

Project name	Clays Farm, Yapton		
Design note title	Proposed Drainage Technical Note		
Document reference	18301-HYD-XX-XX-TN-C-7000		
Author	James Welch		
Revision	01		
Date	3 February 2021	Approved	✓

Proposed Drainage Assessment - Clays Farm, Yapton

Hydrock Consultants have been commissioned by Aster Group to complete a proposed drainage strategy for the above-mentioned scheme. This Technical Note should be read in accordance with the following drawings.

- 18301-HYD-00-ZZ-DR-7000_01 - Proposed Drainage Strategy - Sheet 1 of 2
- 18301-HYD-00-ZZ-DR-7000_01 - Proposed Drainage Strategy - Sheet 1 of 2

1. EXISTING SITE

1.1 Existing Topography

The existing site is generally greenfield with a small area of rough ground associated with the farm buildings and stables. The levels generally fall from the north and east boundaries to the southwest corner of the site. The level difference is approximately 1.6m over a distance of 145m; the fall across the site is 1:90. The site area is 1.69(ha).

1.2 Existing Ground Conditions and Soakaways

The infiltration tests carried out by Soils Limited demonstrated that the rate was 5.26×10^{-6} and not suitable as a means for discharging the site. The report reference is 17887/LR.

1.3 Existing Drainage Assets

There are no drainage systems on the site with all storm and foul presumably discharging to the existing field or via historical septic tanks and soakaways that would not meet modern standards.

As shown in **Appendix A** of this technical note Southern Water do have apparatus within the vicinity of the existing access. There appears to be a 175mm foul gravity sewer with manhole 8701 located at the site entrance. Foul manhole 8701 has a cover level of 5.96m and an invert level of 4.12m.

1.4 Existing Greenfield Runoff Rate

The existing greenfield runoff rate has been modelled using the Windes MicroDrainage ICP SUDS Mean Annual Flood method. The calculations are shown in **Appendix B** of this technical note and demonstrate that the QBAR (mean annual average) greenfield runoff rate is 6.3(l/s).

2. PROPOSED DISCHARGE RATE FROM SITE

2.1 Storm Water Proposed Discharge Rate

With soakaways not feasible and no watercourse within the vicinity of the site the only feasible point of discharge for the storm water is to the existing Southern Water foul sewer at existing manhole 8701.

Discharging at the greenfield runoff rate would not be acceptable on this site as the topography does not drain towards the sewer system or highway infrastructure.

In accordance with the CIRIA Report C753 The SUDS Manual chapter 24.10.1 where there is additional discharge as a result of the proposed development this additional discharge should be restricted to a minimum of 2 litres per second per hectare. The proposed development area is 1.69(ha) meaning the proposed peak discharge rate for storm water from the development should be 3.4(l/s).

2.2 Foul Water Proposed Discharge Rate

Southern Water have an obligation to take the foul water discharge from the development. Based on 33 dwellings and in accordance with Sewers for Adoption the design rate for dwellings should be 4000 litres per dwelling per day. Based on this rate the peak foul discharge rate will be $4000 \times 33 = 132000$ (l/d) which is 1.5(l/s).

3. PROPOSED STORM WATER NETWORK

3.1 Proposed Drainage System

The proposed storm water network is to discharge via gravity to the existing foul water sewer at the site entrance. The storm water network and associated cover to the pipework determines the proposed levels on site. To ensure the levels are not raised significantly and to a point that is uneconomical the downstream lengths of drains are oversized at 375mm diameter so pipe gradients can be kept as shallow as possible.

The proposed network has been restricted to 3.4(l/s) as per the above-mentioned restricted discharge rate. The discharge has been restricted using a hydrobrake flow control device. The network has been modelled up to and including a 1in100yr+40% climate change storm event with no flooding up to and including the 1:30yr event and limited flooding for the 1in100yr+CC event. The calculations are shown in **Appendix C** of this technical note. Attenuation is provided within a pond/dry basin to the south of the site within the proposed soft landscaped area.

All storm drainage within the development is to remain private. The connection of the proposed combined final outlet is subject to a S106 agreement with the local water authority.

3.2 Proposed Flooding

There is limited flooding during the 1in100yr+CC event. It is anticipated that such flooding can be stored above ground within low points of parking, road design etc ensuring properties do not flood. Such is the nature of the levels that the overland flow routes will direct any flooding to the proposed pond where sufficient additional storage is provided.

