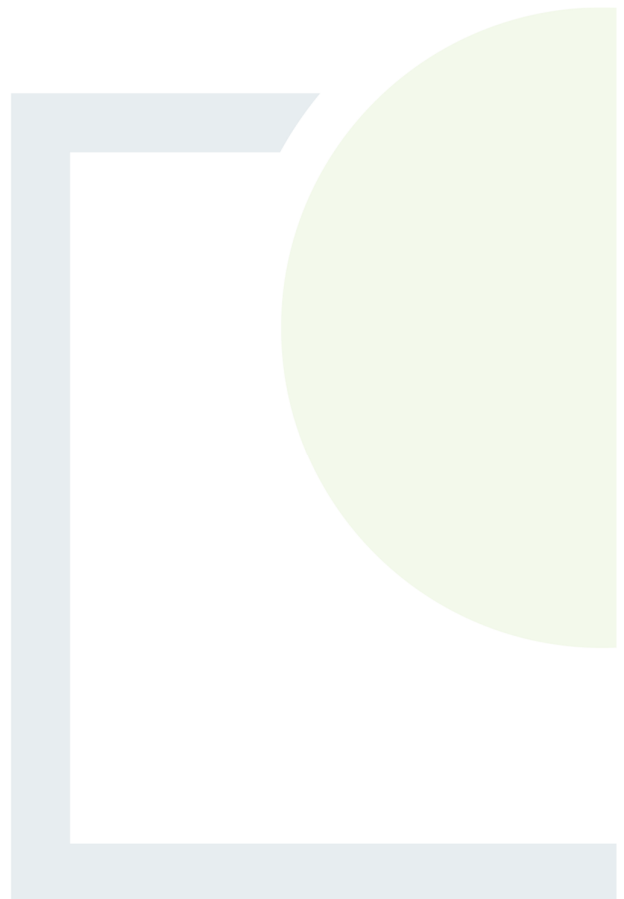




CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 10.1

Recorded Water Quality
Monitoring Data



This appendix contains recorded water quality monitoring data taken on 31st August 2018 for dry weather conditions and on 8th March 2019 for wet weather condition at 16 locations in the vicinity of the site. Additional water sampling was undertaken on 23rd August 2020 (wet weather condition) and 2nd October 2020 (dry weather condition) at 3 locations. Locations of monitoring data is shown on Figure 10-4 in the main EIA document.

The water quality sampling and laboratory testing were undertaken by Environmental Laboratory Service.

The following parameters were measured:

- Biological oxygen demand (BOD)
- Chemical oxygen demand (COD)
- Dissolved oxygen
- Ammonia as N
- Nitrate as N
- Nitrite as N
- Phosphate as P
- Chloride
- Metals Dissolved
- Suspended Solids
- pH
- Conductivity
- Alkalinity Total
- Total Nitrogen
- Total Phosphorus
- Turbidity



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| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/001 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP14 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 15 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.021 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 4.6 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 4.6 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | 0.014 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.093 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 43 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 13 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 51 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.8 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 318 | uscm-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 80 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 5.1 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.10 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 4.1 | NTU | INAB | |

Signed :

07/09/2018

Domenico Giliberti-Technical Manager

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| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/003 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP15 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 13 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.012 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 1.6 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 1.6 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.016 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 17 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 14 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 45 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 6.9 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 156 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 48 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 1.6 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.02 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.2 | NTU | INAB | |

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/004 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP12 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 14 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.038 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 0.66 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 0.66 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.016 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 15 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 17 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 270 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.5 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 131 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 47 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | <1.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 18.8 | NTU | INAB | |

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| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/006 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP10 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 15 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 11 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.3 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.3 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.021 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 17 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 13 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 66 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.5 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 162 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 51 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 2.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.02 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.0 | NTU | INAB | |

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| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/007 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP8 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 11 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.016 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.8 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.8 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.042 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 19 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 16 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | <20 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 6.9 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 178 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 51 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 2.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.03 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 0.7 | NTU | INAB | |

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email: info@elsltd.com



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|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/008 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP9 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 2.1 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 20 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.063 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 0.90 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 0.89 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.031 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 18 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 14 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 120 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | 10 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.5 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 159 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 54 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | <1.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.05 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 10.8 | NTU | INAB | |

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/009 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP7 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 11 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 11 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.012 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.4 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.4 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | 0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.018 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 17 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 25 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 70 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.6 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 158 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 47 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 2.1 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.02 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.9 | NTU | INAB | |

Signed :

07/09/2018

Domenico Giliberti-Technical Manager

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Cork
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Fax: +353 21 453 6149
Web: www.elsltd.com
email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/010 |
| | | Date of Receipt | 31/08/2018 |
| | | Date Started | 31/08/2018 |
| Tel No | 01 658 3500 | Received or Collected | ELS-Sampled |
| Customer PO | Per Batch | Date of Report | 07/09/2018 |
| Quotation No | QN008295 | Sample Type | Surface Waters |
| Customer Ref | WQ_SP6 | | |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 12 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.009 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 0.41 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 0.41 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.026 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 18 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 25 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 20 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.7 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 164 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 59 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | <1.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.02 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 2.0 | NTU | INAB | |

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07/09/2018

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/011 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP5 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 22 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 9 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.012 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 0.41 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 0.41 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.030 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 18 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 19 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 240 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.2 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 171 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 44 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | <1.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.05 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.8 | NTU | INAB | |

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07/09/2018

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/013 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP3 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 120 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.010 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | <0.15 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | <0.15 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.018 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 14 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 24 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 290 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | 566 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.6 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 138 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 55 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | <1.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.38 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 204.0 | NTU | | |

Signed : 

07/09/2018

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/015 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP2 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.1 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 30 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.015 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.3 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.3 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | 0.007 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.049 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 18 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 20 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 50 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | 31 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.8 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 177 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 55 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 2.1 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.11 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 16.9 | NTU | INAB | |

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Conor Hughes | Report Number | 136118 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 136118/016 |
| Tel No | 01 658 3500 | Date of Receipt | 31/08/2018 |
| Customer PO | Per Batch | Date Started | 31/08/2018 |
| Quotation No | QN008295 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ_SP16 | Date of Report | 07/09/2018 |
| | | Sample Type | Surface Waters |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 19 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.008 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | <0.15 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | <0.15 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | <0.005 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 17 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 54 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 180 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | 47 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.1 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 89 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 27 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | <1.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 2.1 | NTU | INAB | |

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- 6."*" Indicates sub-contract test

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Certificate Of Analysis

Job Number: 20-85289
Issue Number: 2
Report Date: 12 October 2020

Reason for re-issuing report: Client Request.

Site: Loom
PO Number: Z2247
Date Samples Received: 02/10/2020

Please find attached the results for the samples received at our laboratory on 02/10/2020.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our website at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

Authorised By:



Louise Morrow

Authorised Date: 12 October 2020

Notes are not INAB accredited

Results relate only to the items tested.
Information on methods of analysis and uncertainty of measurement is available on request.
Any opinions or interpretations indicated are outside the scope of our INAB accreditation.
This test report shall not be reproduced except in full or with written approval of City Analysts Limited.

Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-85289

Report Version: 2

Site: Loom
Sample Description: 1-2
Sample Type: Surface
Lab Reference Number: 537608

Date of Sampling: 02/10/2020

Date Sample Received: 02/10/2020

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|------------------------|----------|-------------|--------------------------------|
| D/D3001# | 07/10/2020 | Aluminium, Soluble | 334.70 | ug/l | - |
| D/D3000# | 07/10/2020 | Alkalinity CaCO3 | < 30.000 | mg/l | - |
| D/D3000# | 07/10/2020 | Ammonia as N | < 0.010 | mg/l | - |
| S/S1003# | 03/10/2020 | BOD5 | < 2 | mg/l O2 | - |
| D/D3000# | 07/10/2020 | Chloride | 15.447 | mg/l | - |
| S/S1009# | 03/10/2020 | COD | 55 | mg/l O2 | - |
| S/S3011# | 05/10/2020 | Conductivity @ 20°C | < 132.0 | uS/cm @20°C | - |
| S/S1003# | 03/10/2020 | Dissolved Oxygen | 8.84 | mg/l O2 | - |
| D/D3001# | 07/10/2020 | Iron, Soluble | 549.0 | ug/l | - |
| S/ | 09/10/2020 | Sampling Charge | 02/10/20 | N/A | - |
| S/S3228# | 09/10/2020 | Total Nitrogen | < 2.500 | mg/l | - |
| D/D3000# | 07/10/2020 | Nitrite as N | < 0.005 | mg/l | - |
| D/D3000# | 07/10/2020 | Nitrate as N | < 2.000 | mg/l | - |
| D/D3000# | 08/10/2020 | Orthophosphate as P | 0.035 | mg/l | - |
| S/S1041# | 05/10/2020 | PH | 6.51 | pH Unit | - |
| S/D3000# | 06/10/2020 | Phosphorus, Total as P | < 0.200 | mg/l | - |
| D/D3000# | 07/10/2020 | TON as N | < 2.000 | mg/l | - |
| S/S1049# | 05/10/2020 | Total Suspended Solids | 2 | mg/l | - |

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

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NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon

Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-85289

Report Version: 2

Site: Loom
Sample Description: 1-2
Sample Type: Surface
Lab Reference Number: 537608

Date of Sampling: 02/10/2020

Date Sample Received: 02/10/2020

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|-----------|--------|-------|--------------------------------|
| S/S3054# | 03/10/2020 | Turbidity | 1.04 | NTU | - |

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Note:

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Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-85289

Report Version: 2

Site: Loom
Sample Description: 2-2
Sample Type: Surface
Lab Reference Number: 537609

