

Herne Bay Phase 6A

Drainage Strategy Technical Note

October 2022

132592-FAH-ZZ-XX-TN-C-02-00



FAIRHURST

CONTROL SHEET

CLIENT: Redrow

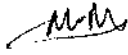

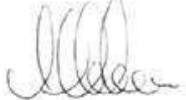
PROJECT TITLE: Herne Bay Phase 6A

REPORT TITLE: Drainage Strategy

PROJECT REFERENCE: 132592

DOCUMENT NUMBER: 02-00

STATUS: DRAFT

Issue & Approval Schedule		Name	Signature	Date
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Revision Record	Rev.	Date	Status	Description	Signature		
	1					By	
						Check	
						Approve	
	2					By	
						Check	
						Approve	

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- B. Drainage Strategy and Basin Drawings
- C. MicroDrainage Calculations
- D. Southern Water Technical Approval Letter

1 Introduction

1.1.1 Fairhurst has been commissioned by Redrow to prepare a Drainage Strategy in relation the proposed development taking place in the town of Herne. The strategy relates to planning consent CA/15/00844/OUT and the discharge of Condition 13 and 14 which relates to surface water drainage and foul sewerage.

1.2 Site Description

1.2.1 The site is 4.63ha in size and is currently greenfield. The topographic survey (Appendix A) indicates that the land generally falls towards the southeast of the site and rises from the north towards the middle and eventually falls towards the east and south. The highest area is in the west of the site where levels reach circa 18.73m AOD, the lowest levels are in the east of the site where levels reach a minimum of circa 9.34m AOD.

Figure 1: Proposed Site Plan



KEY:

- - Phase 6 Boundary
- - Planning Boundary

Source: Redrow Homes

1.3 Planning History

Original Hybrid - CA/15/00844/OUT

1.3.1 A hybrid planning permission was granted by Canterbury City Council in September 2015 subject to conditions and a S106 legal agreement, for the redevelopment of the Herne Bay Golf Course. The full element of the consent comprised the construction of 113 dwellings (Phase 1A) in the northern part of the site, a central spine road and a central sports hub, comprising a sports pavilion, tennis pavilion together with football, cricket, hockey pitches and tennis courts.

The outline element of the consent then included up to a further 459 dwellings, a 60 bed care home, a doctors surgery, public house and commercial uses.

- 1.3.2 The residential part of the redevelopment scheme is being built out by Redrow Homes, with the sports provision having been provided by Quinn Estates, who are also developing out the other remaining parcels outside the outline residential area.

Amended Hybrid Consent – CA/16/00378/VAR

- 1.3.3 The original hybrid consent was then amended on the 14th October 2016.
- 1.3.4 The S73 application made a number of amendments to the first phase of residential development, for which full planning permission had been granted, which included reducing the amount of units consented from 113 to 109 and making associated changes to the layout of the parcel.

Reserved Matters Approvals Phase 3 (also referred to as Phase 1B)

- 1.3.5 The following reserved matters approvals have subsequently been granted:
- CA/16/02131 - Phase 3 – 156 dwellings (20th December 2017)
 - CA/17/01296 – Phase 4 – 102 dwellings (15th November 2018)
 - CA/18/02369 – Phase 5 – 109 dwellings (30th August 2019)
 - CA/20/00101 – Phase 6A – 92 dwellings (1st July 2021)

Other Planning Permissions

- 1.3.6 A separate full planning permission was granted on the 8th November 2019 for four detached dwellings together with a public house and office building, under reference CA/18/02299. At the same time consent was also granted under reference CA/18/02290 for 93 dwellings, 1,179sqm of office space and 372sqm of retail space across various different blocks of development within the development. CA/20/01946 was subsequently granted in July 2021 for a foodstore and 8 flats, in place of office space originally approved on the site.

Other Planning Permissions

- 1.3.7 Planning application CA/22/00026 has been submitted by Quinn Estates and is currently being determined. Planning permission is being sought for 95 residential units across various blocks of development together with other non-residential uses. Six of those proposed units are within Block E, and would replace the two units previously consented in that block under 18/02290.

1.4 Scope of the Report

- 1.4.1 The report has been prepared to discharge Condition 13 and 14 of planning consent CA/15/00844/OUT in relation to the Phase 6A part of the site. The remaining residential plots, and design of the basins, wetlands and final outfall from the site would be dealt with separately.

