



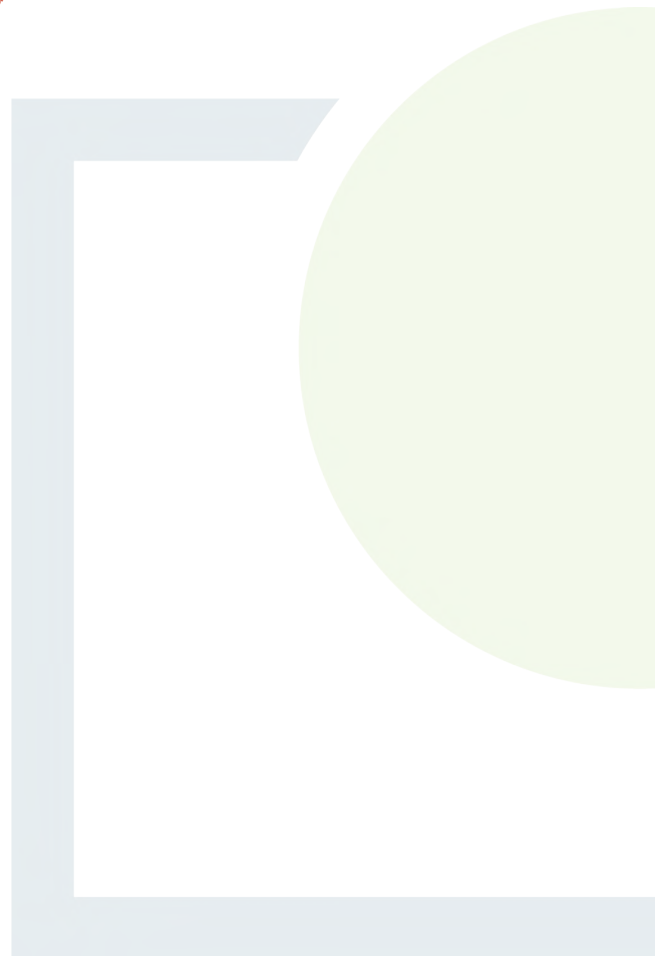
**FEHILY
TIMONEY**

**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING**

APPENDIX 2

Assimilative Capacity
Assessment Calculations

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New Inn Tier 3 Assimilative Capacity Assessment

Assimilative capacity = (Cmax – Cback) x F95 x 86.4 kg/day

Ammoniacal Nitrogen

Where:

C_{max} = maximum permissible concentration (EQS – 95%ile value) (mg/l)

0.14

C_{back} = background upstream concentration (mg/l mean value)

0.048

Q95 = the 95%ile flow in the river (m³/s)

0.0148

Note: (60x60x24)/1000 = 86.4

AC kg/d = (Cmax - Cbak) x F95 x 86.4

= 0.14 - 0.048 x 0.0148 x 86.4

= 0.092 x 0.0148 x 86.4

AC kg/d = 0.12 kg/day

Emission Concentration (mg/l)		22			
m3/sec	l/s	Flow (m3/day)	Daily Mass Emission (kg/day)	%-age of AC	
0.00003	0.02546302	2.2	0.048	41.1%	
0.00005	0.05092604	4.4	0.097	82%	
0.00006	0.06076403	5.3	0.116	98.2%	
0.00001	0.00601853	0.52	0.011	9.7%	

Mass balance Equation:

$$T = \frac{FC + fc}{F + f}$$

$$f(m^3/sec) = \frac{f\left(\frac{m^3}{day}\right) \div 24hours}{3600 seconds}$$

F = 0.0148 m³/sec
 C = 0.048 mg/l
 f = 2.2 m³/day
 0.000 m³/sec
 c = 22.000 mg/l

where:

- F is the river flow upstream of the discharge (95%ile flow m³/sec);
- C is the concentration of pollutant in the river upstream of the discharge (mean concentration in mg/l);
- f is the flow of the discharge (m³/sec);
- c is the maximum concentration of pollutant in the discharge (mg/l);
- T is the concentration of pollutant downstream of the discharge.

T =

	$\frac{F \times C}{F + f}$	+	$\frac{f \times c}{F + f}$
1	$\frac{0.0148 \times 0.048}{0.0148 + 0.000}$	+	$\frac{0.000 \times 22.000}{0.0148 + 0.000}$
2	$\frac{0.0007104}{0.0148}$	+	$\frac{0.000}{0.0148}$
3	$\frac{0.001}{0.015}$		
4	T = 0.057 mg/l		

EQS (mg/l) 0.14 Good' Status 95%-ile EQS

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