Date of Sampling: 02/10/2020

Date Sample Received: 02/10/2020

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|------------------------|----------|-------------|--------------------------------|
| D/D3001# | 07/10/2020 | Aluminium, Soluble | 185.10 | ug/l | - |
| D/D3000# | 07/10/2020 | Alkalinity CaCO3 | < 30.000 | mg/l | - |
| D/D3000# | 07/10/2020 | Ammonia as N | < 0.010 | mg/l | - |
| S/S1003# | 03/10/2020 | BOD5 | 2 | mg/l O2 | - |
| D/D3000# | 07/10/2020 | Chloride | 12.317 | mg/l | - |
| S/S1009# | 03/10/2020 | COD | 38 | mg/l O2 | - |
| S/S3011# | 05/10/2020 | Conductivity @ 20°C | 150.0 | uS/cm @20°C | - |
| S/S1003# | 03/10/2020 | Dissolved Oxygen | 9.17 | mg/l O2 | - |
| D/D3001# | 07/10/2020 | Iron, Soluble | 886.0 | ug/l | - |
| S/ | 09/10/2020 | Sampling Charge | 02/10/20 | N/A | - |
| S/S3228# | 09/10/2020 | Total Nitrogen | < 2.500 | mg/l | - |
| D/D3000# | 07/10/2020 | Nitrite as N | < 0.005 | mg/l | - |
| D/D3000# | 07/10/2020 | Nitrate as N | < 2.000 | mg/l | - |
| D/D3000# | 08/10/2020 | Orthophosphate as P | < 0.025 | mg/l | - |
| S/S1041# | 05/10/2020 | PH | 7.33 | pH Unit | - |
| S/D3000# | 06/10/2020 | Phosphorus, Total as P | < 0.200 | mg/l | - |
| D/D3000# | 07/10/2020 | TON as N | < 2.000 | mg/l | - |
| S/S1049# | 05/10/2020 | Total Suspended Solids | 2 | mg/l | - |

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Note:

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Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-85289

Report Version: 2

Site: Loom

Sample Description: 2-2

Date of Sampling: 02/10/2020

Sample Type: Surface

Date Sample Received: 02/10/2020

Lab Reference Number: 537609

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|-----------|--------|-------|--------------------------------|
| S/S3054# | 03/10/2020 | Turbidity | 2.45 | NTU | - |

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Note:

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Certificate Of Analysis

Customer

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Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-85289

Report Version: 2

Site: Loom
Sample Description: 3-2
Sample Type: Surface
Lab Reference Number: 537610

Date of Sampling: 02/10/2020

Date Sample Received: 02/10/2020

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|------------------------|----------|-------------|--------------------------------|
| D/D3001# | 07/10/2020 | Aluminium, Soluble | 55.15 | ug/l | - |
| D/D3000# | 07/10/2020 | Alkalinity CaCO3 | 30.178 | mg/l | - |
| D/D3000# | 07/10/2020 | Ammonia as N | < 0.010 | mg/l | - |
| S/S1003# | 03/10/2020 | BOD5 | < 2 | mg/l O2 | - |
| D/D3000# | 07/10/2020 | Chloride | 15.587 | mg/l | - |
| S/S1009# | 03/10/2020 | COD | 36 | mg/l O2 | - |
| S/S3011# | 05/10/2020 | Conductivity @ 20°C | < 132.0 | uS/cm @20°C | - |
| S/S1003# | 03/10/2020 | Dissolved Oxygen | 8.96 | mg/l O2 | - |
| D/D3001# | 07/10/2020 | Iron, Soluble | 531.9 | ug/l | - |
| S/ | 09/10/2020 | Sampling Charge | 02/10/20 | N/A | - |
| S/S3228# | 08/10/2020 | Total Nitrogen | < 2.500 | mg/l | - |
| D/D3000# | 07/10/2020 | Nitrite as N | < 0.005 | mg/l | - |
| D/D3000# | 07/10/2020 | Nitrate as N | < 2.000 | mg/l | - |
| D/D3000# | 08/10/2020 | Orthophosphate as P | < 0.025 | mg/l | - |
| S/S1041# | 05/10/2020 | PH | 7.23 | pH Unit | - |
| S/D3000# | 06/10/2020 | Phosphorus, Total as P | < 0.200 | mg/l | - |
| D/D3000# | 07/10/2020 | TON as N | < 2.000 | mg/l | - |
| S/S1049# | 05/10/2020 | Total Suspended Solids | 3 | mg/l | - |

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Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-85289

Report Version: 2

Site: Loom
Sample Description: 3-2
Sample Type: Surface
Lab Reference Number: 537610

Date of Sampling: 02/10/2020

Date Sample Received: 02/10/2020

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|-----------|--------|-------|--------------------------------|
| S/S3054# | 03/10/2020 | Turbidity | 1.88 | NTU | - |

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Note:

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Blackrock,
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Ireland

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email: info@elsltd.com



DETAILED IN SCOPE REG NO. 1111

| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/001 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP1 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.7 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 11 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 9 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.008 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 4.3 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 4.3 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.010 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 16 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 25 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 31 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 6.7 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 202 | uscm-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 63 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 5.0 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.5 | NTU | INAB | |

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Tunde Gaspar-Technical Manager

19/03/2019

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/002 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP2 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 2.2 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 23 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 11 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.063 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 3.7 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 3.7 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | 0.011 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.025 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 21 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 42 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 95 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | 8 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.7 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 186 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 51 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 5.2 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.03 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 5.0 | NTU | INAB | |

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Web: www.elsltd.com
email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/003 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP3 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 40 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.011 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 0.43 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 0.44 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.010 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 16 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 270 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 250 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 6.7 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 79 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 18 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 1.8 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 2.0 | NTU | INAB | |

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/004 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP4 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 3.1 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 27 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 7 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.020 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 1.5 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 1.5 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.006 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 19 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 290 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 66 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | 6 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 5.9 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 111 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 22 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 2.8 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 2.9 | NTU | INAB | |

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|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/005 |
| | | Date of Receipt | 08/03/2019 |
| | | Date Started | 08/03/2019 |
| Tel No | 01 658 3500 | Received or Collected | ELS-Sampled |
| Customer PO | Z1483 | Date of Report | 19/03/2019 |
| Quotation No | QN008851 | Sample Type | Surface Waters |
| Customer Ref | WQ - SP5 | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 40 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.008 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 1.8 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 1.8 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.012 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 13 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 150 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 460 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.0 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 106 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 33 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 2.2 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.02 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 2.5 | NTU | INAB | |

Signed :

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19/03/2019

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/006 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP6 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 2.7 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 12 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.007 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.9 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.9 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.008 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 17 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 33 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 54 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.0 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 129 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 36 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 3.8 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 2.8 | NTU | INAB | |

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Fax: +353 21 453 6149
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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/007 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP7 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.1 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 19 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 11 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.019 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.8 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.8 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.031 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 16 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 120 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 210 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.3 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 127 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 35 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 3.9 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.04 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 6.3 | NTU | INAB | |

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/008 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP8 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 25 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.025 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 3.7 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 3.7 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.017 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 16 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 150 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 170 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 6.9 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 133 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 36 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 4.9 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 2.6 | NTU | INAB | |

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/009 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP9 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 21 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 11 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.021 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 1.8 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 1.8 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.025 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 16 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 97 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 190 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.0 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 115 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 38 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 2.7 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 4.0 | NTU | INAB | |

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|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/010 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP10 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.7 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 18 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.013 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.8 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.8 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.014 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 15 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 86 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 150 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.4 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 124 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 37 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 4.5 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 4.0 | NTU | INAB | |

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| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/011 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP11 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.4 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 24 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.010 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.2 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.2 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.011 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 14 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 77 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 97 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.4 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 119 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 34 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 3.3 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.5 | NTU | INAB | |

Signed :

Tunde Gaspar-Technical Manager

19/03/2019

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Fax: +353 21 453 6149
Web: www.elsltd.com
email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/012 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP12 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 71 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.013 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | <0.15 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | <0.15 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.007 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 16 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 510 | ug/L | | |
| Iron-Dissolved | | | EW188 | 20 | | 650 | ug/L | | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 4.4 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 74 | uscm-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | <10 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 1.4 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 30.1 | NTU | INAB | |

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Tunde Gaspar-Technical Manager

19/03/2019

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/013 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP13 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 1.7 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 17 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.014 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 5.1 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 5.1 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.009 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 17 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 66 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 57 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.0 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 146 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 38 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 6.3 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.5 | NTU | INAB | |

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19/03/2019

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/014 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP14 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 3.2 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 11 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.034 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 5.4 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 5.3 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | 0.007 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.046 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 19 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 24 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 38 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 7.8 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 213 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 59 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 6.5 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.04 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 7.0 | NTU | INAB | |

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email: info@elsltd.com



| | | | |
|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/015 |
| | | Date of Receipt | 08/03/2019 |
| | | Date Started | 08/03/2019 |
| Tel No | 01 658 3500 | Received or Collected | ELS-Sampled |
| Customer PO | Z1483 | Date of Report | 19/03/2019 |
| Quotation No | QN008851 | Sample Type | Surface Waters |
| Customer Ref | WQ - SP15 | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | 2.1 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 24 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 9 | mg/L | INAB | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.006 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 3.7 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 3.7 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.021 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 15 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 100 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 87 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | 14 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 6.6 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 132 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 28 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 4.9 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | 0.02 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 11.7 | NTU | INAB | |

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email: info@elsltd.com



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|---------------------|--|------------------------------|-------------------|
| Contact Name | Trevor Byrne | Report Number | 149724 - 1 |
| Address | Fehily Timoney & Company (Cork) 3rd Floor, J5 Plaza, | Sample Number | 149724/016 |
| Tel No | 01 658 3500 | Date of Receipt | 08/03/2019 |
| Customer PO | Z1483 | Date Started | 08/03/2019 |
| Quotation No | QN008851 | Received or Collected | ELS-Sampled |
| Customer Ref | WQ - SP16 | Date of Report | 19/03/2019 |
| | | Sample Type | Surface Waters |
| | | Condition on receipt | Satisfactory |

