

Surface Water Drainage Design Summary and Calculations		
Project Name:	Naldretts Farm, Pookbourne Lane	
Project Number:	D2334	
Client:	SDP	
Prepared by and Date:	LF	17/02/25



Site Address:	Land north of Mill Lane, Hassocks.	
Local Authority:	Mid Sussex District Council	
Lead Local Flood Authority:	West Sussex County Council	
Site Area:	5.8Ha	
Geology:	Clay	
Green Field Runoff rate (Qbar):	26.8l/s	
Ground Water Depth:	TBC	
Soil Infiltration rate:	N/A	
Nearby watercourse:	Local watercourses	
Nearby surface water sewer:	None	
Proposed method of disposal and reason:	To existing watercourse	
Design storms considered:	1:100 yr (FEH)	
Climate change:	45%	
Proposed Catchment Area:		
Proposed discharge Rate:	26.8l/s	
Flow control method	Hydrobrake	
Volume of Storage Provided and method:	3163m3	
Offsite works:	None	
Notes:	The proposed drainage system has been designed following the strategy set out in the Flood Risk Assessment prepared by Water Environment Ltd referenced 17061. This includes a system of under-pitch drainage pipes connected to a traditional below ground pipe network, which discharges to a surface water storage lagoon. The lagoon has a restricted outlet to the existing local watercourse with a discharge rate matching QBar (26.8l/s). The catchment area (pitch) has been taken as impermeable as requested by the LPA.	

	The lagoon is dual purpose providing irrigation water for the pitch. The volume provided for this operation allows for approximately 10 irrigation session, although this does not account for the water that will return to the lagoon through the drainage system. In addition to the pitch drainage system, in order to ensure that the construction of the pitch does not increase flood risk existing overland flow paths are accommodated by the installation of a dedicated interception system which connects to the existing receptor watercourse. The catchment, based on LiDAR data is approximately 4.5Ha but to provide a factor of safety Qbar has been calculated based on 6Ha and the pipework sized accordingly.
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Surface Water Drainage Calculations



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	30	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.400	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S2	0.815	5.00	23.913	1350	527863.857	119440.536	1.620
S8			22.931	1350	527839.392	119364.369	1.589
S6	1.126	5.00	21.422	1500	527784.343	119192.993	1.501
S3	0.573	5.00	22.133	1500	527811.867	119278.681	2.347
S4			18.200	1800	527745.440	119303.382	1.359
S10	0.286	5.00	18.200	1800	527701.595	119297.636	1.400
S12			18.000	1800	527695.596	119294.329	1.268
S11			16.800	450	527680.877	119294.404	0.650

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S2	S8	80.000	0.600	22.293	21.342	0.951	84.1	525	5.55	50.0
1.001	S8	S3	90.000	0.600	21.342	20.011	1.331	67.6	450	6.15	50.0
2.000	S6	S3	90.000	0.600	19.921	19.786	0.135	666.7	675	6.49	50.0
1.002	S3	S4	70.872	0.600	19.786	16.850	2.936	24.1	675	6.71	50.0
1.004	S10	S12	6.850	0.600	16.800	16.732	0.068	100.0	225	5.09	50.0
1.005	S12	S11	14.720	0.600	16.732	16.150	0.582	25.3	225	5.18	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.443	528.8	58.9	1.095	1.064	0.815	0.0	117	1.637
1.001	2.475	393.6	58.9	1.139	1.672	0.815	0.0	116	1.798
2.000	1.007	360.5	81.4	0.826	1.672	1.126	0.0	217	0.820
1.002	5.347	1913.6	181.7	1.672	0.675	2.514	0.0	139	3.437
1.004	1.307	52.0	20.7	1.175	1.043	0.286	0.0	99	1.236
1.005	2.612	103.8	20.7	1.043	0.425	0.286	0.0	68	2.053

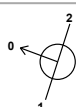
Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	80.000	84.1	525	Circular	23.913	22.293	1.095	22.931	21.342	1.064
1.001	90.000	67.6	450	Circular	22.931	21.342	1.139	22.133	20.011	1.672
2.000	90.000	666.7	675	Circular	21.422	19.921	0.826	22.133	19.786	1.672
1.002	70.872	24.1	675	Circular	22.133	19.786	1.672	18.200	16.850	0.675
1.004	6.850	100.0	225	Circular	18.200	16.800	1.175	18.000	16.732	1.043
1.005	14.720	25.3	225	Circular	18.000	16.732	1.043	16.800	16.150	0.425

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S2	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.001	S8	1350	Manhole	Adoptable	S3	1500	Manhole	Adoptable
2.000	S6	1500	Manhole	Adoptable	S3	1500	Manhole	Adoptable
1.002	S3	1500	Manhole	Adoptable	S4	1800	Manhole	Adoptable
1.004	S10	1800	Manhole	Adoptable	S12	1800	Manhole	Adoptable
1.005	S12	1800	Manhole	Adoptable	S11	450	Manhole	Adoptable



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S2	527863.857	119440.536	23.913	1.620	1350		0	1.000	22.293	525
S8	527839.392	119364.369	22.931	1.589	1350		1	1.000	21.342	525
S6	527784.343	119192.993	21.422	1.501	1500		0	1.001	21.342	450
S3	527811.867	119278.681	22.133	2.347	1500		1 2 2	2.000 2.000 1.001	19.921 19.786 20.011	675 675 450
S4	527745.440	119303.382	18.200	1.359	1800		0 1	1.002 1.002	19.786 16.850	675 675
S10	527701.595	119297.636	18.200	1.400	1800		0	1.004	16.800	225
S12	527695.596	119294.329	18.000	1.268	1800		1 0	1.004 1.005	16.732 16.732	225 225
S11	527680.877	119294.404	16.800	0.650	450		1	1.005	16.150	225

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	45	0	0

Node S12 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	16.140	Product Number	CTL-SHE-0211-2680-2000-2680
Design Depth (m)	2.000	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	26.8	Min Node Diameter (mm)	1800

Node S10 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	41.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	16.800	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025



Inlets
S4

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	1488.3	0.0	0.800	1872.1	0.0	1.600	2299.9	0.0	2.400	2772.5	0.0
0.100	1533.5	0.0	0.900	1922.8	0.0	1.700	2356.6	0.0	2.500	2834.7	0.0
0.200	1580.2	0.0	1.000	1974.0	0.0	1.800	2413.9	0.0	2.600	2897.5	0.0
0.300	1627.4	0.0	1.100	2027.1	0.0	1.900	2471.9	0.0	2.700	2961.1	0.0
0.400	1675.2	0.0	1.200	2080.3	0.0	2.000	2530.6	0.0	2.800	3025.4	0.0
0.500	1723.6	0.0	1.300	2134.2	0.0	2.100	2590.1	0.0	2.900	3090.4	0.0
0.600	1772.5	0.0	1.400	2188.7	0.0	2.200	2650.2	0.0	3.000	3156.0	0.0
0.700	1822.1	0.0	1.500	2244.0	0.0	2.300	2711.0	0.0			



Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S2	11	23.908	1.615	540.0	2.3115	0.0000	FLOOD RISK
15 minute winter	S8	11	22.882	1.540	515.0	2.2042	0.0000	FLOOD RISK
15 minute winter	S6	10	20.961	1.040	745.9	1.8385	0.0000	SURCHARGED
15 minute winter	S3	11	20.313	0.527	1597.9	0.9304	0.0000	OK
480 minute winter	S4	464	17.927	1.086	198.8	2.7642	0.0000	OK
480 minute winter	S10	464	17.927	1.127	123.6	2.8686	0.0000	FLOOD RISK
480 minute winter	S12	464	17.902	1.170	27.0	2.9787	0.0000	FLOOD RISK
60 minute summer	S11	219	16.228	0.078	26.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S2	1.000	S8	515.0	2.583	0.974	17.2826	
15 minute winter	S8	1.001	S3	512.0	3.232	1.301	14.1157	
15 minute winter	S6	2.000	S3	737.4	2.130	2.046	29.5067	
15 minute winter	S3	1.002	S4	1611.4	5.781	0.842	19.7139	
480 minute winter	S4	Flow through pond	S10	101.0	0.053	0.000	1939.7626	
480 minute winter	S10	1.004	S12	27.0	0.680	0.520	0.2724	
480 minute winter	S12	1.005	S11	26.8	2.115	0.258	0.1864	933.6



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	30	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.400	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S14		5.00	21.255	1200	527784.893	119188.507	2.615
S15	0.000	5.00	17.977	1200	527768.552	119219.991	0.827
S13			17.600	1200	527754.473	119246.962	0.810

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S14	S15	35.472	0.600	18.640	17.150	1.490	23.8	300	5.18	50.0
1.001	S15	S13	30.425	0.600	17.150	16.790	0.360	84.5	300	5.48	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	3.235	228.7	0.0	2.315	0.527	0.000	0.0	0	0.000
1.001	1.711	120.9	0.0	0.527	0.510	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	35.472	23.8	300	Circular	21.255	18.640	2.315	17.977	17.150	0.527
1.001	30.425	84.5	300	Circular	17.977	17.150	0.527	17.600	16.790	0.510

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S14	1200	Manhole	Adoptable	S15	1200	Manhole	Adoptable
1.001	S15	1200	Manhole	Adoptable	S13	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S14	527784.893	119188.507	21.255	2.615	1200				
						0	1.000	18.640	300
S15	527768.552	119219.991	17.977	0.827	1200		1	1.000	17.150
						0	1.001	17.150	300
S13	527754.473	119246.962	17.600	0.810	1200		1	1.001	16.790
									300

Simulation Settings

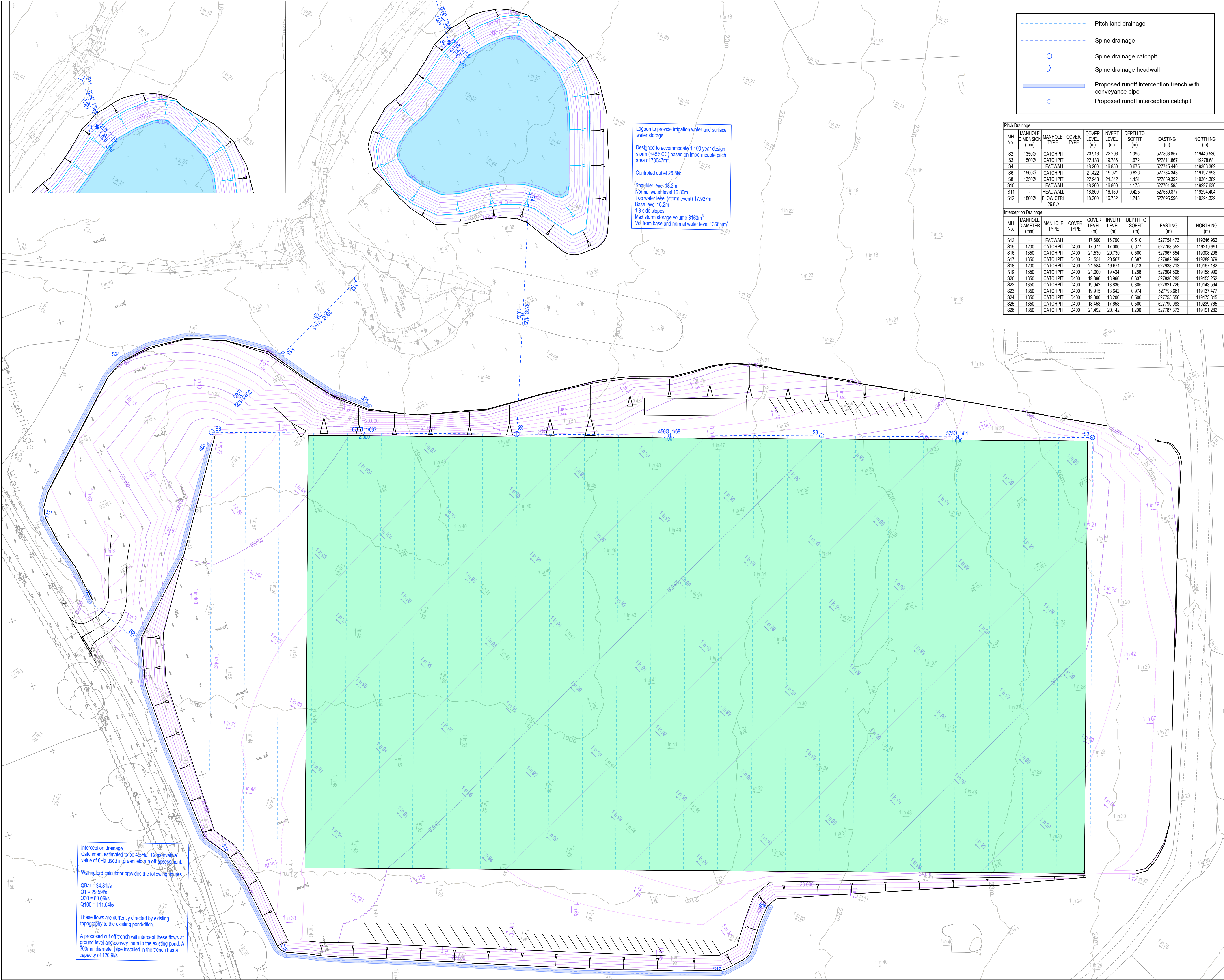
Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	0.400	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	45	0	0

Drawings



Lagoon to provide irrigation water and surface water storage.

Designed to accommodate 1 100 year design storm (+45%CC) based on impermeable pitch area of 73047m².

