

# ga

*gladeassociates*

**Draft Bill of Quantities**

**Drainage**

**September 2015**

<p><b>STORM DRAINAGE</b></p> <p><b>INFORMATION</b></p> <p><u>Measurement notes</u></p> <p>Drawings used : WYG (80) 140 Rev T1, D-(80) 001 Rev T1, D-(80) 002 Rev T1, D-(80) 003 Rev T1 and D-(80) 004 Rev T1</p> <p>All syphonic outlets assumed 300 diameter (estimators check required)</p> <p>All manhole types assumed (estimators check required)</p> <p>All surface water manhole invert levels assumed (estimators check required)</p> <p><b>C20 ALTERATIONS - SPOT ITEMS</b></p> <p><u>Redundant drain runs</u></p> <p>Grub up and cap off existing drain runs/ manholes and associated beds and surrounds; back filling as necessary with imported Type 1 granular material</p>						
A	61m long; *** diameter runs	1 item	UNP			
B	manholes; 7nr ASSUMED	1 item	UNP			
<p><b>R12: STORM DRAINAGE BELOW GROUND</b></p> <p><u>Excavating trenches to receive pipes not exceeding 200 nominal size; disposing of surplus excavated material off site</u></p> <p>Commencing from formation level; filling in above beds and coverings with imported Type 1 granular material up to formation level</p>						
C	average depth 500 - 750	142 m	UNP			
D	average depth 750 - 1000	40 m	UNP			
E	average depth 1000 - 1250	18 m	UNP			
F	average depth 1250 - 1500	19 m	UNP			
G	average depth 1500 - 1750	28 m	UNP			
				0	00	

<p><b>R12: STORM DRAINAGE BELOW GROUND</b></p> <p><b><u>Excavating trenches to receive pipes not exceeding 200 nominal size; disposing of surplus excavated material off site</u></b></p> <p>Commencing from formation level; filling in above beds and coverings with free flowing limestone material up to formation level; terram 1000 wrapping membrane as required</p>					
A	average depth 1750 - 2000	68 m	UNP		
<p><b><u>Excavating trenches to receive pipes 300 nominal size; disposing of surplus excavated material off site</u></b></p> <p>Commencing from formation level; filling in above beds and coverings with imported Type 1 granular material up to formation level</p>					
B	average depth 750 - 1000	2 m	UNP		
C	average depth 1500 - 1750	2 m	UNP		
D	average depth 2000 - 2250	19 m	UNP		
E	Breaking up obstructions, rock, concrete, brick and the like generally; make allowance as deemed necessary	1 Item	UNP		
F	Protection / diversion / working around existing services and drainage generally; make allowance as deemed necessary	1 Item	UNP		
<p><b><u>Granular material 10 - 20 nominal size to be obtained off site</u></b></p> <p>Beds and Surrounds ( trench sizes are assumed and are at contractors discretion )</p>					
G	600 x 150 bed; 450 thick surround to 300 nominal size pipe	19 m	UNP		
<p><b><u>Plain in-situ concrete; mix 1:12 all in aggregate</u></b></p> <p>Beds and Surrounds ( trench sizes are assumed and are at contractors discretion )</p>					
H	450 x 150 bed; 300 thick surround to 150 nominal size pipe	247 m	UNP		
				0	00

<b>R12: STORM DRAINAGE BELOW GROUND</b>					
<b><u>Plain in-situ concrete: mix 1:12 all in aggregate</u></b>					
Beds and Surrounds ( trench sizes are assumed and are at contractors discretion )					
A	600 x 150 bed; 450 thick surround to 300 nominal size pipe	4 m	UNP		
<b><u>Imported free draining limestone</u></b>					
Beds and surrounds to filter drains; inclusive of associated wrapping membranes and the like					
B	surround to 150 nominal size pipe; average trench depth 1750 - 2000	68 m	UNP		
<b><u>Vitrified clay or plastics pipes and fittings; Hepworth / Osma or similar approved; push-fit polypropylene flexible couplings</u></b>					
Pipework in trenches					
C	110 or 150 nominal size; perforated pipe to soak aways	164 m	UNP		
D	extra; bends	98 Nr	UNP		
E	extra; branch 110 or 150 / 110 or 150	44 Nr	UNP		
F	extra; fittings	1 Item	UNP		
G	150 nominal size	247 m	UNP		
H	extra; bends	56 Nr	UNP		
J	extra; gully adapter	19 Nr	UNP		
K	extra; rest bends	19 Nr	UNP		
L	extra; channel connection	4 Nr	UNP		
				<b>0</b>	<b>00</b>