CERTIFICATE OF ANALYSIS

| TEST | ANALYTE | SUB | METHOD | LOQ | SPEC | RESULT | UNITS | ACCRED. | OOS |
|--|---------|-----|--------|-------|------|--------|------------|---------|-----|
| BOD | | | | | | | | | |
| BOD | | | EW001 | 1.0 | | <1.0 | mg/L | INAB | |
| COD-Chemical Oxygen Demand | | | | | | | | | |
| COD | | | EW184 | 8 | | 22 | mg/L | INAB | |
| Dissolved Oxygen | | | | | | | | | |
| Dissolved Oxygen | | | EW043 | 1 | | 10 | mg/L | | |
| Gallery Plus-Suite A | | | | | | | | | |
| Ammonia as N | | | EW175 | 0.005 | | 0.008 | mg/l N | INAB | |
| Total Oxidised Nitrogen (TON) as N | | | EW175 | 0.15 | | 2.2 | mg/l N | INAB | |
| Nitrate as N | | | EW175 | 0.15 | | 2.2 | mg/l N | INAB | |
| Nitrite as N | | | EW175 | 0.005 | | <0.005 | mg/l N | INAB | |
| Phosphate (Ortho/MRP) as P | | | EW175 | 0.005 | | 0.010 | mg/l P | INAB | |
| Chloride mg/L | | | EW175 | 1.0 | | 13 | mg/L | INAB | |
| Metals-Dissolved | | | | | | | | | |
| Aluminium-Dissolved | | | EW188 | 5.0 | | 87 | ug/L | INAB | |
| Iron-Dissolved | | | EW188 | 20 | | 150 | ug/L | INAB | |
| Suspended Solids | | | | | | | | | |
| Suspended Solids | | | EW013 | 5 | | <5 | mg/L | INAB | |
| Titralab | | | | | | | | | |
| pH | | | EW153 | 0.0 | | 6.8 | pH Units | INAB | |
| Conductivity @20 DegC | | | EW153 | 25 | | 111 | uscM-1@20 | INAB | |
| Alkalinity Total (R2 pH4.5) | | | EW153 | 10 | | 28 | mg/L CaCO3 | INAB | |
| Total Nitrogen | | | | | | | | | |
| Total Nitrogen | | | EW140 | 1.0 | | 3.3 | mg/L | INAB | |
| Total Phosphorus & Orthophosphate-TP/OP | | | | | | | | | |
| Total Phosphorus-TP | | | EW146 | 0.01 | | <0.01 | mg/l P | INAB | |
| Turbidity | | | | | | | | | |
| Turbidity | | | EW136 | 0.1 | | 1.6 | NTU | INAB | |

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Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Certificate Of Analysis

Job Number: 20-84798
Issue Number: 2
Report Date: 9 December 2020

Reason for re-issuing report: Client Request.

Site: Not Applicable
PO Number: Z2247
Date Samples Received: 25/09/2020

Please find attached the results for the samples received at our laboratory on 25/09/2020.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our website at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

Authorised By:



Louise Morrow

Authorised Date: 7 October 2020

Notes are not INAB accredited

Results relate only to the items tested.
Information on methods of analysis and uncertainty of measurement is available on request.
Any opinions or interpretations indicated are outside the scope of our INAB accreditation.
This test report shall not be reproduced except in full or with written approval of City Analysts Limited.

Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-84798

Report Version: 2

Site: Not Applicable

Sample Description: 1-1

Date of Sampling: 23/09/2020

Sample Type: Surface

Date Sample Received: 25/09/2020

Lab Reference Number: 535830

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|------------------------|----------|-------------|--------------------------------|
| D/D3001# | 29/09/2020 | Aluminium, Soluble | 147.45 | ug/l | - |
| D/D3000# | 02/10/2020 | Alkalinity CaCO3 | < 30.000 | mg/l | - |
| D/D3000# | 01/10/2020 | Ammonia as N | < 0.010 | mg/l | - |
| S/S1003# | 28/09/2020 | BOD5 | < 2 | mg/l O2 | - |
| D/D3000# | 01/10/2020 | Chloride | 32.844 | mg/l | - |
| S/S1009# | 28/09/2020 | COD | 57 | mg/l O2 | - |
| S/S3011# | 28/09/2020 | Conductivity @ 20°C | < 132.0 | uS/cm @20°C | - |
| S/S1003# | 25/09/2020 | Dissolved Oxygen | 8.26 | mg/l O2 | - |
| D/D3001# | 30/09/2020 | Iron, Soluble | 1197.9 | ug/l | - |
| S/S3228# | 02/10/2020 | Total Nitrogen | < 2.500 | mg/l | - |
| D/D3000# | 01/10/2020 | Nitrite as N | < 0.005 | mg/l | - |
| D/D3000# | 01/10/2020 | Nitrate as N | < 2.000 | mg/l | - |
| D/D3000# | 01/10/2020 | Orthophosphate as P | < 0.025 | mg/l | - |
| S/S1041# | 28/09/2020 | PH | 6.45 | pH Unit | - |
| S/D3000# | 29/09/2020 | Phosphorus, Total as P | < 0.200 | mg/l | - |
| D/D3000# | 01/10/2020 | TON as N | < 2.000 | mg/l | - |
| S/S1049# | 02/10/2020 | Total Suspended Solids | 59 | mg/l | - |
| S/S3054# | 29/09/2020 | Turbidity | 111.00 | NTU | - |

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon

Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-84798

Report Version: 2

Site: Not Applicable

Sample Description: 2-1

Date of Sampling: 23/09/2020

Sample Type: Surface

Date Sample Received: 25/09/2020

Lab Reference Number: 535832

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|------------------------|----------|-------------|--------------------------------|
| D/D3001# | 29/09/2020 | Aluminium, Soluble | 80.83 | ug/l | - |
| D/D3000# | 06/10/2020 | Alkalinity CaCO3 | < 30.000 | mg/l | - |
| D/D3000# | 06/10/2020 | Ammonia as N | < 0.010 | mg/l | - |
| S/S1003# | 28/09/2020 | BOD5 | < 2 | mg/l O2 | - |
| D/D3000# | 06/10/2020 | Chloride | 13.206 | mg/l | - |
| S/S1009# | 28/09/2020 | COD | 20 | mg/l O2 | - |
| S/S3011# | 28/09/2020 | Conductivity @ 20°C | < 132.0 | uS/cm @20°C | - |
| S/S1003# | 25/09/2020 | Dissolved Oxygen | 9.29 | mg/l O2 | - |
| D/D3001# | 30/09/2020 | Iron, Soluble | 962.8 | ug/l | - |
| S/S3228# | 02/10/2020 | Total Nitrogen | < 2.500 | mg/l | - |
| D/D3000# | 06/10/2020 | Nitrite as N | < 0.005 | mg/l | - |
| D/D3000# | 06/10/2020 | Nitrate as N | < 2.000 | mg/l | - |
| D/D3000# | 06/10/2020 | Orthophosphate as P | < 0.025 | mg/l | - |
| S/S1041# | 28/09/2020 | PH | 7.23 | pH Unit | - |
| S/D3000# | 29/09/2020 | Phosphorus, Total as P | < 0.200 | mg/l | - |
| D/D3000# | 06/10/2020 | TON as N | < 2.000 | mg/l | - |
| S/S1049# | 02/10/2020 | Total Suspended Solids | 2 | mg/l | - |
| S/S3054# | 29/09/2020 | Turbidity | 4.74 | NTU | - |

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Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon

Certificate Of Analysis

Customer

Leigh Doyle
Fehily Timoney & Company
Core House
Pouladuff Road
Ballyphehane
Cork

Report Reference: 20-84798

Report Version: 2

Site: Not Applicable

Sample Description: 3-1

Date of Sampling: 23/09/2020

Sample Type: Surface

Date Sample Received: 25/09/2020

Lab Reference Number: 535834

| Site / Method Ref. | Analysis Start Date | Parameter | Result | Units | PV Value (Drinking Water Only) |
|--------------------|---------------------|------------------------|---------|-------------|--------------------------------|
| D/D3001# | 30/09/2020 | Aluminium, Soluble | < 5.00 | ug/l | - |
| D/D3000# | 06/10/2020 | Alkalinity CaCO3 | 35.028 | mg/l | - |
| D/D3000# | 06/10/2020 | Ammonia as N | < 0.010 | mg/l | - |
| S/S1003# | 28/09/2020 | BOD5 | < 2 | mg/l O2 | - |
| D/D3000# | 06/10/2020 | Chloride | 16.650 | mg/l | - |
| S/S1009# | 28/09/2020 | COD | 18 | mg/l O2 | - |
| S/S3011# | 28/09/2020 | Conductivity @ 20°C | 143.0 | uS/cm @20°C | - |
| S/S1003# | 25/09/2020 | Dissolved Oxygen | 9.49 | mg/l O2 | - |
| D/D3001# | 30/09/2020 | Iron, Soluble | < 7.2 | ug/l | - |
| S/S3228# | 02/10/2020 | Total Nitrogen | < 2.500 | mg/l | - |
| D/D3000# | 06/10/2020 | Nitrite as N | < 0.005 | mg/l | - |
| D/D3000# | 06/10/2020 | Nitrate as N | < 2.000 | mg/l | - |
| D/D3000# | 06/10/2020 | Orthophosphate as P | < 0.025 | mg/l | - |
| S/S1041# | 28/09/2020 | PH | 7.18 | pH Unit | - |
| S/D3000# | 29/09/2020 | Phosphorus, Total as P | < 0.200 | mg/l | - |
| D/D3000# | 06/10/2020 | TON as N | < 2.000 | mg/l | - |
| S/S1049# | 02/10/2020 | Total Suspended Solids | 2 | mg/l | - |
| S/S3054# | 29/09/2020 | Turbidity | 2.48 | NTU | - |

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

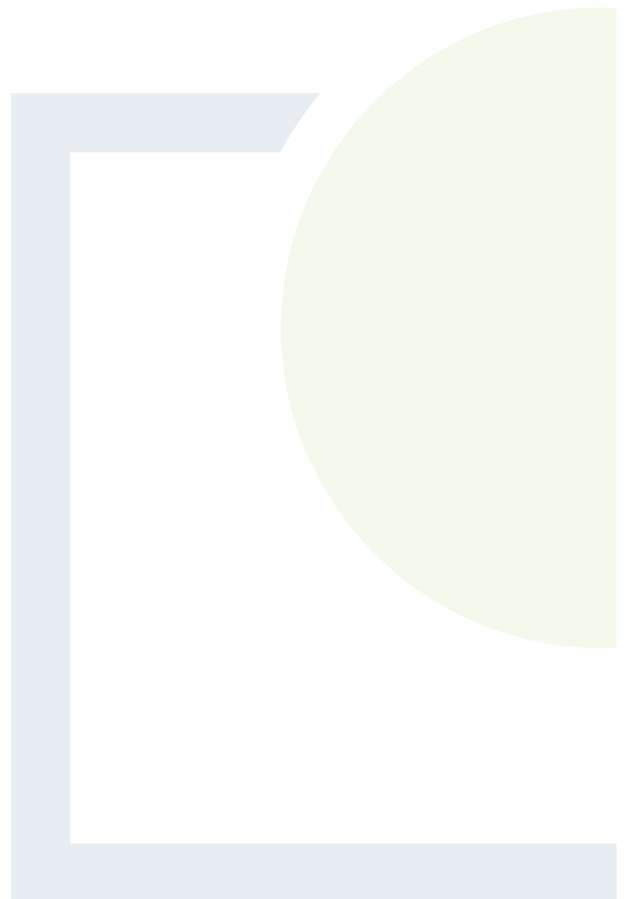
Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon



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ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 10.2

Photographs of Existing
Hydrological Features



This appendix contains photographs undertaken on 20th and 25th June 2019 and 10th September 2019 of the following hydrology features:

- Proposed crossing over the Toor River – WC027
- Reconstruction of the proposed crossing over the Toor River – WC028
- Culverted crossing over the Toor River – WC043
- Culverted crossing over the Toor River – WC044
- Bridge crossing over the Coom River – WC045

Locations of the crossing are provided in the EIAR, Figure 10.5.