3.3 Flood Exceedance Routes

The proposed topography will generally drain the site to the west as per the existing topography. Any flooding from events that exceed the 1in100yr+CC event will follow the same flood exceedance routes and will not cause flooding of any proposed properties. For areas of the site to the west the over land flow routes will follow the natural existing topography of the site and will discharge per existing routes. At the site access the small area of access falls towards the existing highway; any minor flooding in this area will discharge to the highway as per the existing scenario but at a far reduced volume.

4. PROPOSED FOUL WATER NETWORK

4.1 Proposed Drainage System

At the entrance to the site the foul system and the storm system combine prior to the final connection. The foul water system follows the storm water system in layout but due to the level of the existing Southern Water network the proposed system cannot discharge via gravity. The system therefore needs to be pumped with a pump located in the south east corner of the development. The pump is located 15m from all timetable dwellings as per the requirements of a type 3 pump station. The pump discharges via a breakout chamber within the entrance of the site to discharge to the existing sewer via gravity.

All foul drainage within the development is to remain private. The connection of the proposed combined final outlet is subject to a S106 agreement with the local water authority.

4.2 Pump Station Rate and Volumes

Based on 33 dwellings and sizing the pump station using the Sewers for Adoption approach the peak discharge rate should be based on 4000(l/dwelling/day). The peak pump rate is therefore 1.5(l/s).

The 24-hour emergency storage volume required is based on 160(l/dwelling) and should therefore be 5.3m³.

5. POLLUTION CONTROL

The development is anticipated to have a very low risk of pollution and no additional control measures are required. The site does not discharge to a watercourse or groundwater and other than standard vehicle usage associated with a residential development there are no additional risks.

6. PROPOSED MAINTENANCE STRATEGY

The following maintenance strategy is to be followed for all drainage associated with the development. It is the responsibility of the individual plot owners to maintain the drainage within their ownership. The site wide networks are to be managed by an appointed maintenance contractor.

6.1 Surface Water Channels

To be monitored and cleaned via jetting when any debris/ silt reduces the cross-sectional area by 25% or more. Inspection to include both the channel and silt trap/ gully outlets. To be completed Yearly.

6.2 Manholes Generally

To be inspected for debris and integrity. Any man-entry into manholes should be by trained personnel with adequate personal protective equipment. Approved safety procedures must be followed. To be completed twice a year.

6.3 Below Ground Drainage Generally

Drainage inspected for integrity and debris by CCTV. To be completed every 10 years.

6.4 Pump Station

Maintenance to be provided by and in accordance with the supplier's requirements.

6.5 Swales

Remove litter and debris. To be completed monthly.

Cut grass - to retain grass height within specified design range. To be completed monthly during growing period or as required.

Manage other vegetation and remove nuisance plants. To be completed monthly during initial period and then as required.

Inspect inlets outlets and overflows for blockages, and clear if required. To be completed monthly.

Inspect vegetation coverage. To be completed monthly for 6 months, quarterly for 2 years, then half yearly.

Inspect inlet and facility surfaces for silt accumulation and to establish appropriate silt removal frequencies. To be completed half yearly.

Reseed areas of poor vegetation growth, alter plant types to better suit conditions. To be completed as required or if bare soil is exposed over 10% or more of the swale treatment area.

Repair erosion or other damage by re-turfing or reseeding as required.

Relevel uneven surfaces and reinstate design levels as required.

Appendix A



(c) Crown copyright and database rights 2020 Ordnance Survey 100031673 Date: 15/09/20 Scale: 1:1250 Map Centre: 497805,103877 Data updated: 18/08/20 Our Ref: 437113 - 1 Wastewater Plan A4

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2020 Ordnance Survey 100031673. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

chris.williams@drewsmith.co.uk

Clays Farm

WATER for LIFE

from Southern Water.