DRAFT

<b>R12: STORM DRAINAGE BELOW GROUND</b>					
<b><u>Vitrified clay or plastics pipes and fittings; Hepworth / Osma or similar approved; push-fit polypropylene flexible couplings</u></b>					
Pipework in trenches					
A	extra; branch 150 / 150	4 Nr	UNP		
B	extra; fittings	1 Item	UNP		
C	150 nominal size; perforated pipe to filter drain	68 m	UNP		
D	extra; fittings	1 Item	UNP		
<b><u>Reinforced concrete pipes and fittings B.S.5911 extra strength Class H spigot and socket joints; cement mortar (1:2) joints</u></b>					
Pipework in trenches					
E	300 nominal size	23 m	UNP		
F	extra; bends	1 nr	UNP		
G	extra; syphonic adaptors	1 nr	UNP		
H	extra; rest bends	1 nr	UNP		
J	extra; fittings	1 Item	UNP		
<b><u>Gullies and collection channels in concrete or the like</u></b>					
Gullies; B.S.5911; joint to pipe; bedding and surrounding in 150 concrete, grade FND3Z; 300 x 300 ductile iron class C250 heavy duty hinged grating and frame on engineering brick raising courses; as WYG drawing D-(80) 001 Rev T1					
K	150 outlet; trapped round; pedestrian/paved area gully 450 diameter x 900 deep	2 nr	UNP		
				0	00

<b>R12: STORM DRAINAGE BELOW GROUND</b>					
<b><u>Gullies and collection channels in concrete or the like</u></b>					
Gullies; B.S.5911; joint to pipe; bedding and surrounding in 150 concrete, grade FND3Z; BS 497 Ref GA2 GB 325 heavy duty hinged grating and frame on engineering brick raising courses; as WYG drawing D-(80) 001 Rev T1					
A	150 outlet; trapped round; road gully 450 diameter x 900 deep	17 nr	UNP		
Channel drainage systems; ACO Qmax 150 or similar approved; bedding and surrounding in concrete, grade 25; heavy duty grating; allow all associated work; as WYG drawing (90) 002 Rev T1					
B	straight	98 m	UNP		
C	extra; ends	6 nr	UNP		
D	extra; outlets (new)	4 nr	UNP		
E	extra; outlets (connecting to existing outlets)	2 nr	UNP		
F	extra; sump units (new)	4 nr	UNP		
G	extra; sump units (connecting to existing outlets)	2 nr	UNP		
<b><u>Brick manholes</u></b>					
Brick manholes; excavation, disposal, earthwork support, levelling and compacting bottoms, 150 thick in-situ concrete bed, 225 thick engineering brick walls; 1240 x 675 D400 access cover and frame on class B engineering brick raising courses, 150 high bedded in cement mortar; rocker pipes to branches, backfilling with granular material; vitrified clay half round channel internally with concrete haunching; step irons; pipe arch; Manhole type C; as WYG drawing D-(80) 003 Rev T1					
H	internal clear dimensions 1240 x 675; 1.00 - 1.50m deep; D400 vented cover ASUSMED	2 Nr	UNP		
Extra over precast brick manholes of any type for building in ends of pipes					
J	150 diameter	2 Nr	UNP		
				0	00

