factor | Score |
|---|---|---|---|---|---|
| Source | Traffic flow | 47,120 | Low | 10 | 10 |
| Source | Rainfall depth | 683 | Low | 10 | 10 |
| Source | Drainage area ratio | Drainage area 3.25ha<br>Basin area 9,195.2m²<br>Ratio 3.5 | Low | 10 | 10 |
| Pathway | Infiltration Method | Region | Medium | 15 | 30 |
| Pathway | Unsaturated Zone | 1 - 5m | High | 20 | 60 |
| Pathway | Flow Type | Mixed fracture and intergranular | Medium | 20 | 40 |
| Pathway | Unsaturated Zone Clay content | ≥15% clay minerals | Low | 5 | 5 |
| Pathway | Organic Carbon | ≤1% soil organic matter | High | 5 | 15 |
| Pathway | Unsaturated Zone Soil pH | pH≤5 | High | 5 | 15 |

**Table 1.6 – Final results**

| Basin | Total Score |
|---|---|
| 1 | 205 |
| 2 | 195 |
| A1067 | 195 |
| 3 | 195 |
| 4 | 195 |