Legend

Manholes

- Foul Manhole
- Combined Manhole
- Surface Water Manhole
- Rise Entry Manhole
- Down Entry Manhole
- Down Entry Manhole or Down Entry Manhole or Down Entry Manhole

Stations

- Combined Pumping Station
- Surface Water Pumping Station
- Foul Pumping Station
- Water Treatment Works
- Section 104 Area
- Building Overlap
- Agreement Area

Lines

- Foul Gravity Sewer
- Combined Gravity Sewer
- Surface Water Gravity Sewer
- Combined Outfall
- Surface Water Outfall
- Surface Water Inlet
- Rising Main, Vacuum or Siphon
- Four Outfall
- Four Outfall

Appendix B

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Date 21/09/2020 15:45 File	Designed by jameswelch Checked by	
Innovyze Source Control 2018.1.1		
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 1 Soil 0.400 Area (ha) 1.690 Urban 0.000 SAAR (mm) 759 Region Number Region 7 Results l/s QBAR Rural 6.3 QBAR Urban 6.3 Q1 year 5.4 Q1 year 5.4 Q30 years 14.3 Q100 years 20.2		
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Appendix C

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Date 03/02/2021 13:45					Designed by jameswelch					
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Innovyze					Network 2018.1.1					
Existing Network Details for Storm										
PN	Length	Fall	Slope	I.Area	T.E.	k	HYD	DIA	Section	Type
	(m)	(m)	(1:X)	(ha)	(mins)	(mm)	SECT	(mm)		
S1.000	28.000	0.095	294.7	0.045	5.00	0.600	o	300	Pipe/Conduit	
S2.000	24.300	0.270	90.0	0.079	5.00	0.600	o	150	Pipe/Conduit	
S1.001	38.900	0.170	228.8	0.100	0.00	0.600	o	300	Pipe/Conduit	
S1.002	16.200	0.055	294.5	0.007	0.00	0.600	o	375	Pipe/Conduit	
S1.003	35.600	0.120	296.7	0.000	0.00	0.600	o	375	Pipe/Conduit	
S3.000	40.200	0.240	167.5	0.100	5.00	0.600	o	225	Pipe/Conduit	
S3.001	29.000	0.135	214.8	0.070	0.00	0.600	o	300	Pipe/Conduit	
S4.000	31.100	0.475	65.5	0.034	5.00	0.600	o	150	Pipe/Conduit	
S3.002	19.300	0.090	215.0	0.073	0.00	0.600	o	300	Pipe/Conduit	
S1.004	13.600	0.050	272.0	0.013	0.00	0.600	o	375	Pipe/Conduit	
S1.005	27.400	0.095	288.4	0.012	0.00	0.600	o	375	Pipe/Conduit	
S1.006	21.400	0.075	285.3	0.013	0.00	0.600	o	375	Pipe/Conduit	
S1.007	69.500	0.230	302.2	0.046	0.00	0.600	o	375	Pipe/Conduit	
S1.008	2.500	0.025	100.0	0.000	0.00	0.600	o	150	Pipe/Conduit	
PN	US/MH	US/CL	US/IL	US	DS/CL	DS/IL	DS		Ctrl	US/MH
	Name	(m)	(m)	C.Depth	(m)	(m)	C.Depth			(mm)
				(m)			(m)			
S1.000	SW01	6.625	5.125	1.200	6.550	5.030	1.220			1200
S2.000	SW02	6.800	5.450	1.200	6.550	5.180	1.220			1200
S1.001	SW03	6.550	5.030	1.220	6.150	4.860	0.990			1200
S1.002	SW04	6.150	4.860	0.915	6.100	4.805	0.920			1350
S1.003	SW05	6.100	4.805	0.920	6.260	4.685	1.200			1350
S3.000	SW06	6.650	5.225	1.200	7.000	4.985	1.790			1200
S3.001	SW07	7.000	4.910	1.790	6.400	4.775	1.325			1200
S4.000	SW08	6.750	5.400	1.200	6.400	4.925	1.325			1200
S3.002	SW09	6.400	4.775	1.325	6.260	4.685	1.275			1200
S1.004	SW10	6.260	4.685	1.200	6.400	4.635	1.390			1350
S1.005	SW11	6.400	4.635	1.390	6.775	4.540	1.860			1350
S1.006	SW12	6.775	4.540	1.860	6.650	4.465	1.810			1350
S1.007	SW13	6.650	4.465	1.810	6.230	4.235	1.620			1350
S1.008	HB	6.230	4.235	1.845	6.150	4.210	1.790	Hydro-Brake®		1350
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<u>Manhole Schedules for Storm</u>											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diam (mm)	
SSW01	6.625	1.500	Open Manhole	1200	S1.000	5.125	300				
SSW02	6.800	1.350	Open Manhole	1200	S2.000	5.450	150				
SSW03	6.550	1.520	Open Manhole	1200	S1.001	5.030	300	S1.000	5.030		
								S2.000	5.180		
SSW04	6.150	1.290	Open Manhole	1350	S1.002	4.860	375	S1.001	4.860		
SSW05	6.100	1.295	Open Manhole	1350	S1.003	4.805	375	S1.002	4.805		
SSW06	6.650	1.425	Open Manhole	1200	S3.000	5.225	225				
SSW07	7.000	2.090	Open Manhole	1200	S3.001	4.910	300	S3.000	4.985		
SSW08	6.750	1.350	Open Manhole	1200	S4.000	5.400	150				
SSW09	6.400	1.625	Open Manhole	1200	S3.002	4.775	300	S3.001	4.775		
								S4.000	4.925		
SSW10	6.260	1.575	Open Manhole	1350	S1.004	4.685	375	S1.003	4.685		
								S3.002	4.685		
SSW11	6.400	1.765	Open Manhole	1350	S1.005	4.635	375	S1.004	4.635		
SSW12	6.775	2.235	Open Manhole	1350	S1.006	4.540	375	S1.005	4.540		
SSW13	6.650	2.185	Open Manhole	1350	S1.007	4.465	375	S1.006	4.465		