Proposed crossing over the Toor River – WC 027

The proposed crossing over the Toor River is located along the access road between proposed turbines T9 and T13.



Viewpoint on the location of the proposed crossing over the Toor River



Viewpoint looking upstream of the location of the proposed crossing over the Toor River



Viewpoint looking downstream of the location of the proposed crossing over the Toor River

Reconstruction of the proposed crossing over the Toor River – WC028

Reconstruction of the proposed 600 mm diameter concrete pipe culvert over the Toor River located on the access road towards turbine T12. During a site visit taking photo downstream of the culvert was not possible due to vegetation.



Viewpoint looking upstream of the location of the proposed culvert reconstruction over the Toor River

Culverted crossing over the Toor River – WC043

Crossing over the Toor River WC043 is a box culvert 3.2m wide and 0.9m high.



Viewpoint on the culvert



Viewpoint from the culvert looking upstream



Viewpoint of looking upstream towards the culvert

Culverted crossing over the Toor River – WC044

Crossing over the Toor River WC044 is a box culvert 3.85m wide and 0.70m high.



Viewpoint from the culvert upstream



Viewpoint of looking upstream towards the culvert

Bridge crossing over the Coom River – WC045

Bridge crossing WC045 over the Coom river is 6.4m long single span bridge and 6.1m high.



Viewpoint on the bridge



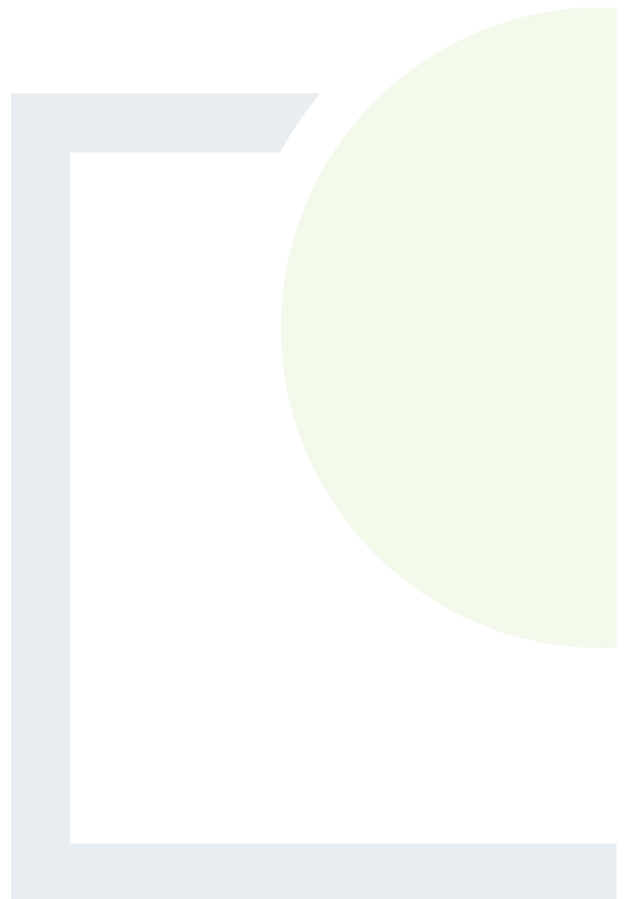
Viewpoint of looking upstream towards the bridge



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APPENDIX 10.3

Preliminary Culvert Sizing and
Flood Risk Assessment
Calculation



This appendix contains the output from Pipe Flow Advisor. Pipe Flow Advisor software was used to determine water elevation in pipes and culverts and to calculate the capacity of each. The software was also used for preliminary design of proposed new crossings and reconstruction of existing.

The calculation of capacity of existing crossings and preliminary design of proposed and reconstructed crossings is determined for pre and post-development scenarios for following structures:

- Proposed new crossings over the unnamed tributary of the Coom River – WC024
- Proposed new crossings over the Coom River – WC025
- Proposed new crossing over the Toor River - WC027
- Replacement of crossing over the Toor River – WC028
- Proposed new crossings over the unnamed stream running east of T19 - WC049
- Proposed new crossings over the unnamed stream running east of T23 - WC050

The water depth for pre and post construction scenarios are assessed for locations of crossing over the Toor River and Coom River. These crossings are listed below.

- Existing box culvert over the Toor River – WC043
- Existing box culvert over the Toor River – WC044
- Existing bridge crossing over the Coom River – WC045

Proposed box culvert over the Toor River – WC024

The proposed crossing structure over the unnamed tributary of the Coom River is a box culvert 900m wide and 900 high. For 1 in 100 years storm event, with climate change allowance, the flow is 0.86 m³/s. The proposed culvert has over 300mm a freeboard elevation.

The screenshot shows a hydraulic design software interface with the following sections:

- Section details:**
 - Manning's coefficient: 0.013 Concrete (smooth)
 - Length in metres: 6 m
 - Internal width: 900 mm
 - Internal height: 900 mm
 - Water flow rate: 0.86 m³/sec
 - Drop in metres: 0.06 m
- Results:**
 - Fluid cross section area: 0.326093 m²
 - Fluid velocity: 2.637 m/s
 - Wetted perimeter: 1624.651 mm
 - Fluid surface width: 900.000 mm
 - Hydraulic radius: 200.716 mm
 - Froude number: 1.399 - rapid flow
 - Water depth: 362.326 mm
 - Slope ratio (angle): 0.010000 (0.573°)

A 3D perspective view of the culvert is shown in the center, with a water flow rate of 0.86 m³/sec and a drop of 0.06 m. The culvert has an internal width of 900 mm and an internal height of 900 mm. The software interface includes a toolbar at the top with various culvert and channel options, and a 'Calculate water depth' button at the bottom right.

Proposed dimensions of new crossing

Proposed box culvert over the Toor River – WC025

The proposed crossing structure over the Coom River is a box culvert 900m wide and 900 high. For 1 in 100 years storm event, with climate change allowance, the flow is 0.70 m³/s. The proposed culvert has over 300mm a freeboard elevation.

The screenshot shows a software interface for designing a box culvert. The 'Section details' panel on the left includes the following inputs:

- Manning's coefficient: 0.013 Concrete (smooth)
- Length in metres: 6 m
- Internal width: 900 mm
- Internal height: 900 mm
- Water flow rate: 0.70 m³/sec
- Drop in metres: 0.06 m

The 'Results' panel on the right displays the following calculated values:

| Fluid cross section area | Fluid velocity |
|--------------------------|---------------------|
| 0.280949 m ² | 2.492 m/s |
| Wetted perimeter | Fluid surface width |
| 1524.331 mm | 900.000 mm |
| Hydraulic radius | Froude number |
| 184.310 mm | 1.424 - rapid flow |
| Water depth | Slope ratio (angle) |
| 312.165 mm | 0.010000 (0.573°) |

Additional features include a 'Calculate water depth' button and a 'Results' section with options for Water flow rate, Water depth, Volume and weight, and Length expansion. A 3D perspective view of the culvert is shown in the center, with a cross-section view indicating the water level and flow direction. A note at the bottom left states '* dimensions in mm'.

Proposed dimensions of new crossing

Proposed box culvert over the Toor River – WC027

The proposed crossing structure over the Toor River is a box culvert 2000mm wide and 1200mm high. Freeboard elevation and embedment requirements are not included in the calculation.

Section details Metric Imperial

Manning's coefficient
0.033 Stream (smooth)

Length in metres
5 m

Internal width
* 2000 mm

Internal height
* 1500 mm

Water flow rate
4.55 m³/sec

Drop in metres
0.05 m

Results

- Water flow rate
- Water depth
- Volume and weight
- Length expansion

| | | | |
|--------------------------|-------------------------|---------------------|-----------------------|
| Fluid cross section area | 2.283651 m ² | Fluid velocity | 1.992 m/s |
| Wetted perimeter | 4283.651 mm | Fluid surface width | 2000.000 mm |
| Hydraulic radius | 533.109 mm | Froude number | 0.595 - tranquil flow |
| Water depth | 1141.826 mm | Slope ratio (angle) | 0.010000 (0.573°) |

