1. Erosion Hazard and Sediment Basins

Site Name: MPW

Site Location: MOOREBANK

Precinct/Stage: PRECINCT INFRASTRUCTURE WORKS

Other Details: STAGE 1 EROSION & SEDIMENT CONTROLS

Site area	Sub-catchment or Name of Structure						Notes
	1	2	3	4	5	6	
Total catchment area (ha)	16.95	18.26	25.92	11.1	8.56	4.32	
Disturbed catchment area (ha)	16.95	18.26	25.92	11.1	8.56	4.32	

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D	D	D	D	D	D	From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D	D	D	D	D	Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5	5	5	5	See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85	85	85	85	85	
x-day, y-percentile rainfall event (mm)	32.2	32.2	32.2	32.2	32.2	32.2	
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.9	10.9	10.9	10.9	10.9	10.9	

RUSLE Factors

Rainfall erosivity (*R*-factor)	2580	2580	2580	2580	2580	2580	Auto-filled from above
Soil erodibility (*K*-factor)	0.075	0.075	0.075	0.075	0.075	0.075	
Slope length (m)	300	300	300	300	300	300	
Slope gradient (%)	1	1	1	1	1	1	RUSLE LS factor calculated for a high rill/interrill ratio.
Length/gradient (*LS*-factor)	0.27	0.27	0.27	0.27	0.27	0.27	
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64	0.64	0.64	0.64	0.64	See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	68	68	68	68	68	68	
Soil Loss Class	1	1	1	1	1	1	See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	53	53	53	53	53	53	Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	149	160	227	97	75	38	See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	3493	3763	5342	2287	1764	890	See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	3642	3923	5569	2384	1839	928	

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Q_y = 0.00278 \times C_{10} \times F_Y \times I_{y,tc} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years.
F_y is a frequency factor for "Y" years.
A is the catchment area in hectares (ha)
$I_{y,tc}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = $0.76 \times (A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

							Notes
Name	1	2	3	4	5	6	
Catchment Area (ha)	16.95	18.26	25.92	11.1	8.56	4.32	
Place an x here to halve tc	X	X	X	X	X	X	Place an x if disturbed catchment
Time of concentration (tc)	12	12	14	10	9	7	minutes

Rainfall Intensities

1-year, tc	52.51	52.51	48.99	56.81	59.34	65.54	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2-year, tc	68.08	68.08	63.5	73.67	76.97	85.03	
5-year, tc	89.03	89.03	83.02	96.36	100.69	111.27	
10-year, tc	101.56	101.56	94.68	109.97	114.94	127.06	
20-year, tc	117.91	117.91	109.9	127.7	133.49	147.59	
50-year, tc	139.5	139.5	130.01	151.11	157.98	174.66	
100-year, tc	156.1	156.1	145.45	169.12	176.82	195.54	

C10 runoff coefficient	0.9	0.9	0.9	0.9	0.9	0.9	Use AR&R or Table F3, pg F-6

Frequency Factors

FF, 1-year	0.8	0.8	0.8	0.8	0.8	0.8	Can use 0.8 for a construction site
FF, 2-year	0.85	0.85	0.85	0.85	0.85	0.85	Can use 0.85 for a construction site
FF, 5-year	0.95	0.95	0.95	0.95	0.95	0.95	Can use 0.95 for a construction site
FF, 10-year	1	1	1	1	1	1	Generally always 1
FF, 20-year	1.05	1.05	1.05	1.05	1.05	1.05	Can use 1.05 for a construction site
FF, 50-year	1.15	1.15	1.15	1.15	1.15	1.15	Can use 1.15 for a construction site
FF, 100-year	1.2	1.2	1.2	1.2	1.2	1.2	Can use 1.2 for a construction site

Flow Calculations

							Notes
1-year, tc (m^3/s)	1.782	1.919	2.542	1.262	1.017	0.567	
2-year, tc (m^3/s)	2.454	2.644	3.5	1.739	1.401	0.781	
5-year, tc (m^3/s)	3.587	3.864	5.115	2.542	2.049	1.143	
10-year, tc (m^3/s)	4.307	4.64	6.14	3.054	2.462	1.373	
20-year, tc (m^3/s)	5.25	5.656	7.484	3.724	3.002	1.675	
50-year, tc (m^3/s)	6.803	7.329	9.696	4.826	3.891	2.171	
100-year, tc (m^3/s)	7.944	8.558	11.319	5.636	4.544	2.536	

