A L Daines & Partners							Pag	re 1				
28 Cast	le Street			Net	thertown	Rd, St	Bees					
Carlisle					Plot 3 soakaway							
CA3 8TP									Mi	CLO		
Date 31/03/2022 16:44				Des	Designed by SM					Dr	ainage	
File PL	OT 3.MDX			Che	ecked by	0 1 0					annage	
Micro D	rainage			Net	twork 202	0.1.3						
	STORM SEWER DESIGN by the Modified Rational Method											
Design Criteria for Storm												
Pipe Sizes STANDARD Manhole Sizes STANDARD												
	2	F	SR Rainf	all Mod	del - Engla	nd and	Wales				100	
	Ret	urn Peri	lod (yea: M5-60 (n	rs) nm) 16.	100	Add F.	low / C	limat	e Ch	PIMP (* ange (*	ま) 100 ま) 40	
			Ratio	or 0.	274	Min	imum Ba	ckdro	p He	ight (r	n) 0.200	
Maximum	Maximu Time of Co	um Rainfa	all (mm/h ion (mir	nr) ns)	50 30 Min De	Max: sign Der	imum Ba oth for	ckdro	p He	ight (r tion (r	n) 1.500 n) 1.200	
maariiiuiii	FC	oul Sewag	je (l/s/r	na) 0.	000 Min	Vel fo	r Auto	Desig	n on	ly (m/s	s) 1.00	
	Volume	etric Rur	noff Coef	f. 1.	000 M	in Slop	e for O	ptimi	Isati	on (1:)	K) 500	
			Des	igned w	ith Level :	Soffits						
			Networl	< Desi	gn Table	for St	orm					
PN	Length Fal	l Slope	I.Area	T.E.	Base	k	HYD I	DIA S	Secti	on Type	e Auto	
	(m) (m)) (1:X)	(ha)	(mins)	Flow (l/s)	(mm)	SECT (mm)			Design	
S1.000 S1.001	5.000 0.01 5.000 0.01	13 384.6 13 384.6	0.021 0.000	5.00 0.00	0.0 0.0	0.600 0.600	0	150 H 150 H	Pipe/ Pipe/	Condui Condui	t 🔒 t 🔒	
			Ne	twork	Results '	<u> Table</u>						
PN	Rain	T.C.	US/IL Σ	I.Area	Σ Base	Foul	Add Fl	-ow '	Vel m/c)	Cap	Flow	
	(1111)	(11115)	(111)	(IIA)	FIOW (1/5	, (1/5)	(1/5	, (uu/5)	(1/5)	(1/5)	
S1.00 S1.00	0050.000150.00	5.16 3 5.33 3	87.600 87.600	0.021 0.021	0.0	0.0	1 1	.5	0.51 0.51	9.0 9.0	5.3 5.3	
				1000 0	000 T							
			©	1982-2	2020 Inno	vyze						

A L Daines & Partners		Page 2
28 Castle Street	Nethertown Rd, St Bees	
Carlisle	Plot 3 soakaway	
CA3 8TP		Mirro
Date 31/03/2022 16:44	Designed by SM	Drainage
File PLOT 3.MDX	Checked by	Diamage
Micro Drainage	Network 2020.1.3	
<u>Area</u> Pipe PIMP PI Number Type Name (1	Summary for Storm MP Gross Imp. Pipe Total %) Area (ha) Area (ha) (ha)	
1.000 1 1.001 1	.00 0.021 0.021 0.021 .00 0.000 0.000 0.000 Total Total Total 0.021 0.021 0.021	
Simulatio	on Criteria for Storm	
Volumetric Runoff Coeff Areal Reduction Factor Hot Start (mins) Hot Start Level (mm) Manhole Headloss Coeff (Global) Foul Sewage per hectare (l/s) Number of Input Hydrogr Number of Online Cont Number of Offline Cont	0.850Additional Flow - % of Total Fl1.000MADD Factor * 10m³/ha Stora0Inlet Coeffiecie0Flow per Person per Day (l/per/da0.500Run Time (min0.000Output Interval (minaphs 0Number of Storage Structures 1rols 0Number of Real Time Controls 0	ow 0.000 ge 2.000 nt 0.800 y) 0.000 s) 60 s) 1
Synthet	ic Rainfall Details	
Rainfall Model Return Period (years) Region Engla M5-60 (mm) Ratio R	FSR Profile Type Summ 100 Cv (Summer) 0.8 nd and Wales Cv (Winter) 0.9 16.000 Storm Duration (mins) 0.274	ner 350 350 30
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A L Daines & Partners		Page 3
28 Castle Street	Nethertown Rd, St Bees	
Carlisle	Plot 3 soakaway	
CA3 8TP		Micro
Date 31/03/2022 16:44	Designed by SM	
File PLOT 3.MDX	Checked by	Diamada
Micro Drainage	Network 2020.1.3	