Controlled outlet 26.8/s

Shoulder level 16.2m
Normal water level 16.80m
Top water level (storm event) 17.927m
Base level 16.2m
1:3 side slopes
Max storm storage volume 3163m³
Vol from base and normal water level 1356mm³

Interception drainage.
Catchment estimated to be 4.5Ha. Conservative value of 6Ha used in greenfield runoff assessment.

Wallingford calculator provides the following figures

QBar = 34.81/s
Q1 = 29.59/s
Q30 = 80.06/s
Q100 = 111.04/s

These flows are currently directed by existing topography to the existing pond/ditch.

A proposed cut off trench will intercept these flows at ground level and convey them to the existing pond. A 300mm diameter pipe installed in the trench has a capacity of 120.9/s

Pitch land drainage

Spine drainage

Spine drainage catchpit

Spine drainage headwall

Proposed runoff interception trench with conveyance pipe

Proposed runoff interception catchpit

Pitch Drainage								
MH No.	MANHOLE DIMENSION (mm)	MANHOLE TYPE	COVER TYPE	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO SOFFIT (m)	EASTING (m)	NORTHING (m)
S2	13500	CATCHPIT		23.913	22.293	1.095	527863.857	119440.536
S3	15000	CATCHPIT		22.133	19.786	1.672	527811.867	119278.681
S4	-	HEADWALL		18.200	16.850	0.675	527745.440	119303.382
S6	15000	CATCHPIT		21.422	19.921	0.826	527784.343	119192.993
S8	13500	CATCHPIT		22.943	21.342	1.151	527639.392	119364.369
S10	-	HEADWALL		18.200	16.800	1.175	527701.595	119297.636
S11	-	HEADWALL		16.800	16.150	0.425	527680.877	119294.404
S12	18000	FLOW CTRL		18.200	16.732	1.243	527695.596	119294.329

Interception Drainage								
MH No.	MANHOLE DIAMETER (mm)	MANHOLE TYPE	COVER TYPE	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO SOFFIT (m)	EASTING (m)	NORTHING (m)
S13	1200	HEADWALL		17.800	16.790	0.510	527754.473	119246.962
S15	1350	CATCHPIT	D400	17.977	17.000	0.677	527768.552	119219.991
S16	1350	CATCHPIT	D400	21.530	20.730	0.500	527967.654	119308.206
S17	1350	CATCHPIT	D400	21.554	20.567	0.887	527982.099	119288.379
S18	1200	CATCHPIT	D400	21.584	19.671	1.613	527938.213	119167.182
S19	1350	CATCHPIT	D400	21.000	19.434	1.266	527904.806	119158.990
S20	1350	CATCHPIT	D400	19.896	18.960	0.637	527836.283	119153.252
S22	1350	CATCHPIT	D400	19.942	18.836	0.805	527821.226	119145.564
S23	1350	CATCHPIT	D400	19.915	18.642	0.974	527753.661	119137.477
S24	1350	CATCHPIT	D400	19.000	18.200	0.500	527755.556	119173.845
S25	1350	CATCHPIT	D400	18.458	17.658	0.500	527790.963	119239.765
S26	1350	CATCHPIT	D400	21.492	20.142	1.200	527787.373	119191.282

NOTES

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P01	20/02/25	Lagoon levels revised
Rev.	Date	Amendments



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Drawing Status **FOR APPROVAL**
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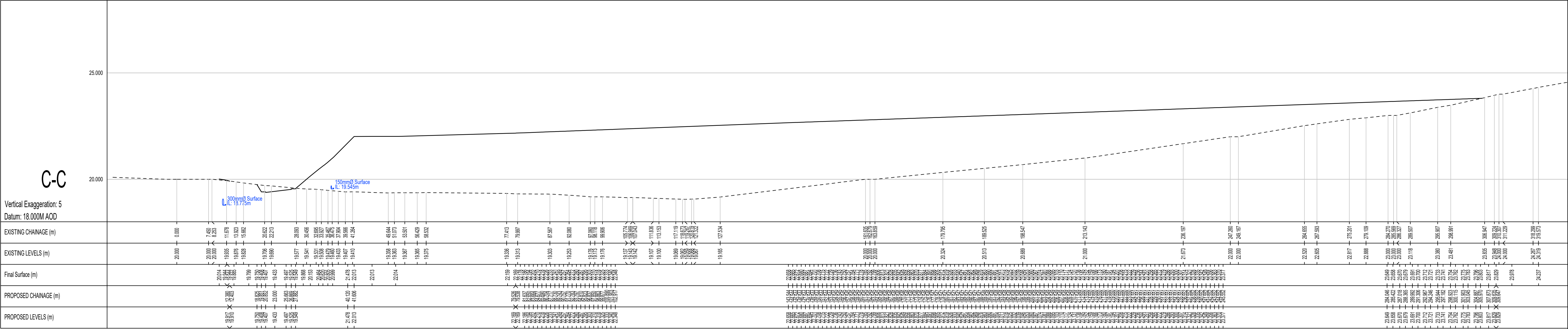
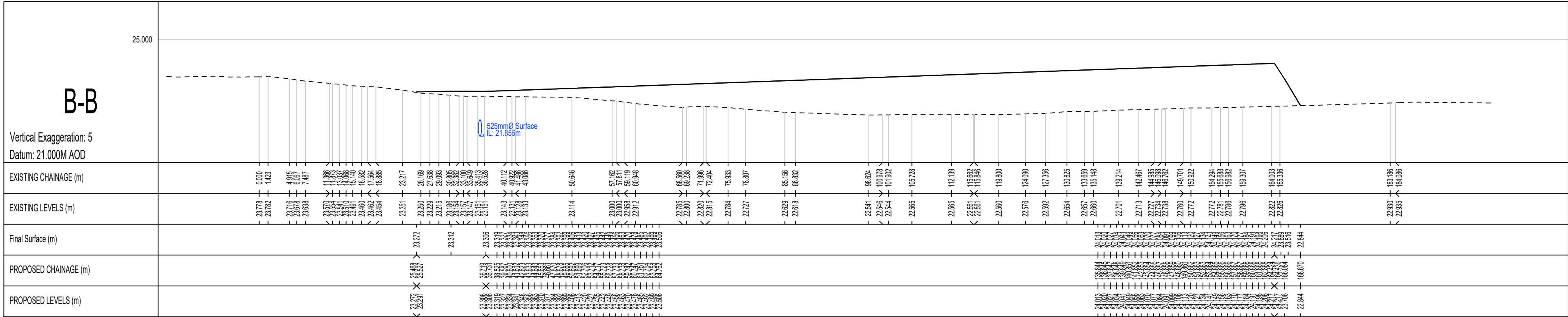
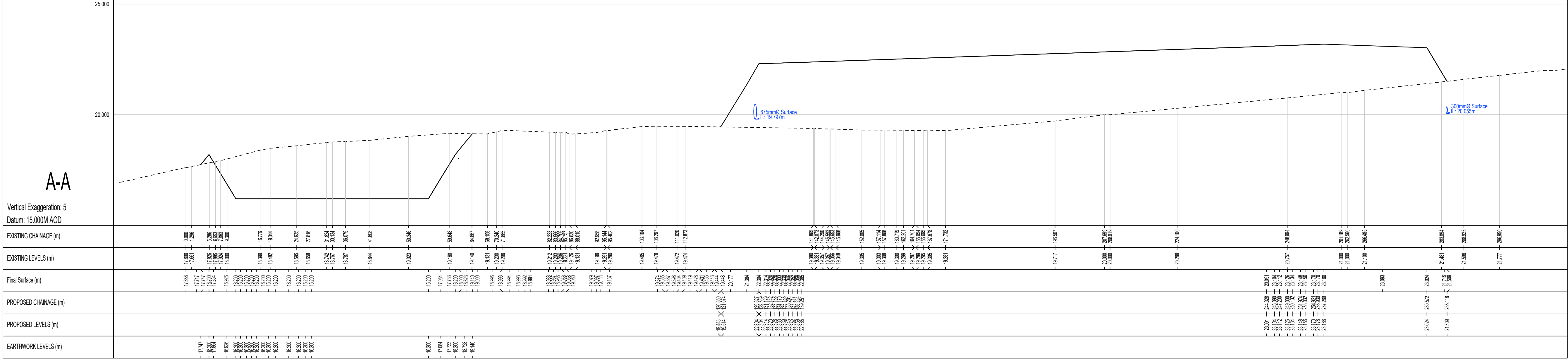
Client **SDP**