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details

Structure Name	1	2	3	4	5	6	Auto-filled from Worksheet 1
Catchment Area (ha)	16.95	18.26	25.92	11.1	8.56	4.32	Auto-filled from Worksheet 1
Time of concentration (tc)	12	12	14	10	9	7	Auto-calculated assuming tc is halved

Rainfall Intensities (IFD Values)

1 year, tc	52.51	52.51	48.99	56.81	59.34	65.54	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2 year, tc	68.08	68.08	63.5	73.67	76.97	85.03	
5 year, tc	89.03	89.03	83.02	96.36	100.69	111.27	
10 year, tc	101.56	101.56	94.68	109.97	114.94	127.06	
20 year, tc	117.91	117.91	109.9	127.7	133.49	147.59	
50 year, tc	139.5	139.5	130.01	151.11	157.98	174.66	
100 year, tc	156.1	156.1	145.45	169.12	176.82	195.54	

C_{10} runoff coefficient	0.9	0.9	0.9	0.9	0.9	0.9	Use AR&R or Table F3, pg F-6
Design ARI event (select):	100	100	100	100	100	100	Select design ARI (years) from dropdown
Frequency Factor	1.2	1.2	1.2	1.2	1.2	1.2	Auto-filled based on selected ARI
Flow Calculation	7.944	8.558	11.319	5.636	4.544	2.536	Auto-calculated based on selected ARI

STAGE 1 BASIN CALCULATIONS - REFER DRAWING LPWPIW-COS-CV-DWG-0210

1. Erosion Hazard and Sediment Basins

Site Name: MPW

Site Location: MOOREBANK

Precinct/Stage: PRECINCT INFRASTRUCTURE WORKS

Other Details: STAGE 2 EROSION & SEDIMENT CONTROLS

Site area	Sub-catchment or Name of Structure						Notes
	4	5A	5B				
Total catchment area (ha)	3.28	20.19	18.74				
Disturbed catchment area (ha)	3.28	20.19	18.74				

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D	D	D				From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D	D				Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5				See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85	85				
x-day, y-percentile rainfall event (mm)	32.2	32.2	32.2				
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.9	10.9	10.9				

RUSLE Factors

Rainfall erosivity (*R*-factor)	2580	2580	2580				Auto-filled from above
Soil erodibility (*K*-factor)	0.075	0.075	0.075				
Slope length (m)	300	300	300				
Slope gradient (%)	1	1	1				RUSLE LS factor calculated for a high rill/interrill ratio.
Length/gradient (*LS*-factor)	0.27	0.27	0.27				
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2				Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64	0.64				See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	68	68	68				
Soil Loss Class	1	1	1				See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	53	53	53				Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	29	177	164				See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	676	4161	3862				See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	705	4338	4026				

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Q_y = 0.00278 \times C_{10} \times F_Y \times I_{y,tc} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years.
F_y is a frequency factor for "Y" years.
A is the catchment area in hectares (ha)
$I_{y,tc}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = $0.76 \times (A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

				Notes
Name	4	5A	5B	
Catchment Area (ha)	3.28	20.19	18.74	
Place an x here to halve tc	X	X	X	Place an x if disturbed catchment
Time of concentration (tc)	6	12	12	minutes

Rainfall Intensities

1-year, tc	69.44	52.51	52.51	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2-year, tc	90.11	68.08	68.08	
5-year, tc	117.9	89.03	89.03	
10-year, tc	134.63	101.56	101.56	
20-year, tc	156.37	117.91	117.91	
50-year, tc	185	139.5	139.5	
100-year, tc	207.11	156.1	156.1	

C10 runoff coefficient	0.9	0.9	0.9	Use AR&R or Table F3, pg F-6

Frequency Factors

FF, 1-year	0.8	0.8	0.8	Can use 0.8 for a construction site
FF, 2-year	0.85	0.85	0.85	Can use 0.85 for a construction site
FF, 5-year	0.95	0.95	0.95	Can use 0.95 for a construction site
FF, 10-year	1	1	1	Generally always 1
FF, 20-year	1.05	1.05	1.05	Can use 1.05 for a construction site
FF, 50-year	1.15	1.15	1.15	Can use 1.15 for a construction site
FF, 100-year	1.2	1.2	1.2	Can use 1.2 for a construction site

Flow Calculations

				Notes
1-year, tc (m^3/s)	0.456	2.122	1.97	
2-year, tc (m^3/s)	0.629	2.923	2.713	
5-year, tc (m^3/s)	0.919	4.273	3.966	
10-year, tc (m^3/s)	1.105	5.13	4.762	
20-year, tc (m^3/s)	1.347	6.254	5.805	
50-year, tc (m^3/s)	1.746	8.104	7.522	
100-year, tc (m^3/s)	2.04	9.463	8.783	