Condition 13

No Development within a Construction Phase shall commence (save for any Advance Infrastructure and Enabling Works) until a surface water drainage based on sustainable drainage principles and an assessment of the hydrological and hydrogeological context of the development, has been submitted to and approved in writing by the Local Planning Authority. The drainage strategy should demonstrate the surface water runoff generated up to and including the 100 year plus climate change (e.g 30% increase in intensity) critical storm will not exceed the runoff from the site discharging onto the highway. Also the strategy shall include details of the design, location and capacity of all such SuDS features and shall include, ownership, long-term management/maintenance and monitoring arrangements/responsibilities.

The scheme shall subsequently be implemented in accordance with the approved details before the development is completed.

Condition 14

No development within a Construction Phase shall commence (save for any Advance Infrastructure and Enabling Works) until details of the proposed means of foul sewerage disposal have been submitted to and approved by the Local Planning Authority, in consultation with Southern Water. The development shall not be carried out other than in accordance with the details as approved.

2 Proposed Drainage

2.1 Design Parameters

2.1.1 The proposed drainage strategy has been developed in line with national and local planning policy/guidance. Key design parameters used in the development of the strategy are summarised below:

- Rainfall data: FEH 2013
- Total site area: 4.6ha
- Proposed drained area: 1.7ha
- Design storm: 1 in 100 year event plus climate change (40% increase in rainfall intensity)
- Surface water attenuation is downstream of the Phase 6A site has already been constructed.

2.2 Discharge Locations

Surface Water

2.2.1 Surface water runoff would be discharged in line with the drainage hierarchy set out in the PPG. This is set out within Table 1 below.

Table 1: Surface Water Drainage Hierarchy

Discharge Method	Suitability/Comment	
Infiltration to ground	British Geological Survey (BGS) records show that the bedrock geology of the area is London Clay which consists of clay and silt. Therefore, the ground conditions are unsuitable for discharge.	
To a surface water body	Surface water flows in Phase 6A would be discharged to the existing attenuation basin/swales that has already been constructed, which ultimately discharge to the Plenty Brook.	
To a surface water sewer	Not required.	
To a combined sewer	Not required.	

Foul Water

2.2.2 Foul flows would be discharged to the existing Southern Water foul network run underneath Randal Way Road located south of the site, which was previously constructed to serve the wider site.

2.3 Sustainable Drainage Systems

2.3.1 Sustainable Drainage Systems (SuDS) are drainage systems that are environmentally friendly as opposed to the conventional piped sewer system. They are designed to mimic natural

drainage, slow down runoff rates to reduce flooding and prove the quality of water entering watercourses. They also manage the amount of water entering watercourses or the ground at a controlled rate by means of storage or slow infiltration.

2.3.2 Table 2 below summarises the key SuDS features that are available as outlined in the CIRIA SuDS Manual¹.

Table 2: Sustainable Drainage Systems

SuDS Feature	Description	Suitability/Comment
Rainwater harvesting	Rainwater harvesting is the collection, storage, treatment (where necessary) of rainwater runoff from roofs and other impermeable areas for reuse within the site. In addition to reducing volume runoff from the site, they can reduce the water demand of the site delivering climate resilience and sustainability benefits.	Not proposed.
Green roofs	Green roofs are areas of living vegetation included on the roofscape of buildings. They can be either extensive or intensive and accessible or non-accessible. The plant and soil reduces the rate of discharge extending the time between rainwater falling on the roof and reaching the rainwater outlet / drain. They also provide ecological and visual benefits.	Green roofs are not suitable on the proposed pitched roofs.
Infiltration Systems	Infiltration systems hold water and allow it to percolate back into the ground as it would naturally in permeable areas. These can either be traditional shallow soakaways or deep bore soakaways. Their suitability depends on the soil permeability. Due to the effect of water on structural stability, these need to be sited sufficient distances from buildings / foundations. These can reduce volume runoff from sites and contribute to recharging groundwater	Infiltration systems are not suitable for the site due to the bedrock makeup being unsuitable for infiltration.
Proprietary treatment systems	Proprietary treatment systems are manufactured products to remove specified pollutants from runoff. These can reduce downstream maintenance requirements and provide additional benefit, if required, by receiving watercourses / discharge locations.	Proprietary treatment systems are not proposed for this site as sufficient treatment would be provided through the use of SuDS.
Filter strips	Filter strips are uniformly graded gently sloping strips of grass or vegetation to treat runoff by slowing down flows, promoting sedimentation and infiltration.	Filter strips are not proposed because there is not sufficient space on the plots.
Filter drains	Filter drains are shallow trenches filled with gravel to attenuate, treat and convey surface water runoff. They can convey /	Filter drains are not suitable due to