Storage Structures for Storm

Cellular Storage Manhole: S2, DS/PN: S1.001

Invert Level (m) 36.800 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.06050 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.06050

Depth (m) Area (m²) Inf. Area (m²) Depth (m) Area (m²) Inf. Area (m²)

0.000	30.0	30.0	0.401	0.0	40.4
0.400	30.0	40.4			

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A L Daines & Parts	ners			Page 4					
28 Castle Street		Nethertown R	d. St Bees						
Carlisle		Plot 3 soaks	way						
		I IOC 5 SOAKE	Iway						
CAS OIF	C - A A	Deetmeether	OM	MICro					
Date 31/03/2022 1	6:44	Designed by	SM	Drainage					
File PLOT 3.MDX		Checked by							
Micro Drainage		Network 2020	.1.3						
<u>1 year Return Pe</u> r	riod Summary (of Critical Res for Storm	sults by Maximu	m Level (Rank 1)					
Simulation Criteria Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000 Hot Start Level (mm) 0 Inlet Coefficcient 0.800 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000 Foul Sewage per hectare (l/s) 0.000									
Number Numk Numbe	r of Input Hydro ber of Online Co er of Offline Co	graphs 0 Number o ntrols 0 Number o ntrols 0 Number o	of Storage Structu of Time/Area Diagr of Real Time Contr	ares 1 ams 0 rols 0					
	Synt	hetic Rainfall De	tails						
F	Rainfall Model	FSR	Ratio R 0.274						
	Region E M5-60 (mm)	ngiand and wales	Cv (Summer) 0.850 Cv (Winter) 0.950)					
	110 000 (1111)	10.000	0.000						
Margi	n for Flood Ris} Anal	Warning (mm) 30 Lysis Timestep F DTS Status	0.0 DVD Statu: ine Inertia Statu: ON	s OFF s OFF					
Ret	Prof: Duration(s) urn Period(s) (y Climate Chang	ile(s) (mins) 15, 30, 60 years) ge (%)	Summer and Win , 120, 180, 240, 3 1, 30, 3 0, 40,	ter 360 100 40					
US/MH	Return Clim	ate First (X)	First (Y) First	Water (Z) Overflow Level					
PN Name Stor	m Period Chai	nge Surcharge	Flood Overi	low Act. (m)					
S1.000 S1 15 Wir S1.001 S2 240 Wir	nter 1 nter 1	+0% 100/15 Winter +0%		37.652 36.859					
Sur US/MH I PN Name	ccharged Flooded Depth Volume (m) (m³)	Flow / Overflow Cap. (l/s)	Half Drain Pipe Time Flow (mins) (l/s)	Level Status Exceeded					
S1.000 S1	-0.098 0.000	0.25	2.3	OK					
S1.001 S2	-0.891 0.000	0.00	108 0.0	OK					