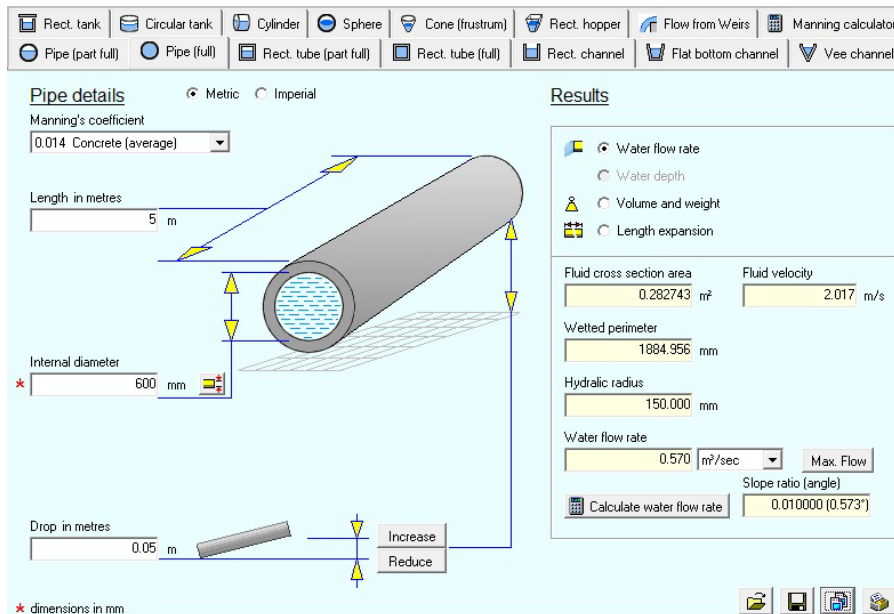
Calculate water depth

* dimensions in mm

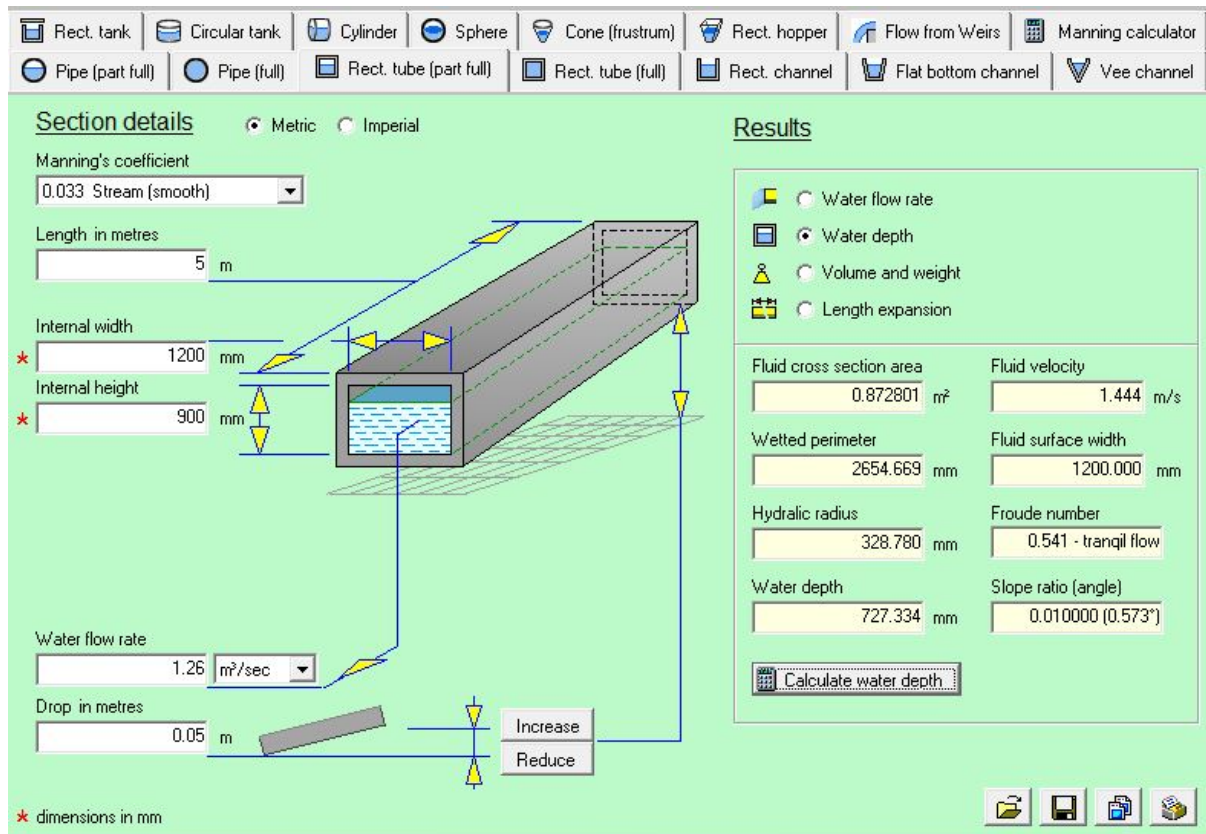
Proposed dimensions of new crossing

Existing crossing over the Toor River and proposed dimensions of new crossing – WC028

The crossing structure over the Toor River is a 600mm concrete pipe culvert. The pipe bore capacity is 0.57 m³/s. The estimated flow for post development scenario for 1 in 100 years storm event is 1.26 m³/s. The existing pipe culvert does not meet required capacity to convey post development flows. Proposed crossing is box culvert 1200m wide and 900mm high. Freeboard elevation and embedment requirements are not included in the calculation.



Full pipe capacity



Proposed dimensions of new crossing

Proposed box culvert over the Toor River – WC049

The proposed crossing structure over the unnamed stream located approximately 230m southeast of the proposed turbine T19 is a box culvert 900mm wide and 900mm high. Freeboard elevation and embedment requirements are not included in the calculation.

The screenshot displays a hydraulic calculation tool for a box culvert. The interface is divided into several sections:

- Section details:**
 - Manning's coefficient: 0.014 Concrete (average)
 - Length in metres: 6 m
 - Internal width: 900 mm
 - Internal height: 900 mm
 - Water flow rate: 0.22 m³/sec
 - Drop in metres: 0.06 m
- Results:**
 - Fluid cross section area: 0.133091 m²
 - Fluid velocity: 1.653 m/s
 - Wetted perimeter: 1195.759 mm
 - Fluid surface width: 900.000 mm
 - Hydraulic radius: 111.303 mm
 - Froude number: 1.373 - rapid flow
 - Water depth: 147.879 mm
 - Slope ratio (angle): 0.010000 (0.573°)

A 3D perspective view of the culvert is shown in the center, with a water flow rate of 0.22 m³/sec and a drop of 0.06 m. The culvert is 6 m long, 900 mm wide, and 900 mm high. The results panel includes a 'Calculate water depth' button and a 'Calculate' button.

Proposed dimensions of new crossing

Proposed box culvert over the Toor River – WC050

The proposed crossing structure over the unnamed stream located approximately 490m northeast of the proposed turbine T23 is a box culvert 900mm wide and 900mm high. Freeboard elevation and embedment requirements are not included in the calculation.

Section details Metric Imperial

Manning's coefficient

Length in metres
 m

Internal width
 mm

Internal height
 mm

Water flow rate
 m³/sec

Drop in metres
 m

* dimensions in mm

Results

- Water flow rate
- Water depth
- Volume and weight
- Length expansion

| | | | |
|--------------------------|-------------------------|---------------------|--------------------|
| Fluid cross section area | 0.305476 m ² | Fluid velocity | 2.390 m/s |
| Wetted perimeter | 1578.835 mm | Fluid surface width | 900.000 mm |
| Hydraulic radius | 193.482 mm | Froude number | 1.310 - rapid flow |
| Water depth | 339.418 mm | Slope ratio (angle) | 0.010000 (0.573°) |

Proposed dimensions of new crossing

Flood risk assessment – Crossing over the Toor River – WC043

The structure crossing over the Toor River is a box culvert 3.2m wide and 0.9m high. Flow through the box culvert for 1 in 100 years pre-development scenario is $6.89 \text{ m}^3/\text{s}$, and for post-development is $6.97 \text{ m}^3/\text{s}$.

The screenshot shows the 'Section details' and 'Results' panels of a hydraulic calculation tool. The 'Section details' panel includes:

- Manning's coefficient: 0.030 Rivers (good cond.)
- Length in metres: 5 m
- Internal width: 3200 mm
- Internal height: 900 mm
- Water flow rate: 6.89 m³/sec
- Drop in metres: 0.1 m

The 'Results' panel displays the following data:

| | | | |
|--------------------------|-------------------------|---------------------|--------------------|
| Fluid cross section area | 2.322298 m ² | Fluid velocity | 2.967 m/s |
| Wetted perimeter | 4651.436 mm | Fluid surface width | 3200.000 mm |
| Hydraulic radius | 499.265 mm | Froude number | 1.112 - rapid flow |
| Water depth | 725.718 mm | Slope ratio (angle) | 0.020000 (1.146°) |

A 'Calculate water depth' button is visible at the bottom of the results panel. The interface also features a toolbar with various culvert shapes and a 3D visualization of the culvert with water flow.

Water depth – pre-development

The screenshot shows the 'Section details' and 'Results' panels of the same hydraulic calculation tool, but with post-development parameters. The 'Section details' panel includes:

- Manning's coefficient: 0.030 Rivers (good cond.)
- Length in metres: 5 m
- Internal width: 3200 mm
- Internal height: 900 mm
- Water flow rate: 6.97 m³/sec
- Drop in metres: 0.1 m

The 'Results' panel displays the following data:

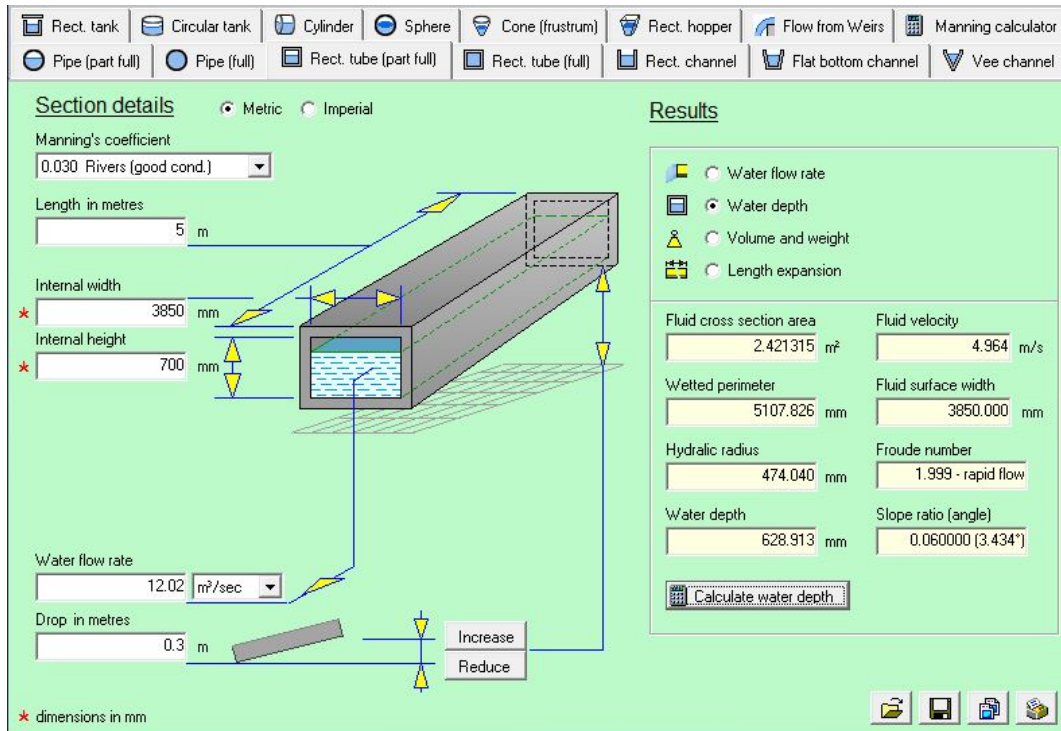
| | | | |
|--------------------------|-------------------------|---------------------|--------------------|
| Fluid cross section area | 2.340758 m ² | Fluid velocity | 2.978 m/s |
| Wetted perimeter | 4662.974 mm | Fluid surface width | 3200.000 mm |
| Hydraulic radius | 501.988 mm | Froude number | 1.112 - rapid flow |
| Water depth | 731.487 mm | Slope ratio (angle) | 0.020000 (1.146°) |