SuDS Feature	Description	Suitability/Comment
	attenuate only or, depending on site conditions, allow infiltration direct to the ground.	underlying ground conditions.
Swales	Swales are shallow flat bottomed channels to convey, infiltrate (where possible) and treat surface water runoff. They can enhance site design and provide biodiversity enhancements. They are often used to drain roads, paths or car parks. Swales can replace traditional pipes as a means to convey flows and used as part of a SuDS train of elements.	Swales are proposed for attenuation and conveyance of surface water runoff.
Bio-retention systems	Bio-retention systems including rain gardens are shallow landscaped depressions to treat and store runoff using engineered soils and vegetation. They provide amenity and visual benefit alongside additional climate benefits. They are usually used for containing / managing frequent storm events.	Rain gardens not proposed.
Trees	Trees help protect the environment in a number of ways including reducing runoff rates through interception of rain water in their canopies, and promoting infiltration in permeable / soft landscaping as well as the visual benefit they provide to the area.	Trees are proposed on the site.
Pervious pavements	Pervious pavements provide pavement surfaces suitable for pedestrian / trafficked applications whilst allowing runoff to permeate through their structure. This provides filtration benefit to treat runoff. Pervious pavements can be used to collect, treat and convey flow only, or if site condition permit, allow infiltration to the ground direct from their base.	Pervious pavements are not proposed.
Attenuation storage tanks	Attenuation storage tanks temporarily hold back water for gradual release or reuse at a controlled rate to reduce the peak runoff rate. These can be in the form of above ground tanks (blue roofs), below ground geocellular / concrete tanks or oversized pipes.	Below ground geocellular attenuation tanks are not proposed on site.
Detention basins	Detention basins are landscaped depressions which are normally dry except for during and immediately after storm events. These attenuate flows through controls on the outfalls to store rainwater upstream in networks providing treatment and amenity benefits. With careful design,	Detention basins are proposed for the site and have already been constructed.

SuDS Feature	Description	Suitability/Comment
	these can be used for leisure / amenity uses during normal / dry periods.	
Ponds & wetlands	These are similar to detention basins, however they are designed to have a permanent level of water within them to provide biodiversity and amenity benefits.	Ponds and wetlands are not proposed for the site.

2.4 Surface Water Drainage Strategy

- 2.4.1 The proposed drainage network has been designed to connect to an existing attenuation basin located to the east of the Phase 6A site. This basin was previously approved and constructed as part of an early phase of the site wide development.
- 2.4.2 The areas to the southwest, southeast and middle of the site discharge to the attenuation basin via two swales located in the east of the site (Appendix B), which have already been constructed. The surface water drainage run that serves the northern part of the site runs through the proposed Phase 6B site and discharges to the same approved and constructed basin east of the 6B site (Appendix B). The previously constructed and approved attenuation basin restricts flows in line with the consented strategy.
- 2.4.3 MicroDrainage Network calculations (Appendix C) have been undertaken to ensure that the drainage runs have been sized appropriately to contain the runoff flows generated by the site. The calculation accounts for all storm durations and takes account of a 40% increase in rainfall intensity to account for climate change.
- 2.4.4 The basin and swales, which are already constructed, would provide water quality, water quantity, biodiversity and amenity benefits.
- 2.4.5 The surface water strategy for Phase 6A is shown on the drawings included in Appendix B. Exceedance flow routes have also been indicated on this drawing.
- 2.4.6 The drainage strategy has been granted Technical Approval by Southern Water (Appendix D).

2.5 Water Quality

- 2.5.1 Appropriate treatment would be incorporated into the drainage system to ensure that the quality of water discharged is acceptable in line with the CIRIA SuDS Manual. This would be achieved through the incorporation swales and attenuation basins.

2.6 Maintenance and Management

- 2.6.1 The onsite drainage networks and SuDS would be privately managed and maintained for the lifetime of the development, to ensure they remain fit for purpose and function appropriately. The management company/operator would be appointed post-planning.
- 2.6.2 Table 3 overleaf, outlines what maintenance is anticipated for the proposed SuDS features.