SHB	6.230	1.995	Open Manhole	1350	S1.008	4.235	150	S1.007	4.235		
S	6.150	1.940	Open Manhole	0		OUTFALL		S1.008	4.210		
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<u>PIPELINE SCHEDULES for Storm</u> <u>Upstream Manhole</u>									
PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
S1.000	o	300	SSW01	6.625	5.125	1.200	Open Manhole		1200
S2.000	o	150	SSW02	6.800	5.450	1.200	Open Manhole		1200
S1.001	o	300	SSW03	6.550	5.030	1.220	Open Manhole		1200
S1.002	o	375	SSW04	6.150	4.860	0.915	Open Manhole		1350
S1.003	o	375	SSW05	6.100	4.805	0.920	Open Manhole		1350
S3.000	o	225	SSW06	6.650	5.225	1.200	Open Manhole		1200
S3.001	o	300	SSW07	7.000	4.910	1.790	Open Manhole		1200
S4.000	o	150	SSW08	6.750	5.400	1.200	Open Manhole		1200
S3.002	o	300	SSW09	6.400	4.775	1.325	Open Manhole		1200
S1.004	o	375	SSW10	6.260	4.685	1.200	Open Manhole		1350
S1.005	o	375	SSW11	6.400	4.635	1.390	Open Manhole		1350
S1.006	o	375	SSW12	6.775	4.540	1.860	Open Manhole		1350
S1.007	o	375	SSW13	6.650	4.465	1.810	Open Manhole		1350
S1.008	o	150	SHB	6.230	4.235	1.845	Open Manhole		1350
<u>Downstream Manhole</u>									
PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)	
S1.000	28.000	294.7	SSW03	6.550	5.030	1.220	Open Manhole		1200
S2.000	24.300	90.0	SSW03	6.550	5.180	1.220	Open Manhole		1200
S1.001	38.900	228.8	SSW04	6.150	4.860	0.990	Open Manhole		1350
S1.002	16.200	294.5	SSW05	6.100	4.805	0.920	Open Manhole		1350
S1.003	35.600	296.7	SSW10	6.260	4.685	1.200	Open Manhole		1350
S3.000	40.200	167.5	SSW07	7.000	4.985	1.790	Open Manhole		1200
S3.001	29.000	214.8	SSW09	6.400	4.775	1.325	Open Manhole		1200
S4.000	31.100	65.5	SSW09	6.400	4.925	1.325	Open Manhole		1200
S3.002	19.300	215.0	SSW10	6.260	4.685	1.275	Open Manhole		1350
S1.004	13.600	272.0	SSW11	6.400	4.635	1.390	Open Manhole		1350
S1.005	27.400	288.4	SSW12	6.775	4.540	1.860	Open Manhole		1350
S1.006	21.400	285.3	SSW13	6.650	4.465	1.810	Open Manhole		1350
S1.007	69.500	302.2	SHB	6.230	4.235	1.620	Open Manhole		1350
S1.008	2.500	100.0	S	6.150	4.210	1.790	Open Manhole		0
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<u>Free Flowing Outfall Details for Storm</u> <table border="1"> <thead> <tr> <th>Outfall Pipe Number</th> <th>Outfall Name</th> <th>C. Level (m)</th> <th>I. Level (m)</th> <th>Min I. Level (m)</th> <th>D,L (mm)</th> <th>W (mm)</th> </tr> </thead> <tbody> <tr> <td>S1.008</td> <td>S</td> <td>6.150</td> <td>4.210</td> <td>0.000</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <u>Simulation Criteria for Storm</u> Volumetric Runoff Coeff 0.750 Additional Flow - % of Total Flow 0.000 Areal Reduction Factor 1.000 MADD Factor * 10m³/ha Storage 0.000 Hot Start (mins) 0 Inlet Coefficient 0.800 Hot Start Level (mm) 0 Flow per Person per Day (l/per/day) 0.000 Manhole Headloss Coeff (Global) 0.500 Run Time (mins) 60 Foul Sewage per hectare (l/s) 0.000 Output Interval (mins) 1 Number of Input Hydrographs 0 Number of Storage Structures 1 Number of Online Controls 1 Number of Time/Area Diagrams 0 Number of Offline Controls 0 Number of Real Time Controls 0 <u>Synthetic Rainfall Details</u> <table border="1"> <tbody> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Profile Type</td> <td>Summer</td> </tr> <tr> <td>Return Period (years)</td> <td>2</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>19.200</td> <td>Storm Duration (mins)</td> <td>30</td> </tr> <tr> <td>Ratio R</td> <td>0.341</td> <td></td> <td></td> </tr> </tbody> </table>			Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)	S1.008	S	6.150	4.210	0.000	0	0	Rainfall Model	FSR	Profile Type	Summer	Return Period (years)	2	Cv (Summer)	0.750	Region	England and Wales	Cv (Winter)	0.840	M5-60 (mm)	19.200	Storm Duration (mins)	30	Ratio R	0.341		
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S1.008	S	6.150	4.210	0.000	0	0																														
Rainfall Model	FSR	Profile Type	Summer																																	
Return Period (years)	2	Cv (Summer)	0.750																																	
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Ratio R	0.341																																			
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Online Controls for Storm