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details

Structure Name	4	5A	5B				Auto-filled from Worksheet 1
Catchment Area (ha)	3.28	20.19	18.74				Auto-filled from Worksheet 1
Time of concentration (tc)	6	12	12				Auto-calculated assuming tc is halved

Rainfall Intensities (IFD Values)

1 year, tc	69.44	52.51	52.51				Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2 year, tc	90.11	68.08	68.08				
5 year, tc	117.9	89.03	89.03				
10 year, tc	134.63	101.56	101.56				
20 year, tc	156.37	117.91	117.91				
50 year, tc	185	139.5	139.5				
100 year, tc	207.11	156.1	156.1				

C_{10} runoff coefficient	0.9	0.9	0.9				Use AR&R or Table F3, pg F-6
Design ARI event (select):	100	100	100	100	100	100	Select design ARI (years) from dropdown
Frequency Factor	1.2	1.2	1.2	1.2	1.2	1.2	Auto-filled based on selected ARI
Flow Calculation	2.04	9.463	8.783				Auto-calculated based on selected ARI

STAGE 2 BASIN CALCULATIONS - REFER DRAWING LPWPIW-COS-CV-DWG-0211

1. Erosion Hazard and Sediment Basins

Site Name: MPW

Site Location: MOOREBANK

Precinct/Stage: PRECINCT INFRASTRUCTURE WORKS

Other Details: STAGE 3 EROSION & SEDIMENT CONTROLS

Site area	Sub-catchment or Name of Structure						Notes
	6						
Total catchment area (ha)	59.1						
Disturbed catchment area (ha)	59.1						

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D						From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D						Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5						See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85						
x-day, y-percentile rainfall event (mm)	32.2						
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.9						

RUSLE Factors

Rainfall erosivity (*R*-factor)	2580						Auto-filled from above
Soil erodibility (*K*-factor)	0.075						
Slope length (m)	300						
Slope gradient (%)	1						RUSLE LS factor calculated for a high rill/interrill ratio.
Length/gradient (*LS*-factor)	0.27						
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2						Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64						See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	68						
Soil Loss Class	1						See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	53						Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	518						See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	12179						See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	12697						

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Q_y = 0.00278 \times C_{10} \times F_Y \times I_{y,tc} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years.
F_y is a frequency factor for "Y" years.
A is the catchment area in hectares (ha)
$I_{y,tc}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = $0.76 \times (A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

		Notes
Name	6	
Catchment Area (ha)	59.1	
Place an x here to halve tc	X	Place an x if disturbed catchment
Time of concentration (tc)	19	minutes

Rainfall Intensities

1-year, tc	42.35	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2-year, tc	54.88	
5-year, tc	71.74	
10-year, tc	81.79	
20-year, tc	94.91	
50-year, tc	112.25	
100-year, tc	125.57	

C10 runoff coefficient	0.9	Use AR&R or Table F3, pg F-6

Frequency Factors

FF, 1-year	0.8	Can use 0.8 for a construction site
FF, 2-year	0.85	Can use 0.85 for a construction site
FF, 5-year	0.95	Can use 0.95 for a construction site
FF, 10-year	1	Generally always 1
FF, 20-year	1.05	Can use 1.05 for a construction site
FF, 50-year	1.15	Can use 1.15 for a construction site
FF, 100-year	1.2	Can use 1.2 for a construction site

Flow Calculations

		Notes
1-year, tc (m^3/s)	5.01	
2-year, tc (m^3/s)	6.898	
5-year, tc (m^3/s)	10.078	
10-year, tc (m^3/s)	12.094	
20-year, tc (m^3/s)	14.736	
50-year, tc (m^3/s)	19.088	
100-year, tc (m^3/s)	22.281	

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details

Structure Name	6						Auto-filled from Worksheet 1
Catchment Area (ha)	59.1						Auto-filled from Worksheet 1
Time of concentration (tc)	19						Auto-calculated assuming tc is halved

Rainfall Intensities (IFD Values)

1 year, tc	42.35						Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2 year, tc	54.88						
5 year, tc	71.74						
10 year, tc	81.79						
20 year, tc	94.91						
50 year, tc	112.25						
100 year, tc	125.57						

C_{10} runoff coefficient	0.9						Use AR&R or Table F3, pg F-6
Design ARI event (select):	100	100	100	100	100	100	Select design ARI (years) from dropdown
Frequency Factor	1.2	1.2	1.2	1.2	1.2	1.2	Auto-filled based on selected ARI
Flow Calculation	22.281						Auto-calculated based on selected ARI