<b>R12: STORM DRAINAGE BELOW GROUND</b>					
<b><u>Brick manholes</u></b>					
Extra over precast brick manholes of any type for building in ends of pipes					
A	300 diameter		2 Nr	UNP	
<b><u>Brick catchpit manholes</u></b>					
Brick catchpit manholes; excavation, disposal, earthwork support, levelling and compacting bottoms, 75 thick concrete blinding grade GEN 1, 150 thick in-situ concrete bed, 225 thick engineering brick walls; 1240 x 675 D400 access cover and frame on class B engineering brick raising courses, 150 high, bedded in cement mortar; rocker pipes to branches, backfilling with granular material; vitrified clay half round channel internally with concrete haunching; step irons; pipe arch; Manhole type C; as WYG drawing D-(80) 003 Rev T1					
B	internal clear dimensions 1240 x 675; 1.00 - 1.50m deep; D400 cover ASUSMED		2 Nr	UNP	
Extra over precast brick catchpit manholes of any type for building in ends of pipes					
C	150 diameter		4 Nr	UNP	
<b><u>Precast concrete manholes</u></b>					
Precast concrete straight shaft manholes; excavation, disposal, earthwork support, levelling and compacting bottoms, 225 thick RC30 grade in-situ concrete bed, precast concrete chamber rings with proprietary bitumen or resin mastic sealant, 150 thick RC30 grade in situ concrete surround, formwork, benching and channels with high strength concrete topping minimum 20 thick, heavy duty precast concrete cover slab on class B engineering brick raising courses, 150 high, bedded in cement mortar, galvanised mild steel step irons at 300 centres, rocker pipes to branches, backfilling with granular material; manhole cover and frame; manhole type B; as WYG drawing D-(80) 003 Rev T1					
D	1200 diameter; 1.50 - 2.00m deep; D400 cover		1 Nr	UNP	
E	1200 diameter; 1.50 - 2.00m deep; D400 cover; cathcpit manhole ASSUMED		1 Nr	UNP	
F	1200 diameter; 1.50 - 2.00m deep; D400 cover; built on line of existing run		1 Nr	UNP	
Extra over precast concrete manholes of any type for building in ends of pipes					
					<b>0 00</b>

<p><b>R12: STORM DRAINAGE BELOW GROUND</b></p> <p><b><u>Precast concrete manholes</u></b></p> <p>Extra over precast concrete manholes of any type for building in ends of pipes</p>					
A	150 diameter	7 Nr	UNP		
B	300 diameter	2 Nr	UNP		
<p><b><u>Soakaways</u></b></p> <p>Allow for all excavation, disposal, earthworks, surface treatments, sub-bases, geotextile, soakaway crates and the like; allow all associated work</p>					
C	7500 x 7500 x 1200 deep approximately overall ASSUMED	1 Nr	UNP		
D	19200 x 9600 x 1200 deep approximately overall ASSUMED	1 Nr	UNP		
E	20000 x 14000 x 1200 deep approximately overall ASSUMED	1 Nr	UNP		
F	15000 x 9600 x 1200 deep approximately overall ASSUMED	1 Nr	UNP		
G	18000 x 10500 x 1200 deep approximately overall ASSUMED	1 Nr	UNP		
<p><b><u>Various locations on site; excavating to locate and expose storm sewer for final connection; make good on completion</u></b></p> <p>Connecting 2nr existing * diameter drain runs into a new 1200 diameter manhole (S4)</p>					
H	approximately 1500 deep ASSUMED	1 nr	UNP		
<p><b><u>Testing and commissioning</u></b></p> <p>Testing the storm water system</p>					
J	for performance	1 Item	UNP		
				<b>0</b>	<b>00</b>