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A L Dair	nes & 1	Partners							Page 5	
28 Cast	le Stre	eet		Ne	thertown	Rd, St Be	ees			
Carlisle	Carlisle				Plot 3 soakaway					
CA3 8TP						-			Micco	
Date 31	/03/202	22 16:44		De	signed b	y SM				
File PLO	OT 3.MI	XC		Ch	ecked bv	-			Drainage	
Micro Di	rainage	2		Ne	Network 2020 1 3					
30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)										
				f	or Storm	-				
Simulation Criteria										
	A	Hot St	ion facto art (mins	r 1.00)	0 Addit:	ADD Factor 3	- 3 OI 1 * 10m³/1	na Stora	are 2.000	
		Hot Start	Level (mm)	0	I100001	nlet Co	effiecie	nt 0.800	
Manl	hole Hea	adloss Coef	f (Global) 0.50	0 Flow pe	r Person per	r Day (l/per/da	y) 0.000	
F	oul Sewa	age per hec	tare (l/s) 0.00	00					
	N	umber of Tr	nout Hydro	araph	s () Number	of Storage	Struct	ures 1		
	-	Number of	Online Co	ntrol	s 0 Number	of Time/Ar	ea Diag	rams 0		
		Number of C	offline Co	ontrol	s 0 Number	of Real Ti	me Cont	rols O		
			Sun	-hetic	Painfall	Details				
		Rainfal	.l Model		FS	R Ratio	R 0.27	4		
			Region H	Englan	d and Wale	s Cv (Summe	r) 0.85	0		
		M5-	-60 (mm)		16.00	0 Cv (Winte	r) 0.95	0		
	1	Margin for	Flood Ris	k Warn	ing (mm)	300.0 0	VD Stati	IS OFF		
	-	101 g 111 101	Ana	lysis	Timestep	Fine Inert:	ia Stati	is OFF		
				DT	S Status	ON				
			Prof	ile(s)		Summer	and Wi	nter		
		Dur	ation(s)	(mins)	15, 30,	60, 120, 180), 240,	360		
		Return Pe	riod(s) (mata Chan	years)			1, 30,	100		
		CII		ge (₀)			0, 40	, 40		
									Water	
U	S/MH	Re Charm Da	eturn Clir	nate	First (X)	First (Y	() First	c (Z) Ove	erflow Level	
	vame	Storm Pe	eriod Cha	nge	Surcharge	F100d	Over	ITOM 1	ACT. (M)	
S1.000	S1 1	5 Winter	30 -	+40% 1	00/15 Wint	er			37.709	
S1.001	S2 36	0 Winter	30 -	+40%					37.075	
		Surcharged	Flooded			Half Drain	Pipe			
	US/MH	Depth	Volume 1	low /	Overflow	Time	Flow		Level	
PN	Name	(m)	(m³)	Cap.	(1/s)	(mins)	(l/s)	Status	Exceeded	
s1.000	S1	-0.041	0.000	0.86			7.7 1	FLOOD RI	SK	
S1.001	S2	-0.675	0.000	0.00		300	0.0	(ЭK	

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A L Daines & Partners		Page 6
28 Castle Street	Nethertown Rd, St Bees	
Carlisle	Plot 3 soakaway	
CA3 8TP		Micro
Date 31/03/2022 16:44	Designed by SM	
File PLOT 3.MDX	Checked by	Diamaye
Micro Drainage	Network 2020.1.3	
Micro Drainage <u>100 year Return Period Summa</u> Areal Reduction Facto Hot Start (mins Hot Start Level (mm Manhole Headloss Coeff (Global Foul Sewage per hectare (1/s Number of Input Hydro Number of Online Co Number of Offline Co Syn Rainfall Model Region 1 M5-60 (mm) Margin for Flood Ris Ana Prof Duration(s) Return Period(s) (c	Network 2020.1.3 ry of Critical Results by Maximum L 1) for Storm Simulation Criteria r 1.000 Additional Flow - % of Total Fl 0 MADD Factor * 10m ³ /ha Stora 0 Inlet Coefficcie 0.500 Flow per Person per Day (1/per/da 0.000 bgraphs 0 Number of Storage Structures 1 ontrols 0 Number of Time/Area Diagrams 0 ontrols 0 Number of Real Time Controls 0 thetic Rainfall Details FSR Ratio R 0.274 England and Wales Cv (Summer) 0.850 16.000 Cv (Winter) 0.950 k Warning (mm) 300.0 DVD Status OFF lysis Timestep Fine Inertia Status OFF DTS Status ON File(s) Summer and Winter (mins) 15, 30, 60, 120, 180, 240, 360 years) 1, 30, 100 Var(%)	evel (Rank ow 0.000 ge 2.000 nt 0.800 y) 0.000
		Water
US/MH Return Clin PN Name Storm Period Cha	nate First(X) First(Y)First(Z)Ov nge Surcharge Flood Overflow	erflow Level Act. (m)
		,
S1.000 S1 15 Winter 100 <th< td=""><td>+40% 100/15 Winter +40%</td><td>37.754 37.185</td></th<>	+40% 100/15 Winter +40%	37.754 37.185
Surcharged Flooded US/MH Depth Volume : PN Name (m) (m³)	Half Drain Pipe Flow / Overflow Time Flow Cap. (l/s) (mins) (l/s) Status	Level Exceeded
S1.000 S1 0.004 0.000	1.07 9.7 FLOOD RI	SK
S1.001 S2 -0.565 0.000	0.00 330 0.0	OK
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