A 'Calculate water depth' button is visible at the bottom of the results panel. The interface also features a toolbar with various culvert shapes and a 3D visualization of the culvert with water flow.

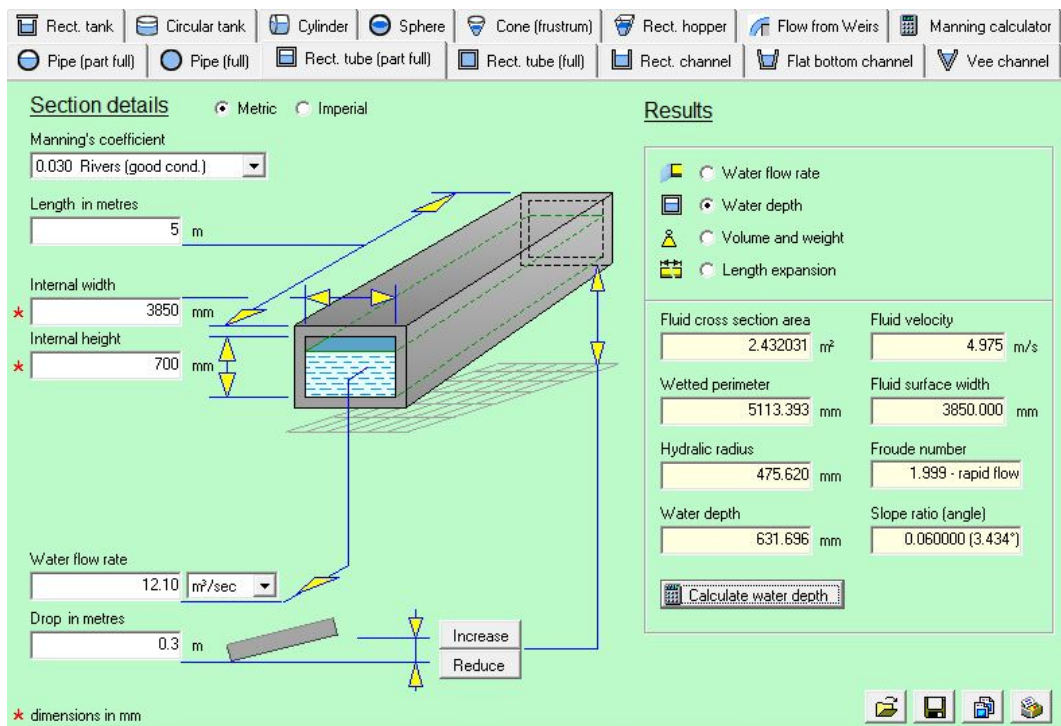
Water depth – post-development

Flood risk assessment – Crossing over the Toor River – WC044

The structure crossing over the Toor River is a box culvert 3.85m wide and 0.70m high. Flow through the box culvert for 1 in 100 years pre-development scenario is 12.02 m³/s, and for post-development is 12.10 m³/s.



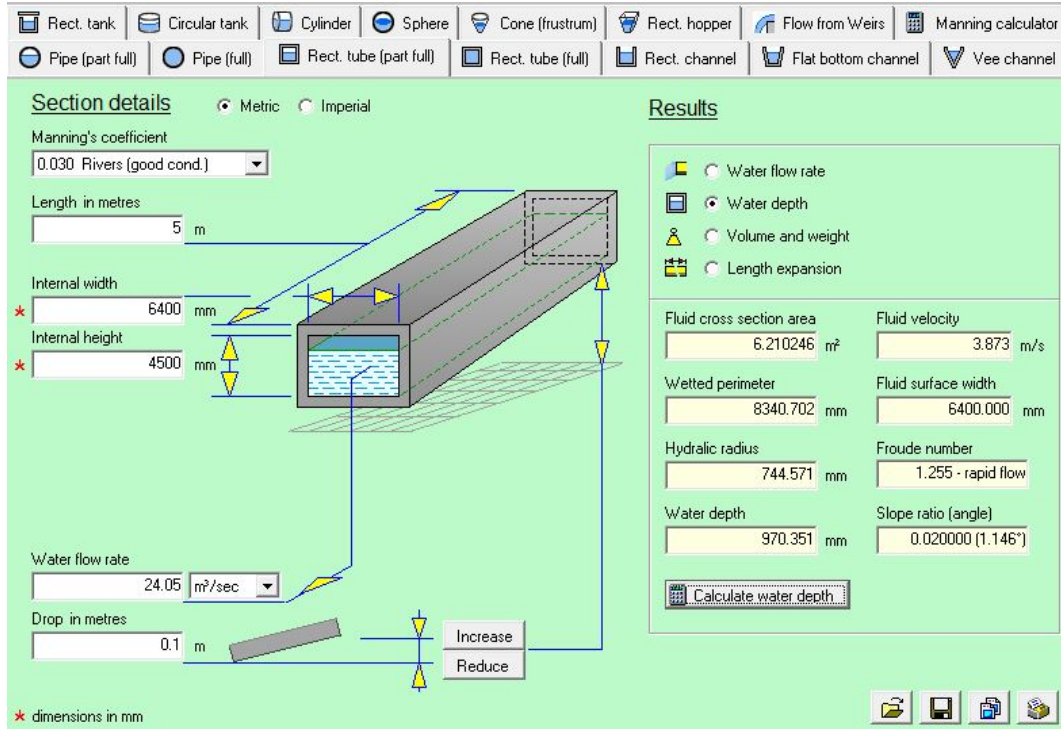
Water depth – pre-development



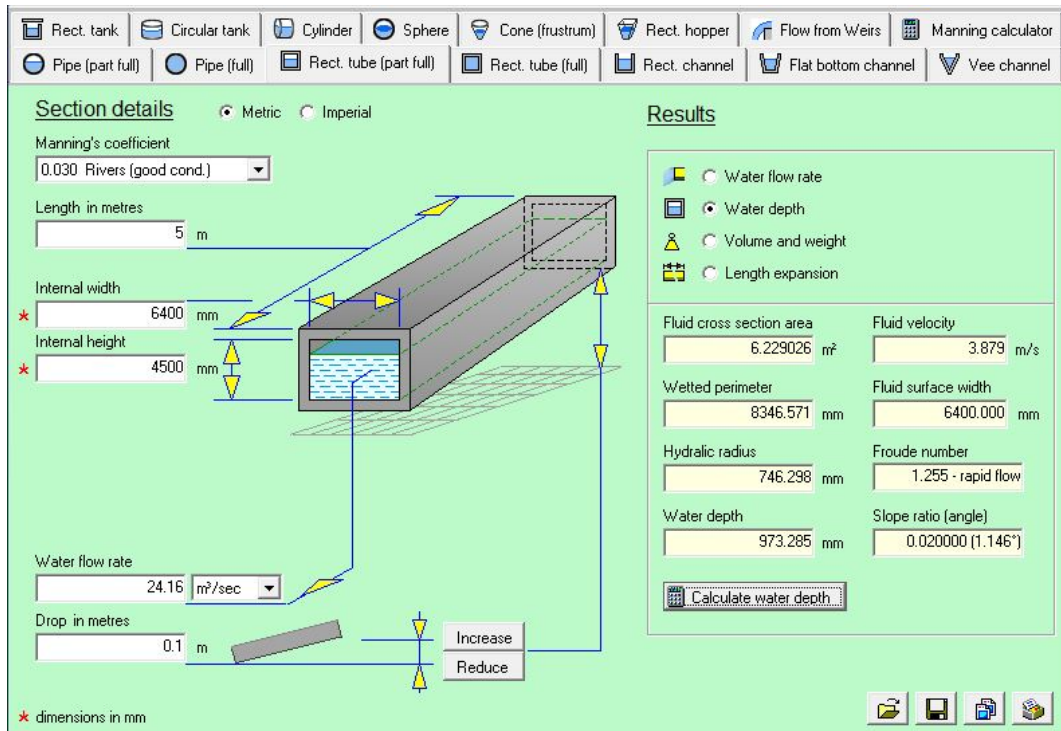
Water depth – post-development

Flood risk assessment – Crossing over the Toor River – WC045

The structure crossing over the Coom River is a single span bridge 6.4m wide and 4.5m high. Flow through the box culvert for 1 in 100 years pre-development scenario is 24.05 m³/s, and for post-development is 24.16 m³/s.