Hydro-Brake® Optimum Manhole: SHB, DS/PN: S1.008, Volume (m³): 10.4

Unit Reference	MD-SHE-0075-3400-1995-3400
Design Head (m)	1.995
Design Flow (l/s)	3.4
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	75
Invert Level (m)	4.235
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.995	3.4
Flush-Flo™	0.331	2.6
Kick-Flo®	0.673	2.1
Mean Flow over Head Range	-	2.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	1.200	2.7	3.000	4.1	7.000	6.1
0.200	2.5	1.400	2.9	3.500	4.4	7.500	6.3
0.300	2.6	1.600	3.1	4.000	4.7	8.000	6.5
0.400	2.5	1.800	3.2	4.500	5.0	8.500	6.7
0.500	2.5	2.000	3.4	5.000	5.2	9.000	6.9
0.600	2.3	2.200	3.6	5.500	5.5	9.500	7.1
0.800	2.2	2.400	3.7	6.000	5.7		
1.000	2.5	2.600	3.8	6.500	5.9		

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Hydrock Consultants Ltd		Page 7
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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	0.000
Hot Start Level (mm)	0	Inlet Coefficient	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 of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.341
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	19.200	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	SSW01	15 Winter	1	+0%	100/15 Summer			
S2.000	SSW02	15 Winter	1	+0%	30/15 Summer	100/15 Summer		
S1.001	SSW03	15 Winter	1	+0%	100/15 Summer			
S1.002	SSW04	15 Winter	1	+0%	100/15 Summer			
S1.003	SSW05	15 Winter	1	+0%	100/60 Winter			
S3.000	SSW06	15 Winter	1	+0%	100/15 Summer			
S3.001	SSW07	15 Winter	1	+0%	100/15 Summer			
S4.000	SSW08	15 Winter	1	+0%	100/15 Summer			
S3.002	SSW09	15 Winter	1	+0%	30/15 Summer			
S1.004	SSW10	480 Winter	1	+0%	30/240 Winter			
S1.005	SSW11	480 Winter	1	+0%	30/60 Winter			
S1.006	SSW12	480 Winter	1	+0%	30/60 Summer			
S1.007	SSW13	480 Winter	1	+0%	30/15 Summer			
S1.008	SHB	480 Winter	1	+0%	1/15 Summer	100/60 Summer		