<p>A</p>	<p><b>R12: STORM DRAINAGE BELOW GROUND</b></p> <p><b>Testing and commissioning</b></p> <p>CCTV survey</p> <p>storm system</p>	<p>1 Item</p>	<p>UNP</p>			
<p>B</p>	<p><b>UNDEFINED WORKS</b></p> <p><b>Storm water drainage to link building</b></p> <p>Storm water drainage to link building, make allowance for excavation, bed and surround, back fill, pipework, connections, finding location new/existing pipework; allow for all associated work</p> <p>generally (not shown on drawing)</p>	<p>1 Item</p>	<p>UNP</p>			
<p>C</p>	<p><b>FOUL DRAINAGE</b></p> <p><b>INFORMATION</b></p> <p><b>Measurement notes</b></p> <p>Drawings used : WYG (80) 140 Rev T1, D-(80) 001 Rev T1, D-(80) 002 Rev T1, D-(80) 003 Rev T1 and D-(80) 004 Rev T1</p> <p><b>C20 ALTERATIONS - SPOT ITEMS</b></p> <p><b>Redundant drain runs</b></p> <p>Grub up and cap off existing drain runs/ manholes and associated beds and surrounds; back filling as necessary with imported Type 1 granular material</p> <p>169m long; *** diameter runs</p>	<p>1 item</p>	<p>UNP</p>			
<p>D</p>	<p>manholes; 7nr ASSUMED</p>	<p>1 item</p>	<p>UNP</p>			
<p>E</p>	<p><b>R12: FOUL DRAINAGE BELOW GROUND</b></p> <p><b>Excavating trenches to receive pipes not exceeding 200 nominal size; disposing of surplus excavated material off site</b></p> <p>Commencing from formation level; filling in above beds and coverings with imported Type 1 granular material up to formation level</p> <p>average depth 500 - 750</p>	<p>45 m</p>	<p>UNP</p>			
					<p>0</p>	<p>00</p>

<p><b>R12: FOUL DRAINAGE BELOW GROUND</b></p> <p><b><u>Excavating trenches to receive pipes not exceeding 200 nominal size; disposing of surplus excavated material off site</u></b></p> <p>Commencing from formation level; filling in above beds and coverings with imported Type 1 granular material up to formation level</p>					
A	average depth 750 - 1000	45 m	UNP		
B	average depth 1000 - 1250	44 m	UNP		
C	average depth 1250 - 1500	39 m	UNP		
D	average depth 2000 - 2250	4 m	UNP		
<p><b><u>Extra over drainage trenches generally</u></b></p> <p>Breaking up obstructions, rock, concrete, brick and the like</p>					
E	generally; make allowance as deemed necessary	1 Item	UNP		
<p>Protection / diversion / working around existing services and drainage</p>					
F	generally; make allowance as deemed necessary	1 Item	UNP		
<p><b><u>Plain in-situ concrete: mix 1:12 all in aggregate</u></b></p> <p>Beds and Surrounds ( trench sizes are assumed and are at contractors discretion )</p>					
G	300 x 150 bed; 250 thick surround to 100 nominal size pipe	75 m	UNP		
H	450 x 150 bed; 300 thick surround to 150 nominal size pipe	102 m	UNP		
<p><b><u>Vitrified clay pipes or plastic pipes and fittings; Hepworth / Osma or similar approved; push-fit polypropylene flexible couplings</u></b></p> <p>Pipework in trenches</p>					
J	100 nominal size	75 m	UNP		
				<b>0</b>	<b>00</b>

<p><b>R12: FOUL DRAINAGE BELOW GROUND</b></p> <p><u>Vitrified clay pipes or plastic pipes and fittings; Hepworth / Osma or similar approved; push-fit polypropylene flexible couplings</u></p> <p>Pipework in trenches</p>					
A	extra; bends	26 Nr	UNP		
B	extra; SVP adaptor	12 Nr	UNP		
C	extra; gully	1 Nr	UNP		
D	extra; rest bends	13 Nr	UNP		
E	extra; branches 100/100	2 Nr	UNP		
F	extra; fittings	1 Item	UNP		
G	150 nominal size	102 m	UNP		
H	extra; bends	10 Nr	UNP		
J	extra; fittings	1 Item	UNP		
<p><b><u>Gullies and collection channels in concrete or the like</u></b></p> <p>Floor gullies; B.S.5911; joint to pipe; bedding and surrounding in concrete; allow all associated work</p>					
K	100 outlet trapped round	1 nr	UNP		
<p><b><u>Brick manholes</u></b></p>					
				0	00