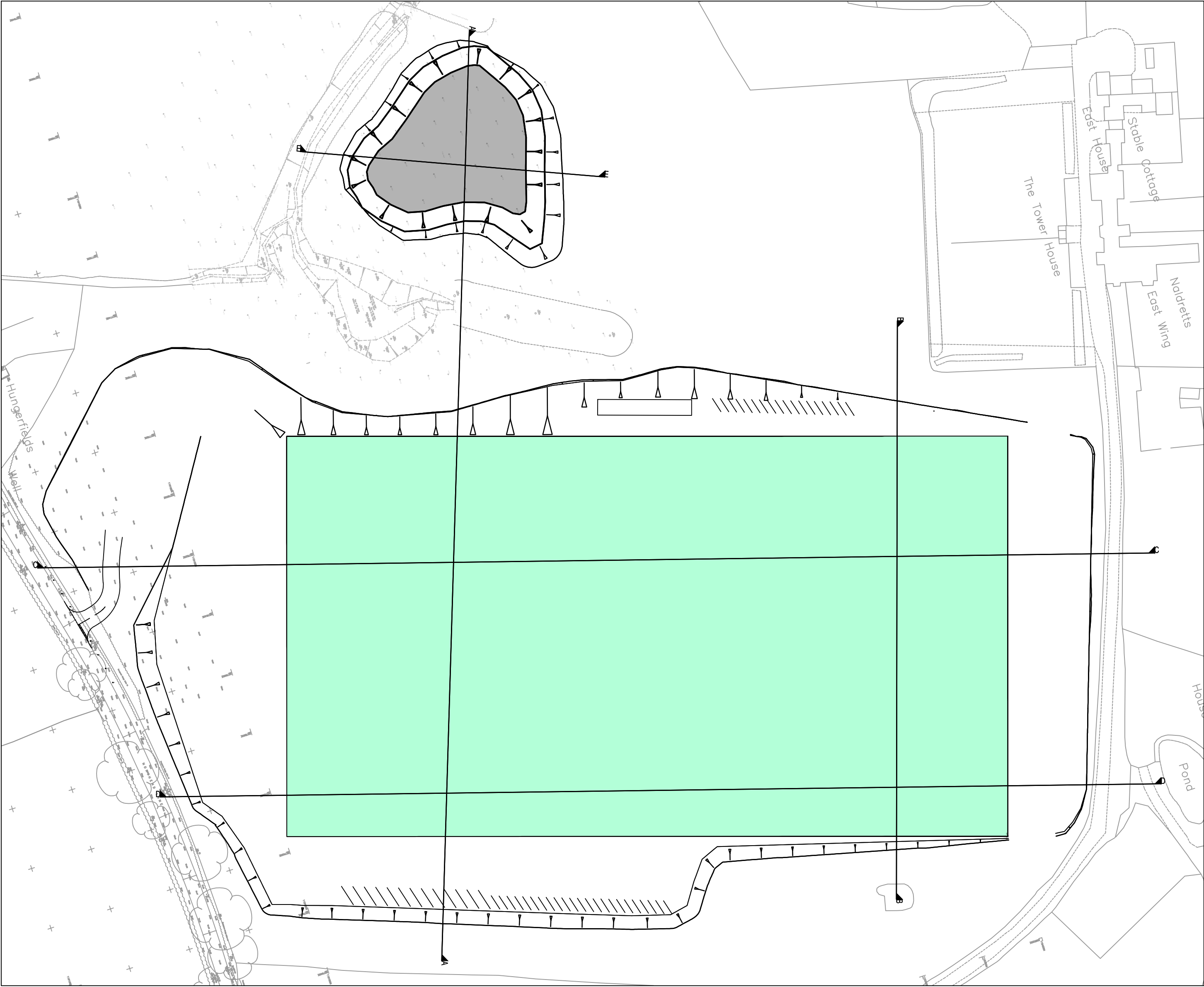
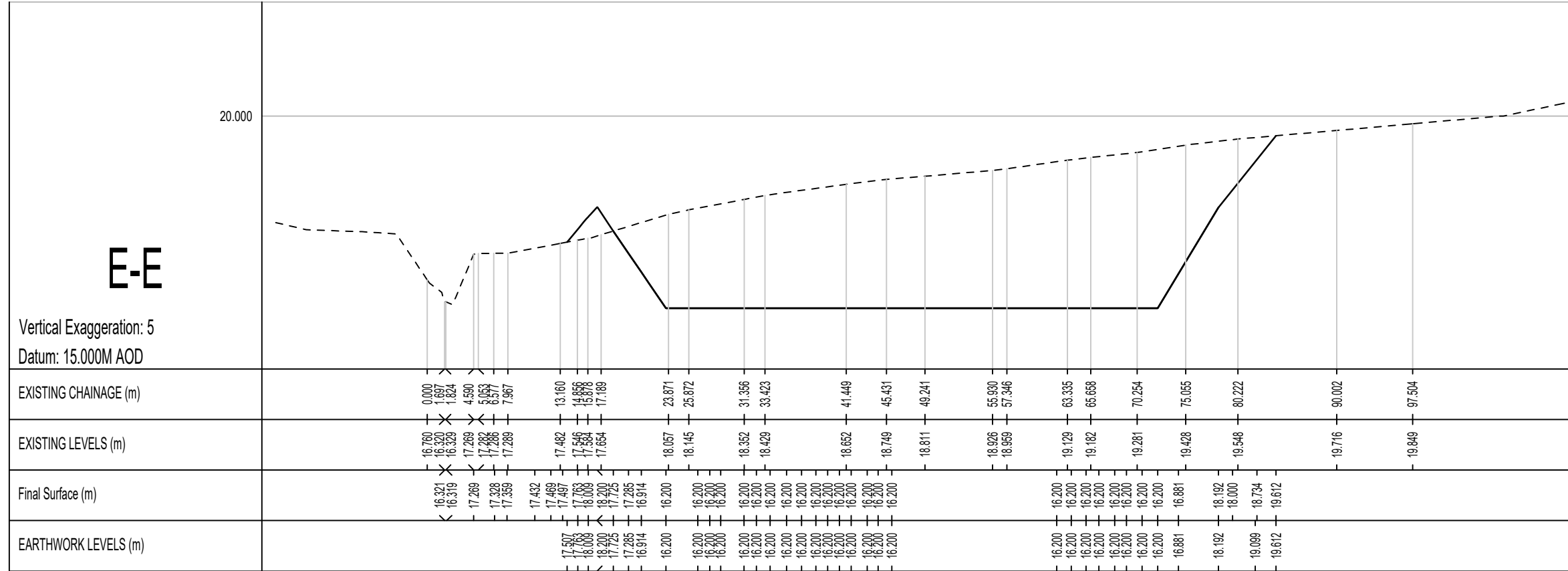
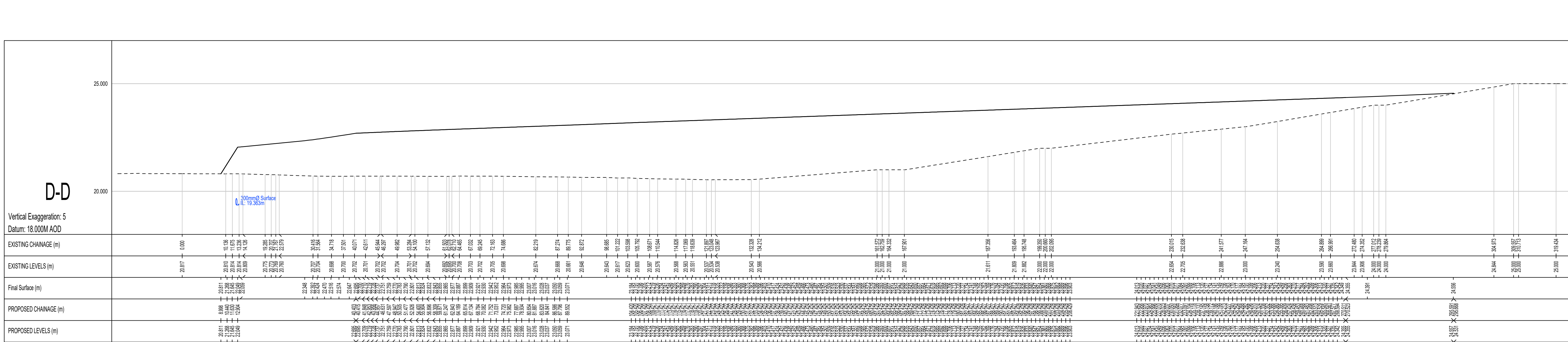
Project **Naldretts Farm
Pookbourne Lane**