Table 3: Sustainable Drainage System Maintenance – SuDS Manual C753

Maintenance Schedule	Required Action	Typical Frequency
Detention Basins		
Regular Maintenance	Remove litter and debris	Monthly
	Cut the grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around the basin	Half yearly (spring, before nesting season, and autumn).
	Manage other vegetation and remove nuisance plants	Monthly (at start and then as required)
	Inspect inlets, outlets, banksides, structures, pipework, etc for evidence of blockage and/or physical damage	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage.	Monthly
	Inspect inlets and facility surface for silt accumulation and establish appropriate removal frequencies.	Half yearly
	Check any mechanical devices, e.g penstocks	Half yearly
	Tidy all dead growth (scrub clearance) before start of growing season.	Annually
	Remove sediment from any inlets, outlet and forebay.	Annually (or as required)
	Manage wetland plants in the outlet pool – where provided	Annually
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided).
Remedial actions	Repairs erosion or other damage by reseeded or re-turfing	As required

	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets, and overflows	As required
	Relevel uneven surfaces and reinstate design levels.	As required
Trees		
Regular maintenance	Remove litter and debris	Monthly or as required
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets and outlets	Inspect monthly
Occasional maintenance	Check tree health and manage tree appropriately	Annually
	Remove silt build-up from inlets and surface and replace as much as necessary	Annually or as required
	Water	As required (in periods of drought)
Monitoring	Inspect silt accumulation rates and establish appropriate removal frequencies	Half Yearly
Swales		
Regular maintenance	Remove litter and debris	Monthly
	Cut grass- to retain grass height within specified design range	Monthly (during growing season) or as required
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for >48 hours.	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies.	Half-yearly

Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions if it requires	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike soil layer to improve infiltration performance, break up silts deposits and prevent compaction of the soil surface.	As required
	Remove build up, sediment on upstream gravel trench, flow separator or at top of filter strip.	As required
	Remove and dispose of oils or petrol residues using safe and standard practices using safe standard practices.	As required

2.7 Foul Drainage Strategy

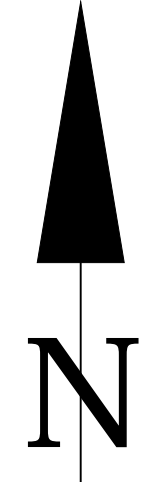
- 2.7.1 Foul drainage has also been accounted for and is designed to be discharged into the foul drainage run located underneath Randall Way Road. The foul drainage run located along Randall way will be ultimately discharged to the foul pump station located east of the site.
- 2.7.2 The foul water strategy for Phase 6A is shown on drawing 132592-FAH-ZZ-00-DR-D-0501-0504 MAIN DRAINAGE LAYOUT (Appendix B). Exceedance flow routes have also been indicated on this drawing.

3 References

ⁱ CIRIA C753, 2015. The SuDS Manual.

A. Topographical Survey

TREE TABLE			
NUMBER	SPECIES	GIRTH	HEIGHT
T1	SILVER BIRCH	0.50	12
T2	OAK	0.55	16
T3	OAK	0.54	16
T4	SYCAMORE	0.60	16
T5	BEECH	0.48	18
T6	BEECH	0.38	18
T7	BEECH	0.30	18
T8	BEECH	0.50	18
T9	BEECH	0.45	18
T10	PINE	0.68	18
T11	LIME	0.75	20
T12	LIME	0.60	20
T13	LIME	0.65	20
T14	UNKNOWN	0.18	6
T15	SYCAMORE	0.24	6
T16	SYCAMORE	0.34	6
T17	SYCAMORE	0.35	6
T18	SYCAMORE	0.24	5
T19	SYCAMORE	0.89	20
T20	SYCAMORE	0.83	20
T21	SYCAMORE	0.55	20
T22	SYCAMORE	0.87	20
T23	SYCAMORE	0.53	20
T24	SYCAMORE	0.82	20
T25	WILLOW	0.50	20
T26	WILLOW	0.70	20
T27	UNKNOWN	0.60	20
T28	UNKNOWN	0.60	20
T29	UNKNOWN	0.50	20
T30	UNKNOWN	0.80	20
T31	UNKNOWN	0.98	20
T32	WILLOW	0.90	20
T33	WILLOW	0.40	8
T34	WILLOW	0.70	14
T35	ASH	0.35	11
T36	BEECH	0.28	8
T37	HORSE CHESTNUT	0.28	7
T38	BEECH	0.30	8
T39	OAK	0.45	12
T40	BEECH	0.25	10
T41	ASH	0.35	11
T42	BLACKTHORN	0.32	6
T43	SYCAMORE	0.34	12
T44	BEECH	0.46	14
T45	BEECH	0.43	12
T46	BEECH	0.58	16
T47	BEECH	0.60	18
T48	BEECH	0.64	18
T49	BEECH	0.54	18
T50	BEECH	0.75	18
T51	BEECH	0.80	18
T52	BEECH	0.40	18
T53	BEECH	0.55	18
T54	BEECH	0.55	18
T55	APPLE	0.25	4
T56	APPLE	0.32	3
T57	APPLE	0.30	5
T58	OAK	1.50	25
T59	OAK	1.08	25
T60	WILLOW	1.30	10
T61	WILLOW	0.28	10
T62	WILLOW	0.33	10
T63	WILLOW	0.27	10
T64	WILLOW	0.31	10
T65	OAK	0.40	10
T66	OAK	1.05	22
T67	LIME	1.04	25
T68	HAZEL	0.10	5
T69	HAZEL	0.10	5
T70	HAZEL	0.10	5
T71	SILVER BIRCH	0.22	4
T72	SILVER BIRCH	0.30	9
T73	UNKNOWN	1.10	23