Water depth – pre-development



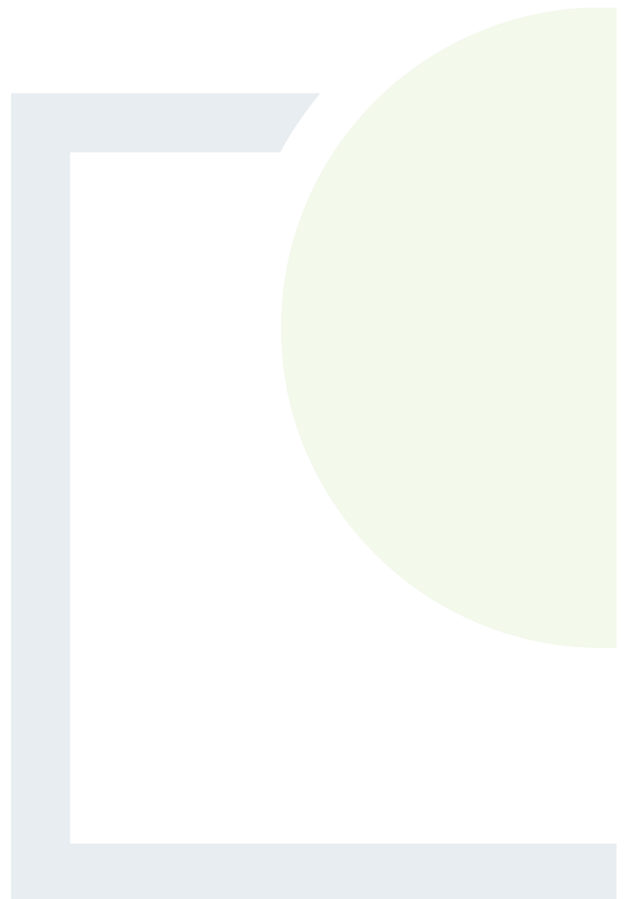
Water depth – post-development

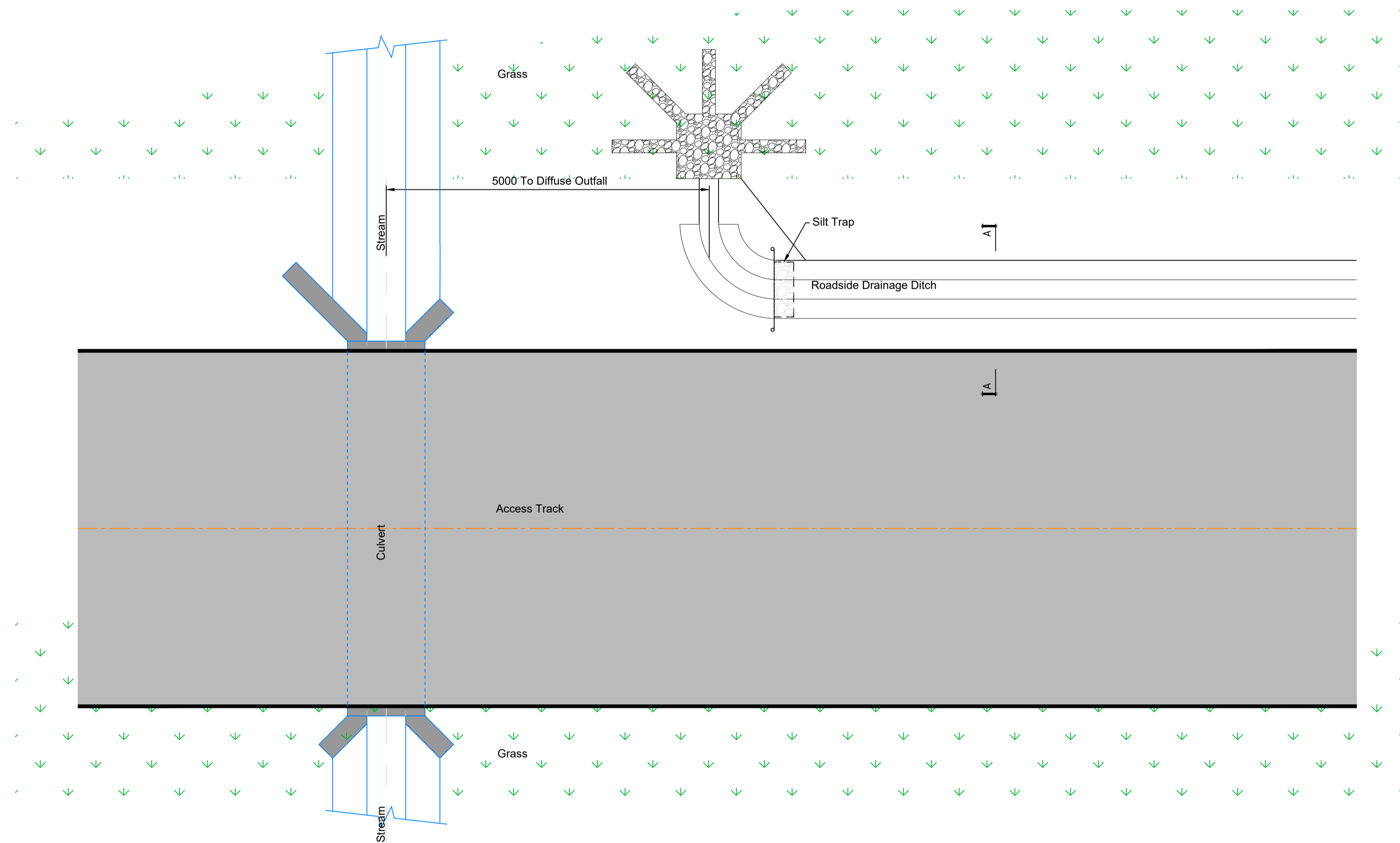


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APPENDIX 10.4

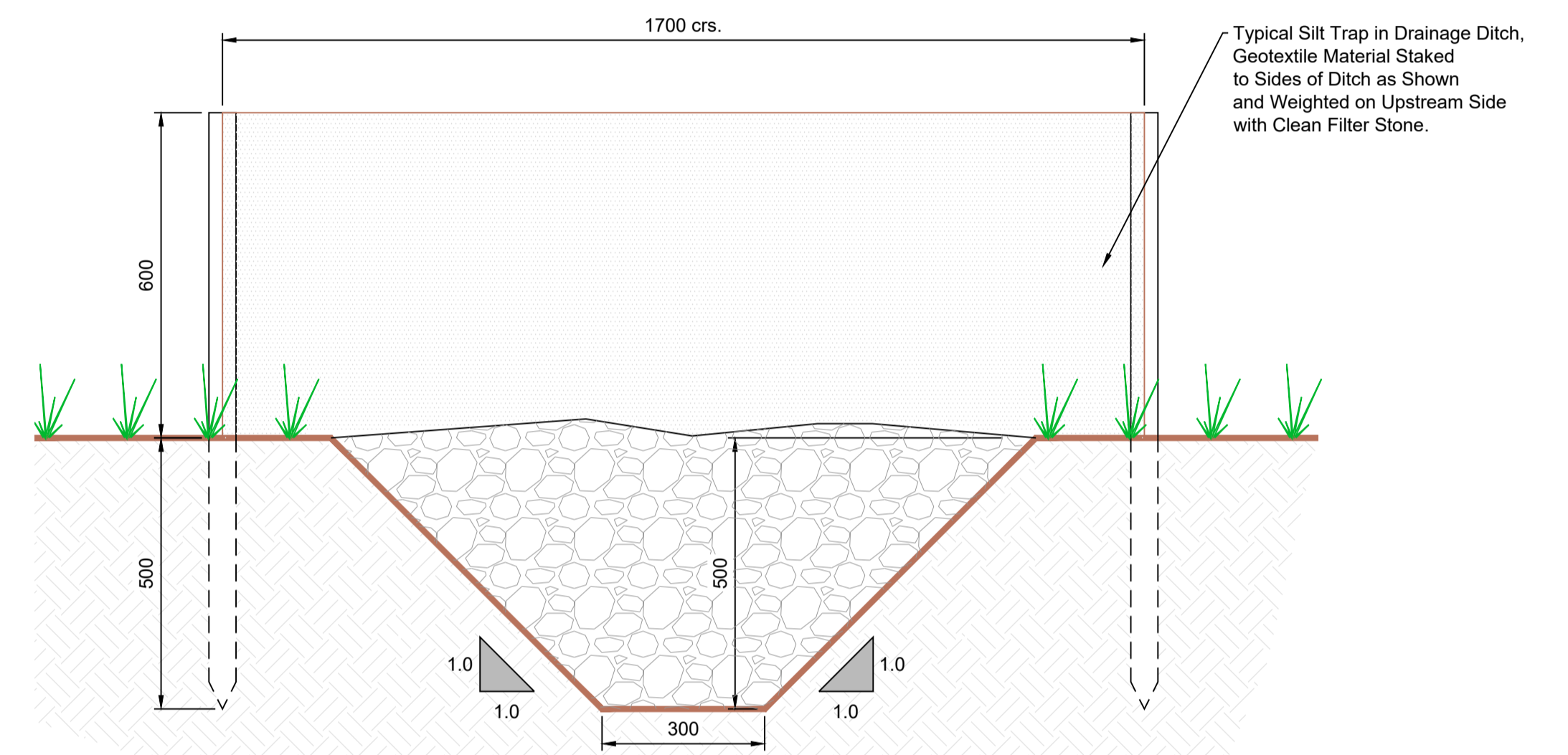
Details of Silt Trap and Slit
Fence





PLAN OF SILT TRAP IN DRAINAGE DITCH WITH DIFFUSE OUTFALL

Scale 1:50



SILT TRAP IN DRAINAGE DITCH

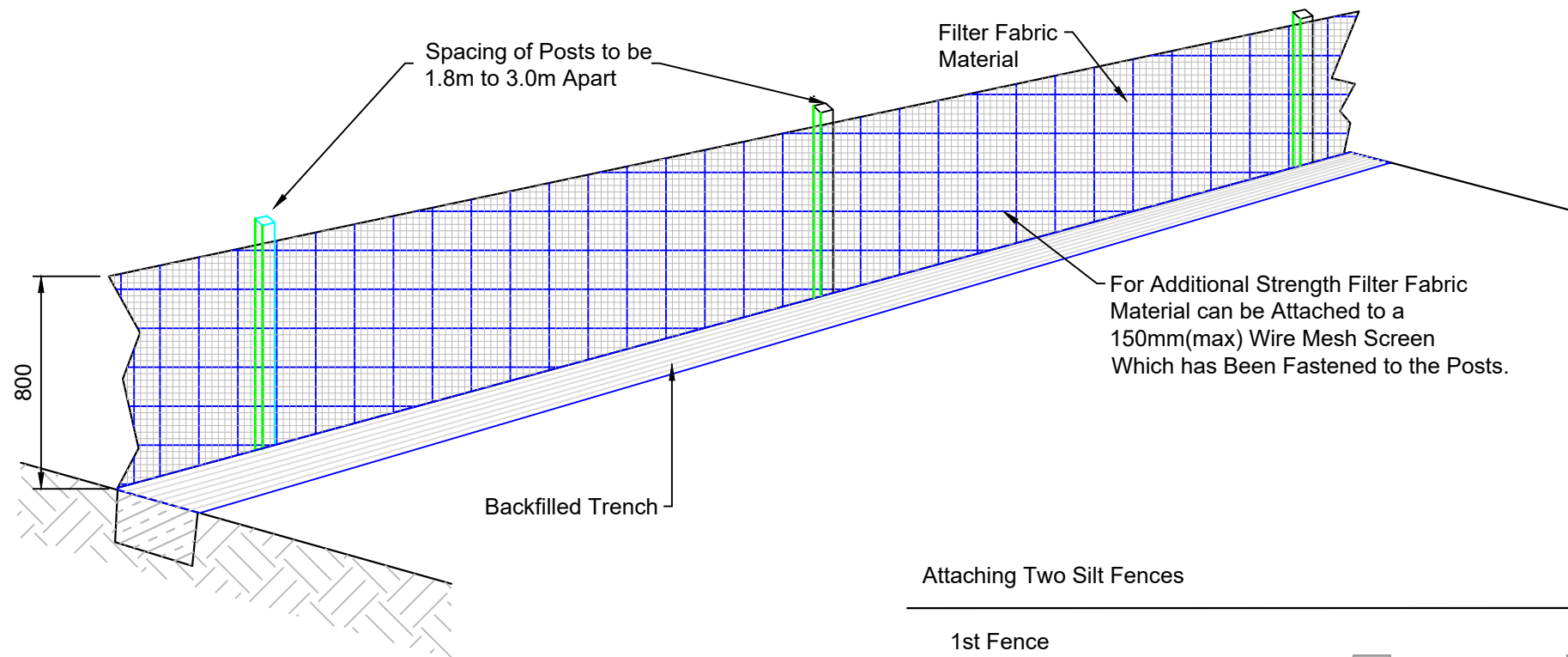
Scale 1:10

Typical Silt Trap in Drainage Ditch, Geotextile Material Staked to Sides of Ditch as Shown and Weighted on Upstream Side with Clean Filter Stone.

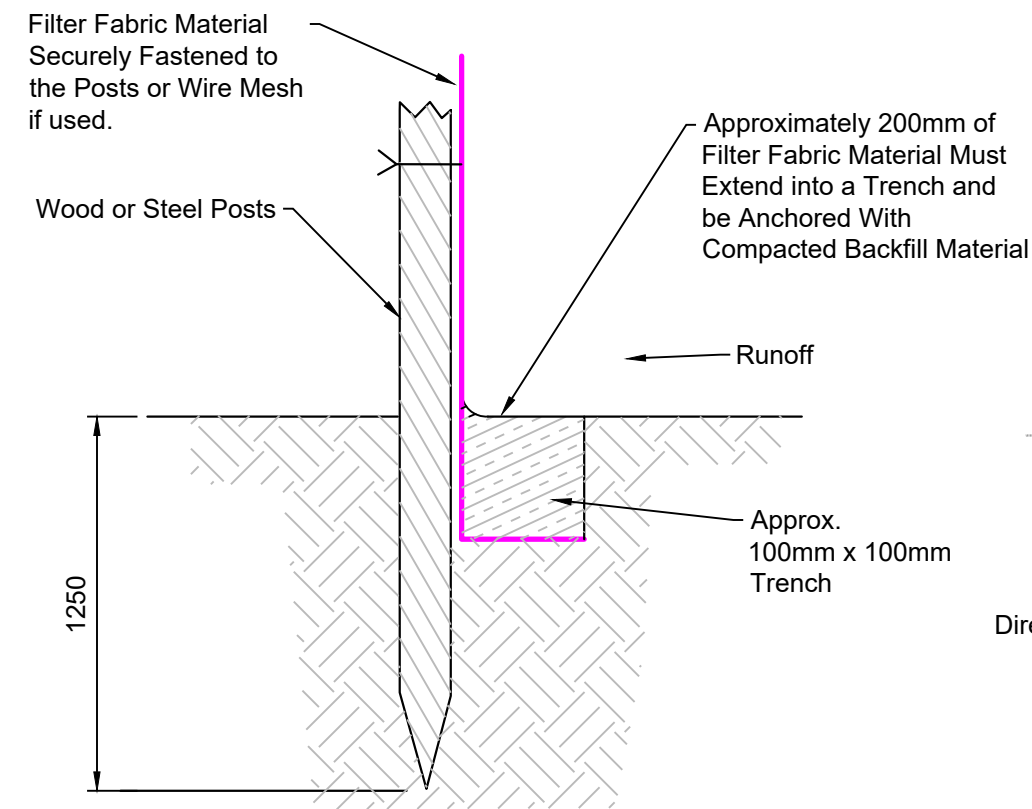
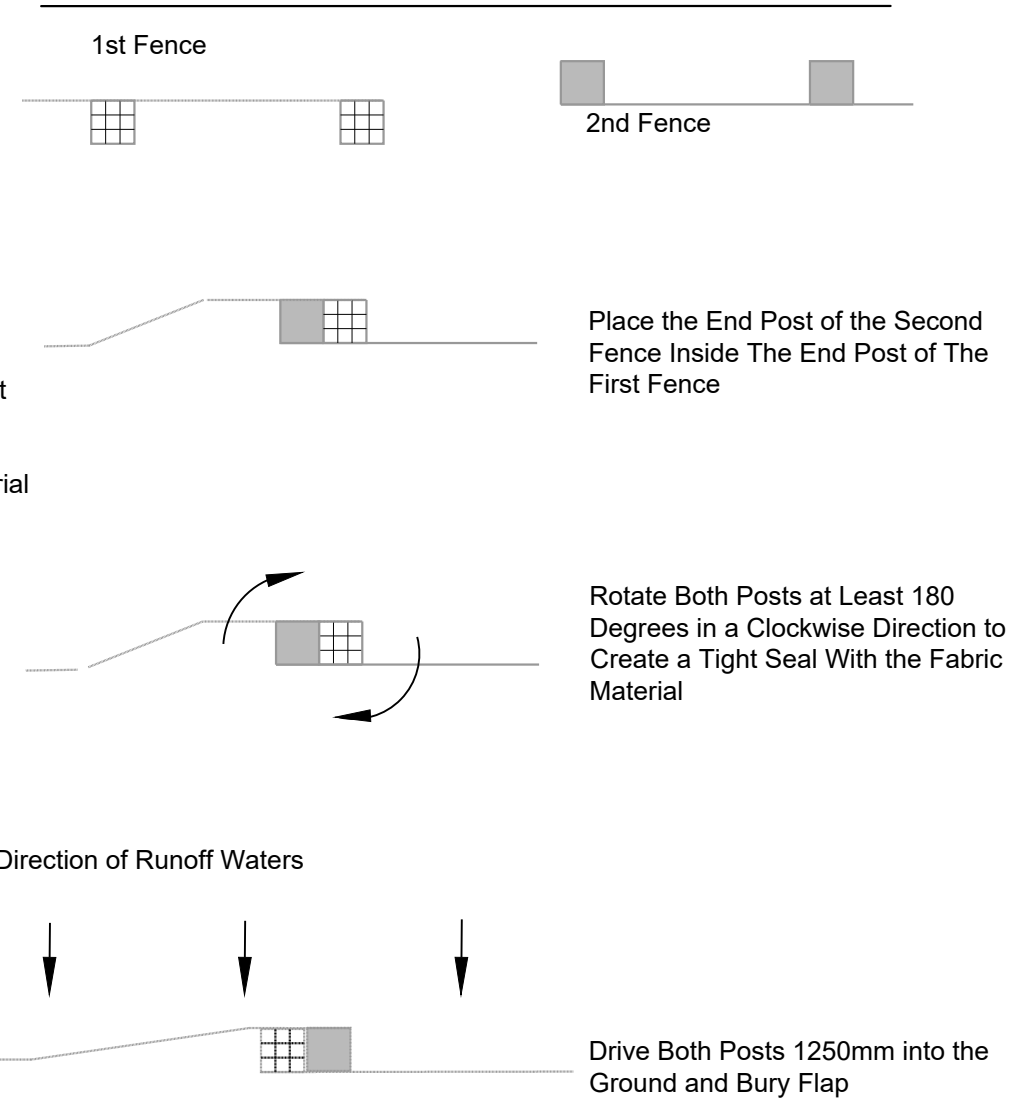
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| Rev. | Description | App By | Date |
|------|--------------------------------|--------|----------|
| A | ISSUE FOR PLANNING APPLICATION | JH | 22.10.20 |
| | | | |
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| PROJECT | CLIENT | | |
|---|------------------------------|------------------------------------|------------------------|
| COOM GREEN ENERGY PARK | BROOKFIELD RENEWABLE IRELAND | | |
| SHEET | Date 22.10.20 | Project number P20-099 | Scale (@ A1-) As Shown |
| TYPICAL SILT TRAP DETAILS IN DRAINAGE DITCH | Drawn by SOC | Drawing Number P20-099-0501-1-0003 | Rev A |
| | Checked by KD | | |



Attaching Two Silt Fences



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| Rev. | Description | App By | Date |
|------|--------------------------------|--------|----------|
| A | ISSUE FOR PLANNING APPLICATION | JH | 22.10.20 |
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|---------|------------------------|--|--|---------------|------------------------------|----------------|---------------------|
| PROJECT | COOM GREEN ENERGY PARK | | | CLIENT | BROOKFIELD RENEWABLE IRELAND | | |
| SHEET | SILT FENCE DETAILS | | | Date | 22.10.20 | Project number | P20-099 |
| | | | | Scale (@ A3-) | 1:25 | Drawn by | SOC |
| | | | | Checked by | KD | Drawing Number | P20-099-0501-1-0001 |
| | | | | | | Rev | A |

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22 October 2020