Drawing Title **Proposed Drainage**

Scale at A1 Date **Jan 25** Drawn By **LDF** Checked By **MJA** Project No. **D2334**

Drawing Code **000-BPC-WD-ZZ-D-C** 101 P01





NOTES

A1

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Original Issue		
Rev.	Date	Amendments



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Drawing Status: **FOR APPROVAL**
NOT FOR CONSTRUCTION

Client: **SDP**

Project: **Naldretts Farm**
Pookbourne Lane

Drawing Title: **Proposed Sections**

Scale at A1 | Date: **Jan 25** | Drawn By: **LDF** | Checked By: **MJA** | Project No.: **D2334**

Drawing Code: **000-BPC-WD-ZZ-D-C** | Drawing No.: **100-2** | Rev.: **P00**



NOTES

1. This drawing is to be read in conjunction with all other BP Civils drawings and with all relevant Architects and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
2. BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
3. Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
5. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
6. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BP Civils logos and company information must be removed from copies if information is re-used.
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A1

GENERAL

1. The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
2. The main contractor is responsible for dealing with all occurrences of ground water during the construction period.
3. The contractor must comply with all current legislation relating to health & safety.
4. All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any Bright Plan Civils drawings, the manufacturers instructions must be used.
5. All concrete and cement mortar to be in accordance with BS8500, BSEN206 and BSEN998.
6. The contractor is responsible for managing surface water run off during construction.

DRAINAGE NOTES:

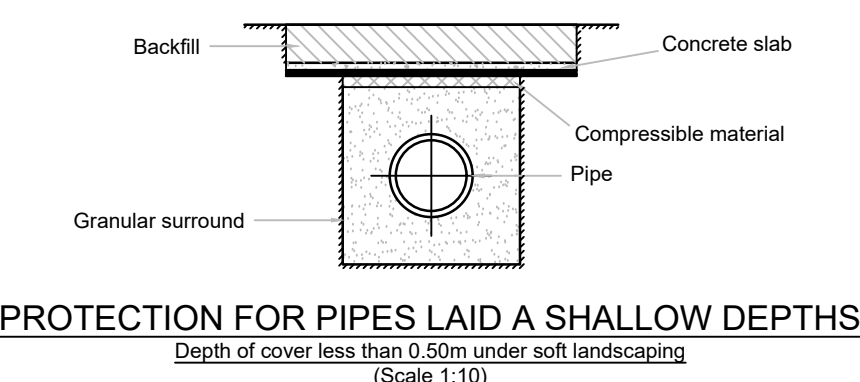
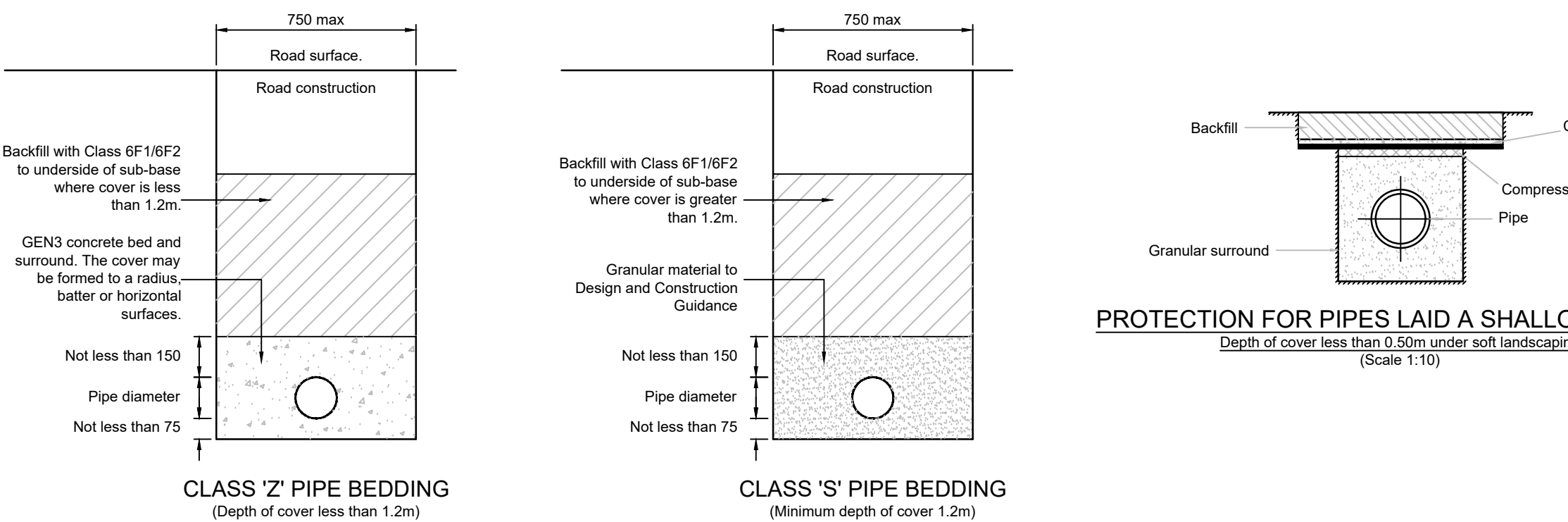
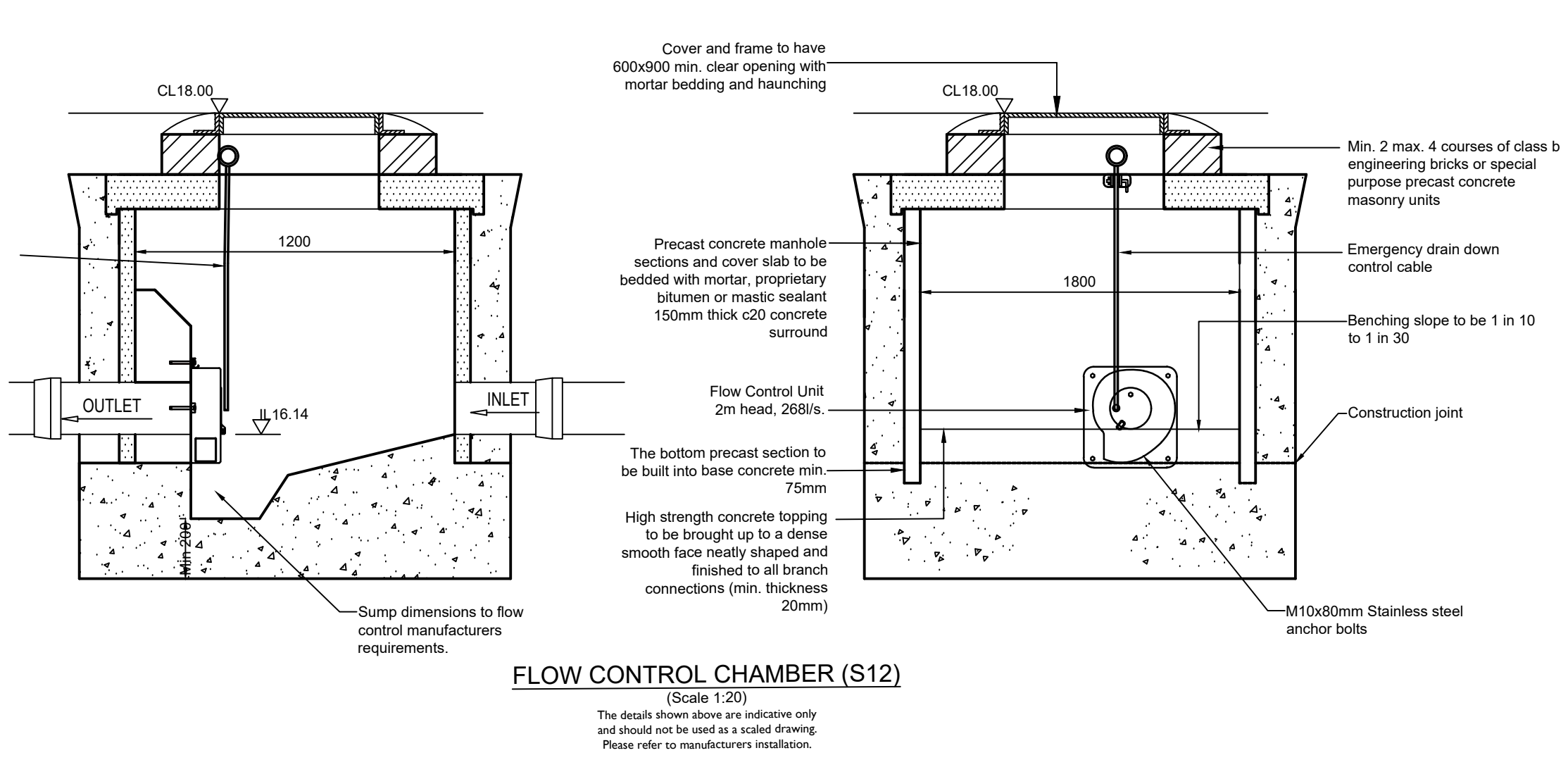
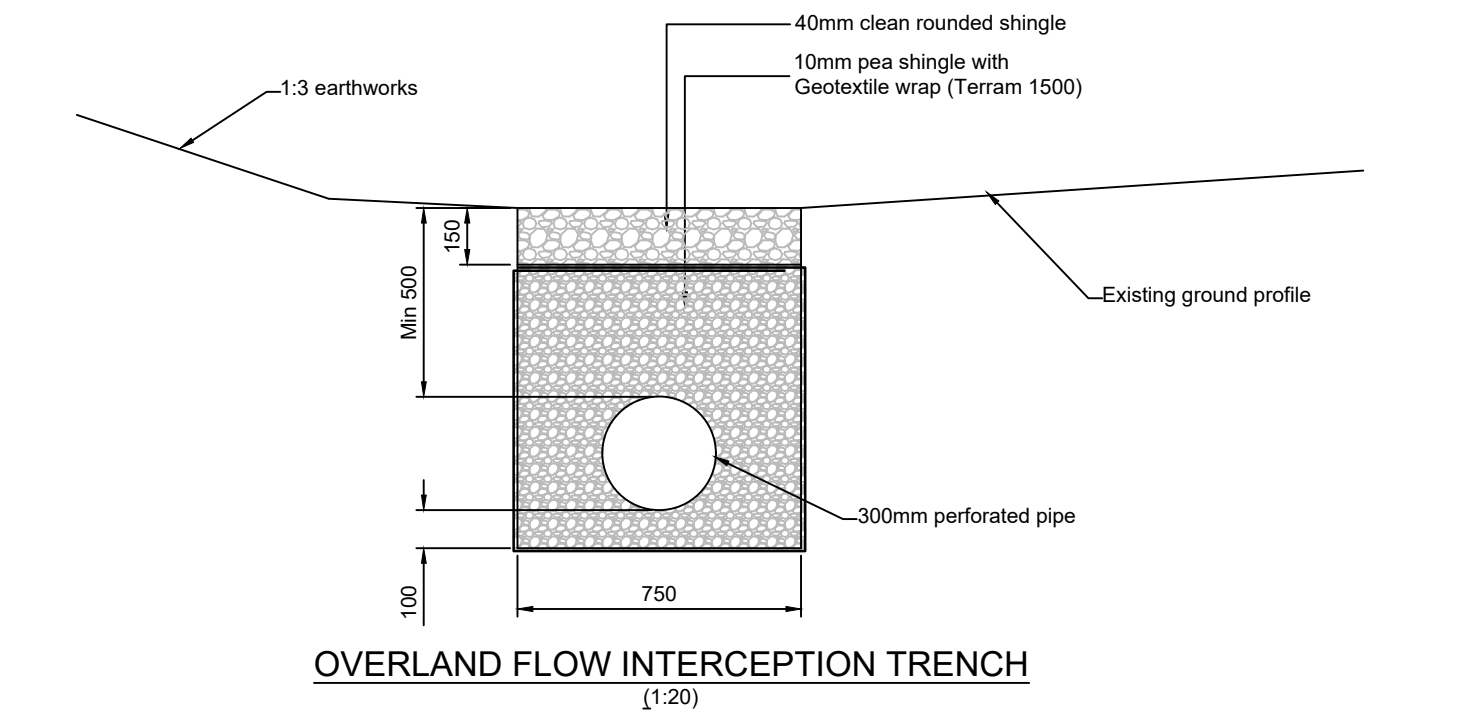
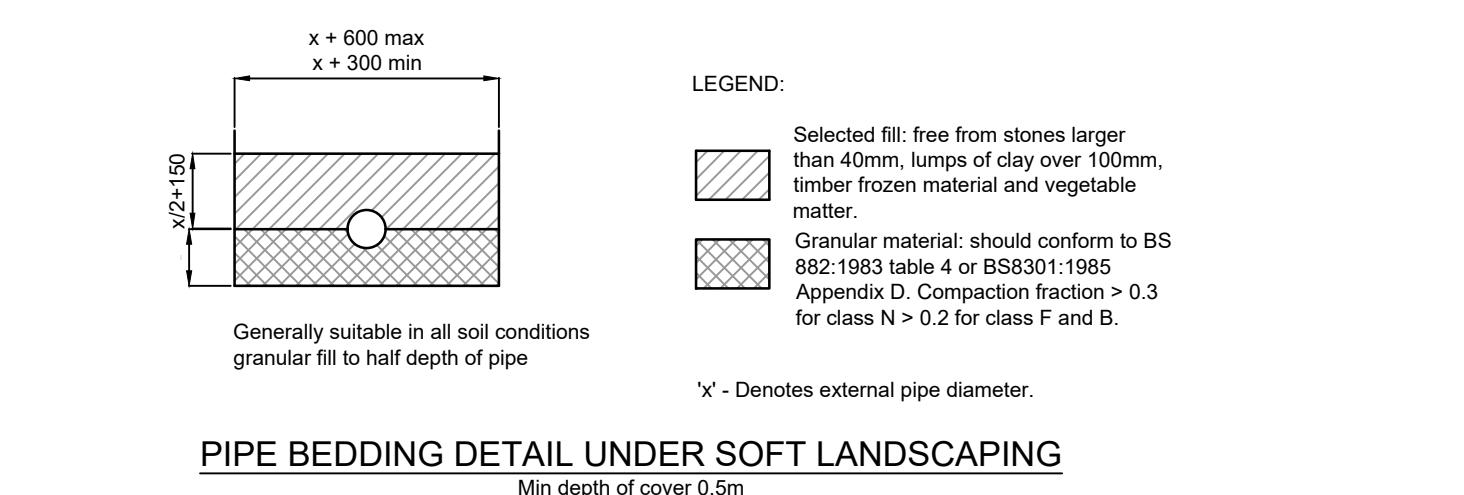
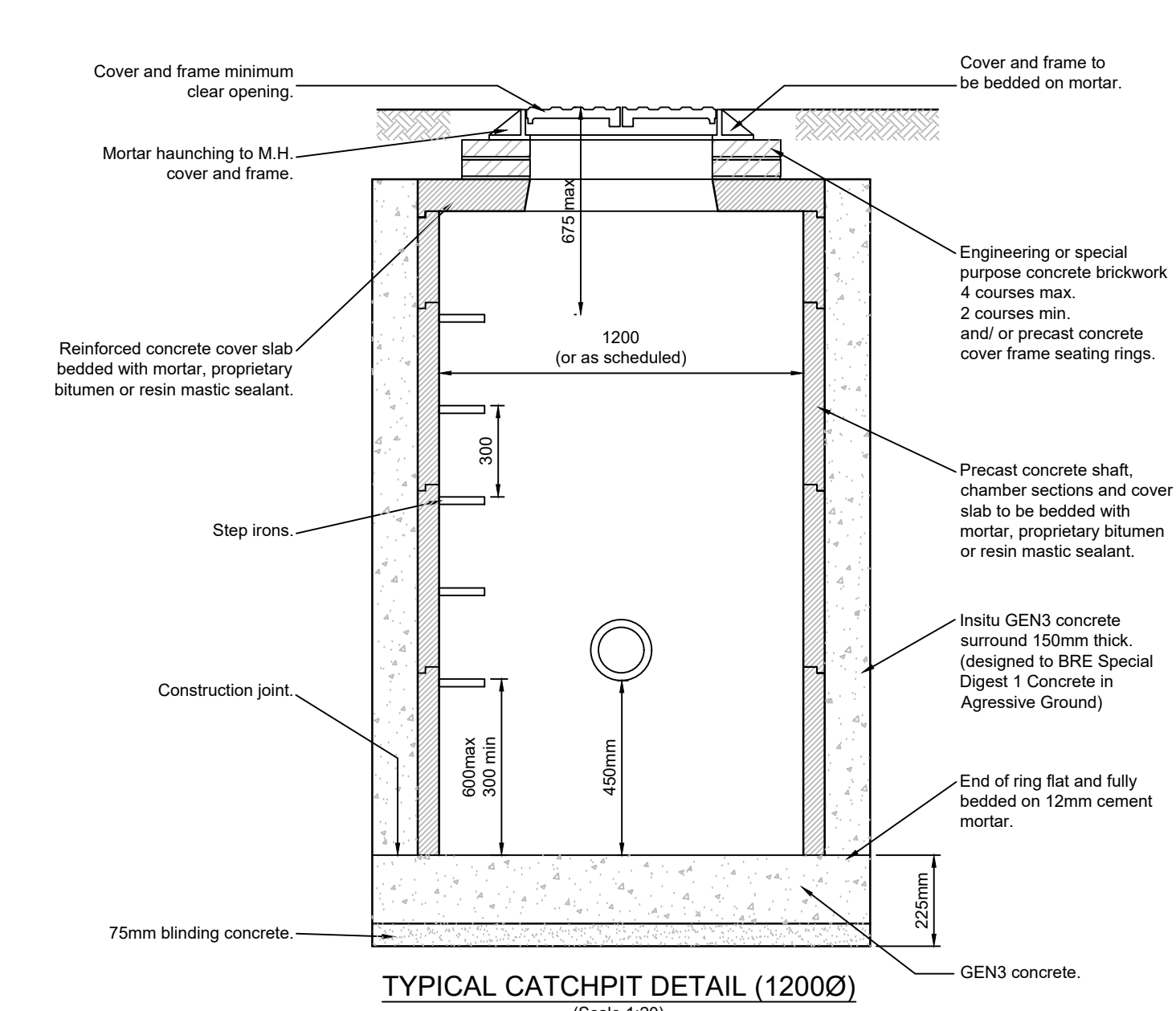
1. All drainage works to be constructed in strict accordance with specification of the Local Authority, Building Regulations, Design and Construction Guidance (published by Water UK) & BS EN 752.
2. Any existing drainage found crossing the site is to be investigated, and if found to be 'live', it should be diverted in consultation with Bright Plan Civils.
3. For location and setting out of building drainage points refer to architects drawings.
4. Where a pipe, under a carriageway, has a depth of cover of less than 0.9m the pipe shall be laid in a concrete bed and surrond.
5. Where a pipe, under a vehicular area other than a carriageway has a depth of cover if less than 0.6m the pipe shall be protected with a concrete slab set above it.
6. In any circumstances where pipes are bedded and surronded in concrete flexible joints should be provided, compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 8m centres (controlling with pipe joints). The boards shall be pre-cut to pipe diameter and to a height and width equal to the concrete cross section, a board thickness of 18mm for pipes up to 450mm nominal diameter, and 30mm for pipes over 450mm nominal diameter.
7. All pipes, bends and junction for private building drainage shall be UPVC conforming to BS4600, BS EN13358 and BS EN1401 as appropriate and shall be laid in accordance with the manufacturer's specification.
8. All connections to be soffit to soffit unless otherwise noted.
9. All concrete and concrete products to be in accordance with BRE 363 for sulphates.
10. The precise depth and location and size of existing pipes, watercourses or manholes where connections or diversion are proposed must be confirmed and reported to the engineer before works commence on site.
11. Any existing drains to be abandoned to be decommissioned in accordance with the Building Regulations by either grubbing, infilling or sealing.
12. Should groundwater be encountered on site during construction Bright Plan Civils shall be informed to determine if additional measures are required.
13. The drainage system shall be fully cleaned on completion of the project using methods that ensure pollution off site does not occur.
22. Any existing land drains severed during construction shall be reinstated.