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ALL TREES IDENTIFIED WHERE POSSIBLE. ADVICE FROM AN ARBOROLOGIST SHOULD BE SOUGHT TO CONFIRM ANY SPECIES OR SIZE SHOWN.

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ABBREVIATIONS

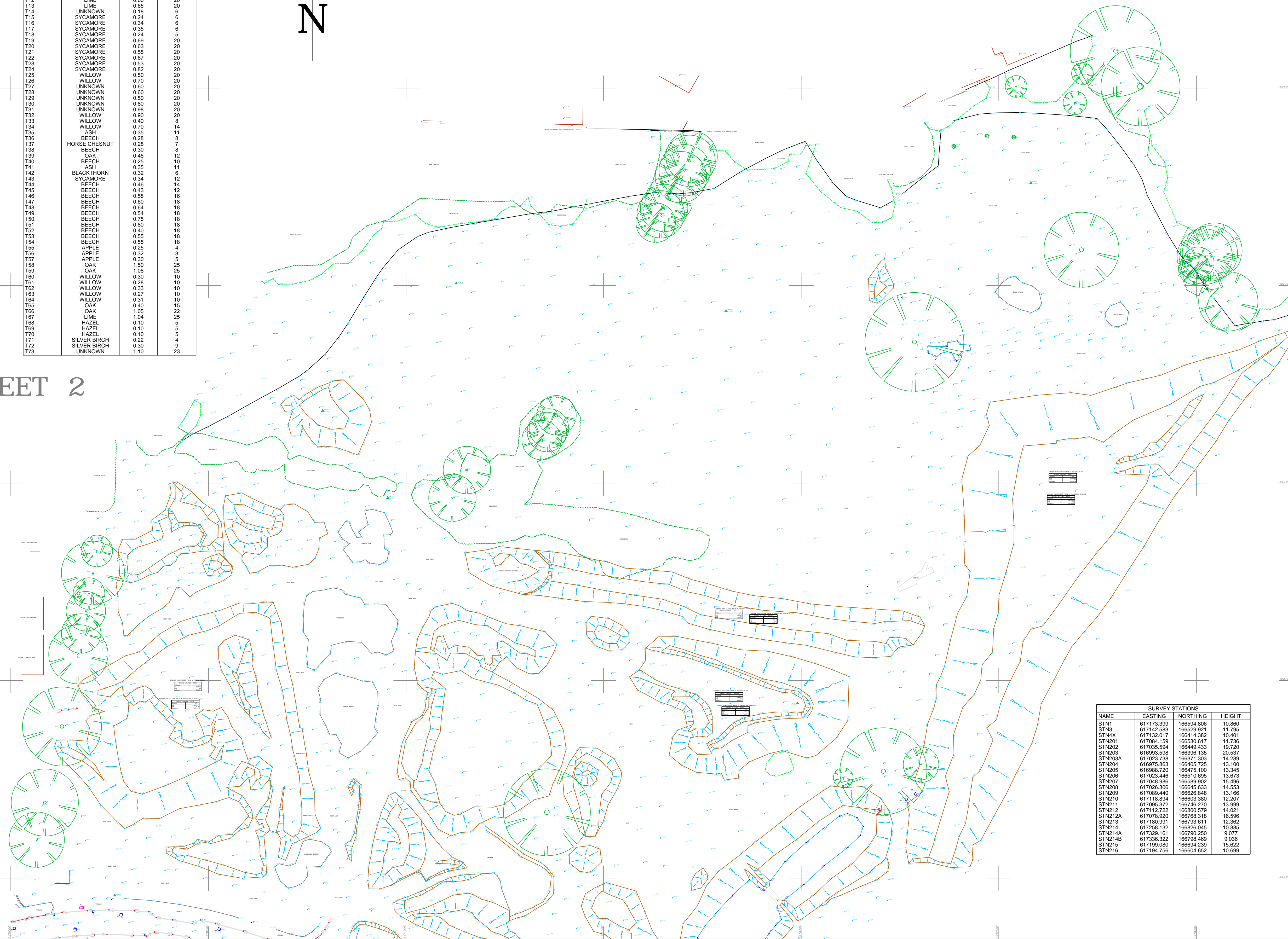
A	AIR CONDITIONING	OH	OVER HEAD
ACO	ACO CHANNEL	P	POST
AV	AIR VALVE	PAL	PALE FENCE
B	BOLLARD	PAV	PAVING
BAR	BARBED WIRE FENCE	PB	POST BOX
BB	BELUSHI BEACON	PC	POST & CHAIN FENCE
BD	BACK DROP	PPF	PUBLIC FOOTPATH
BH	BORE HOLE	PM	PARKING METER
BLW	BLOCKWALL	PR	POST & RAIL FENCE
BPV	BLOCK PAVING	PT	PICKET FENCE
BRW	BRICK RETAINING WALL	PW	POST & WIRE FENCE
BS	BUS STOP	RE	RODDING EYE
BT	BRITISH TELECOM	RFL	GENERAL ROOF LEVEL
BW	BRICK WALL	RL	RIDGE LEVEL
CB	CLOSE BOARD FENCE	RNP	ROAD NAME PLATE
CCTV	CLOSE CIRCUIT TELEVISION	RS	ROAD SIGN
CH	CEILING HEIGHT	RSJ	ROLLED STEEL JOIST
CHP	CHESTNUT PALING FENCE	RTW	RETAINING WALL
CL	COVER LEVEL	RWP	RAIN WATER PIPE
CLF	CHAIN LINK FENCE	SAP	SAMPLING
CON	COAL HOLE	SC	SPEED CAMERA
COL	COLUMN	SFL	SOFFIT LEVEL