<b>R12: FOUL DRAINAGE BELOW GROUND</b>				
<b><u>Brick manholes</u></b>				
Brick manholes; excavation, disposal, earthwork support, levelling and compacting bottoms, 150 thick in-situ concrete bed, 225 thick engineering brick walls; 1240 x 675 D400 access cover and frame on class B engineering brick raising courses, 150 high, bedded in cement mortar; rocker pipes to branches, backfilling with granular material; vitrified clay half round channel internally with concrete haunching; step irons; pipe arch; Manhole type C; as WYG drawing D-(80) 003 Rev T1				
A	internal clear dimensions 1240 x 675; not exceeding 1.00m deep; D400 vented cover screwed down and double sealed for internal use ASUSMED	1 Nr	UNP	
B	internal clear dimensions 1240 x 675; not exceeding 1.00m deep; D400 vented cover; built on line of existing run ASUSMED	1 Nr	UNP	
C	internal clear dimensions 1240 x 675; 1.00 - 1.50m deep; D400 vented cover screwed down and double sealed for internal use ASUSMED	2 Nr	UNP	
Extra over precast brick manholes of any type for building in ends of pipes				
D	100 diameter	9 Nr	UNP	
E	150 diameter	6 Nr	UNP	
<b><u>Precast concrete manholes</u></b>				
Precast concrete straight shaft manholes; excavation, disposal, earthwork support, levelling and compacting bottoms, 225 thick RC30 grade in-situ concrete bed, precast concrete chamber rings with proprietary bitumen or resin mastic sealant, 150 thick RC30 grade in situ concrete surround, formwork, benching and channels with high strength concrete topping minimum 20 thick, heavy duty precast concrete cover slab on class B engineering brick raising courses, 150 high, bedded in cement mortar, galvanised mild steel step irons at 300 centres, rocker pipes to branches, backfilling with granular material; manhole cover and frame; manhole type B; as WYG drawing D-(80) 003 Rev T1				
F	1200 diameter; 1.50 - 2.00m deep; D400 cover	1 Nr	UNP	
G	1200 diameter; 2.50 - 3.00m deep; D400 cover; built on line of existing run	1 Nr	UNP	
Extra over precast concrete manholes of any type for building in ends of pipes				
				<b>0 00</b>

	<b>R12: FOUL DRAINAGE BELOW GROUND</b>				
	<b><u>Precast concrete manholes</u></b>				
	Extra over precast concrete manholes of any type for building in ends of pipes				
A	150 diameter		3 Nr	UNP	
	<b><u>Inspection chambers: PPIC</u></b>				
	Manholes; excavation; disposal; earthwork support; level and compact base; pea gravel base and surround; cover and frame				
B	450 diameter; not exceeding 1.00m deep; B125 cover ASSUMED		1 Nr	UNP	
	<b><u>Various locations on / off site: excavating searching for locating and exposing existing foul sewer for final connection; make good on completion</u></b>				
	Connecting an existing * diameter drain run into a new 1200 diameter manhole (F5)				
C	approximately 864 deep		1 nr	UNP	
	Connecting 2nr existing * diameter drain runs into a new 1200 diameter manhole (F4)				
D	approximately 2738 deep		1 nr	UNP	
	<b><u>Testing and commissioning</u></b>				
	Testing the foul water system				
E	for performance		1 Item	UNP	
	CCTV survey				
F	foul system		1 Item	UNP	
					0 00

		Collection From:			
		Drainage Page 1/1			0 00
		Drainage Page 1/2			0 00
		Drainage Page 1/3			0 00
		Drainage Page 1/4			0 00
		Drainage Page 1/5			0 00
		Drainage Page 1/6			0 00
		Drainage Page 1/7			0 00
		Drainage Page 1/8			0 00
		Drainage Page 1/9			0 00
		Drainage Page 1/10			0 00
		Drainage Page 1/11			0 00
		Drainage Page 1/12			0 00
<b>Drainage carried to Summary</b>					<b>0 00</b>

DRAFT

	<p style="text-align: center;"><b>Collection From:</b> Drainage Page 1/13</p>			0	00
	<p style="font-size: 48px; opacity: 0.5; transform: rotate(-30deg);">DRAFT</p>				
				<b>Externals carried to Summary</b>	<b>0 00</b>