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Date 03/02/2021 13:45				Designed by jameswelch					
File Clays Farm Aster.MDX				Checked by					
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<u>30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm</u>								
		Water	Surcharged	Flooded			Pipe	
PN	US/MH	Level	Depth	Volume	Flow /	Overflow	Flow	Level
	Name	(m)	(m)	(m³)	Cap.	(l/s)	(l/s)	Exceeded
S1.000	SSW01	5.289	-0.136	0.000	0.23		13.6	OK
S2.000	SSW02	5.807	0.207	0.000	1.32		23.5	SURCHARGED 2
S1.001	SSW03	5.273	-0.057	0.000	0.98		66.2	OK
S1.002	SSW04	5.097	-0.138	0.000	0.71		67.3	OK
S1.003	SSW05	5.091	-0.089	0.000	0.09		9.0	OK
S3.000	SSW06	5.381	-0.069	0.000	0.80		30.2	OK
S3.001	SSW07	5.178	-0.032	0.000	0.72		49.3	OK
S4.000	SSW08	5.475	-0.075	0.000	0.49		10.3	OK
S3.002	SSW09	5.106	0.031	0.000	1.22		79.6	SURCHARGED
S1.004	SSW10	5.095	0.035	0.000	1.01		96.0	SURCHARGED
S1.005	SSW11	5.377	0.367	0.000	0.91		92.9	SURCHARGED
S1.006	SSW12	5.760	0.845	0.000	0.79		78.8	SURCHARGED
S1.007	SSW13	5.922	1.082	0.000	0.35		38.3	SURCHARGED
S1.008	SHB	6.068	1.683	0.000	0.29		3.1	FLOOD RISK 14
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Hydrock Consultants Ltd				Page 11																																																																																																																																										
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S1.006	SSW12	960 Winter	100	+40%	30/60 Summer																																																																																																																																									
S1.007	SSW13	960 Winter	100	+40%	30/15 Summer																																																																																																																																									
S1.008	SHB	960 Winter	100	+40%	1/15 Summer	100/60 Summer																																																																																																																																								
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Date 03/02/2021 13:45				Designed by jameswelch					
File Clays Farm Aster.MDX				Checked by					
Innovyze				Network 2018.1.1					
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm</u>									
		Water	Surcharged	Flooded		Pipe			
PN	US/MH Name	Level (m)	Depth (m)	Volume (m³)	Flow / Overflow Cap. (l/s)	Flow (l/s)	Status	Level Exceeded	
S1.000	SSW01	5.759	0.334	0.000	0.41	23.6	SURCHARGED		
S2.000	SSW02	6.801	1.201	0.630	2.14	38.0	FLOOD		2
S1.001	SSW03	5.731	0.401	0.000	1.63	110.8	SURCHARGED		
S1.002	SSW04	5.472	0.237	0.000	0.13	12.6	SURCHARGED		
S1.003	SSW05	5.472	0.292	0.000	0.12	12.6	SURCHARGED		
S3.000	SSW06	6.113	0.663	0.000	1.38	52.3	SURCHARGED		
S3.001	SSW07	5.640	0.430	0.000	1.28	87.6	SURCHARGED		
S4.000	SSW08	5.740	0.190	0.000	0.84	17.8	SURCHARGED		
S3.002	SSW09	5.473	0.398	0.000	0.21	13.7	SURCHARGED		
S1.004	SSW10	5.472	0.412	0.000	1.82	172.3	SURCHARGED		
S1.005	SSW11	5.975	0.965	0.000	1.50	154.2	SURCHARGED		
S1.006	SSW12	6.293	1.378	0.000	1.32	132.4	SURCHARGED		
S1.007	SSW13	6.296	1.456	0.000	0.59	64.2	SURCHARGED		
S1.008	SHB	6.233	1.848	2.541	0.31	3.4	FLOOD		14
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