Rev.	Date	Lagoon levels revised	Amendments
P01	20/01/25		

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Drawing Status	FOR APPROVAL
Client	SDP
Project	Naldretts Farm Pookbourne Lane
Drawing Title	Construction Details Sheet 1
Scale at A1 AS SHOWN	Date Jan 25 Drawn LDF Checked MJA Project No. D2334
Drawing No.	000-BPC-WD-ZZ-D-C-400 Rev. P01



NOTES

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GENERAL

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2. The main contractor is responsible for dealing with all occurrences of ground water during the construction period.

3. The contractor must comply with all current legislation relating to health & safety.

4. All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any Bright Plan Civils drawings, the manufacturers instructions must be used.

5. All concrete and cement mortar to be in accordance with BS8500, BS5206 and BS5998.

6. The contractor is responsible for managing surface water run off during construction.

DRAINAGE NOTES:

1. All drainage works to be constructed in strict accordance with specification of the Local Authority, Building Regulations, Design and Construction Guidance (published by Water UK) & BS5972.

2. Any existing drainage found crossing the site is to be investigated, and if found to be 'live', it should be diverted in consultation with Bright Plan Civils.

3. For location and setting out of building drainage points refer to architects drawings.

4. Where a pipe, under a carriageway, has a depth of cover of less than 0.9m the pipe shall be laid in a concrete bed and surround.

5. Where a pipe, under a vehicular area other than a carriageway has a depth of cover if less than 0.9m the pipe shall be protected with a concrete slab set above it.

6. In any circumstances where pipes are bedded and surrounded in concrete flexible joints should be provided, compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 8m centres (coinciding with pipe joints). The boards shall be pre-cut to pipe diameter and to a height and width equal to the concrete cross section, a board thickness of 18mm for pipes up to 450mm nominal diameter and 36mm for pipes over 450mm nominal diameter.

7. All pipes, bends and junction for private building drainage shall be UPVC conforming to BS4600, BS515596 and BS51401 as appropriate and shall be laid in accordance with the manufacturer's specification.

8. All connections to be soffit to soffit unless otherwise noted.

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10. The precise depth and location and size of existing pipes, watercourses or manholes where connections or diversion are proposed must be confirmed and reported to the engineer before works commence on site.

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13. The drainage system shall be fully cleansed on completion of the project using methods that ensure pollution off site does not occur.

22. Any existing land drains severed during construction shall be reinstated.

C00

11/09/24

Construction issue

Rev.

Date

Amendments

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Drawing Status

FOR APPROVAL

Client

SDP

Project

Naldretts Farm
Pookbourne Lane

Drawing Title

Construction Details
Sheet 2

Scale at A1

Date

AS SHOWN

Jan 25

Drawn By

LF

Checked By

MJA

Project No.

D2334

Drawing No.

000-BPC-WD-ZZ-D-C-401

Rev.

P00

Wallingford Calculation (Overland flow)

Calculated by:	liam foord
Site name:	Naldretts farm
Site location:	Sayers Common

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	50.95790° N
Longitude:	0.18091° W
Reference:	1050326385
Date:	Feb 04 2025 12:14

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	6
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Methodology

Q _{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

Hydrological characteristics

	Default	Edited
SAAR (mm):	819	819
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

Default	Edited
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Q_{BAR} (l/s):	34.81	34.81
1 in 1 year (l/s):	29.59	29.59
1 in 30 years (l/s):	80.06	80.06
1 in 100 year (l/s):	111.04	111.04
1 in 200 years (l/s):	130.18	130.18

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.