STAGE 3 BASIN CALCULATIONS - REFER DRAWING LPWPIW-COS-CV-DWG-0212

1. Erosion Hazard and Sediment Basins

Site Name: MPW

Site Location: MOOREBANK

Precinct/Stage: PRECINCT INFRASTRUCTURE WORKS

Other Details: STAGE 4 EROSION & SEDIMENT CONTROLS

Site area	Sub-catchment or Name of Structure						Notes
	3	8					
Total catchment area (ha)	10.46	26.91					
Disturbed catchment area (ha)	10.46	26.91					

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D	D					From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D					Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5					See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85					
x-day, y-percentile rainfall event (mm)	32.2	32.2					
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.9	10.9					

RUSLE Factors

Rainfall erosivity (*R*-factor)	2580	2580					Auto-filled from above
Soil erodibility (*K*-factor)	0.075	0.075					
Slope length (m)	300	300					
Slope gradient (%)	1	1					RUSLE LS factor calculated for a high rill/interrill ratio.
Length/gradient (*LS*-factor)	0.27	0.27					
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2					Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64					See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	68	68					
Soil Loss Class	1	1					See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	53	53					Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	92	236					See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	2156	5546					See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	2248	5782					

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Q_y = 0.00278 \times C_{10} \times F_Y \times I_{y,tc} \times A$

where: Q_y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years.
F_y is a frequency factor for "Y" years.
A is the catchment area in hectares (ha)
$I_{y,tc}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = $0.76 \times (A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details

			Notes
Name	3	8	
Catchment Area (ha)	10.46	26.91	
Place an x here to halve tc	X	X	Place an x if disturbed catchment
Time of concentration (tc)	10	14	minutes

Rainfall Intensities

1-year, tc	56.81	69.44	Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2-year, tc	73.67	90.11	
5-year, tc	96.36	117.9	
10-year, tc	109.97	134.63	
20-year, tc	127.7	156.37	
50-year, tc	151.11	185	
100-year, tc	169.12	207.11	

C10 runoff coefficient	0.9	0.9	Use AR&R or Table F3, pg F-6

Frequency Factors

FF, 1-year	0.8	0.8	Can use 0.8 for a construction site
FF, 2-year	0.85	0.85	Can use 0.85 for a construction site
FF, 5-year	0.95	0.95	Can use 0.95 for a construction site
FF, 10-year	1	1	Generally always 1
FF, 20-year	1.05	1.05	Can use 1.05 for a construction site
FF, 50-year	1.15	1.15	Can use 1.15 for a construction site
FF, 100-year	1.2	1.2	Can use 1.2 for a construction site

Flow Calculations

			Notes
1-year, tc (m^3/s)	1.189	3.74	
2-year, tc (m^3/s)	1.639	5.157	
5-year, tc (m^3/s)	2.396	7.541	
10-year, tc (m^3/s)	2.878	9.064	
20-year, tc (m^3/s)	3.509	11.055	
50-year, tc (m^3/s)	4.548	14.324	
100-year, tc (m^3/s)	5.311	16.733	

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details

Structure Name	3	8					Auto-filled from Worksheet 1
Catchment Area (ha)	10.46	26.91					Auto-filled from Worksheet 1
Time of concentration (tc)	10	14					Auto-calculated assuming tc is halved

Rainfall Intensities (IFD Values)

1 year, tc	56.81	69.44					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2 year, tc	73.67	90.11					
5 year, tc	96.36	117.9					
10 year, tc	109.97	134.63					
20 year, tc	127.7	156.37					
50 year, tc	151.11	185					
100 year, tc	169.12	207.11					

C_{10} runoff coefficient	0.9	0.9					Use AR&R or Table F3, pg F-6
Design ARI event (select):	100	100	100	100	100	100	Select design ARI (years) from dropdown
Frequency Factor	1.2	1.2	1.2	1.2	1.2	1.2	Auto-filled based on selected ARI
Flow Calculation	5.311	16.733					Auto-calculated based on selected ARI

STAGE 4 BASIN CALCULATIONS - REFER DRAWING LPWPIW-COS-CV-DWG-0213

FOR CONSTRUCTION

AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
ISSUED FOR CONSTRUCTION	20.08.20	0			

DEVELOPER

ARCHITECT

PROJECT MANAGER
J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PROJECT
PRECINCT INFRASTRUCTURE WORKS WEST
MOOREBANK AVENUE, MOOREBANK

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
D.S.	D.S.	AUG 19	M.W.	A0	AS SHOWN	LPWPIW-COS-CV-DWG-0201

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