CONC	CONCRETE	SO	SMOKE OUTLET
CP	CONCRETE PANEL FENCE	SP	SIGN POST
CRB	CRASH BARRIER	SRW	STONE RETAINING WALL
CRW	CONCRETE RETAINING WALL	SV	STOP VALVE
CTV	CABLE TELEVISION	SVF	SOIL VENT PIPE
CW	CONCRETE WALL	SW	SURFACE WATER
DCH	DRAINAGE CHANNEL	SWL	STONE WALL
DK	DROPPED KERB	SY	STAY
EB	ELECTRIC BOX	TB	TELEPHONE BOX
EC	ELECTRIC COVER	TFL	TRANSPORT FOR LONDON
EL	EAVES LEVEL	THL	THRESHOLD LEVEL
EP	ELECTRIC POLE	TL	TRAFFIC LIGHT
ER	EARTH ROD	TLB	TRAFFIC LIGHT BUTTON
FB	FLOWER BED	TOC	TOP OF CHIMNEY
FR	FIRE HYDRANT	TOF	TOP OF FENCE LEVEL
FL	FLOOR LEVEL	TOV	TOP OF VEGETATION
FLD	FLOOD LIGHT	TOW	TOP OF WALL LEVEL
FP	FLAG POLE	TP	TELEGRAPH POLE
FW	FUUL WATER	TPIT	TRIAL PIT
G	GULLY	TPV	TACTILE PAVING
GB	GAS BOX	TR	TRELIS FENCE
GP	GATE POST	UK	UNKNOWN
GV	GAS VALVE	UTA	UNABLE TO ACCESS
HR	HAND RAIL	UTL	UNABLE TO LIFT
IC	INSPECTION COVER	UTS	UNABLE TO SURVEY
IL	INVERT LEVEL	V	VALVE
IR	IRON RAILING	VP	VENT PIPE
JB	JUNCTION BOX	W	WATER COVER
KO	KERS OUTLET	WB	WASTE BIN
LL	LARCH LAP FENCE	WBW	WILDLIFE BURROW
LP	LAMP POST	WL	WATER LEVEL
MB	MULTI ROLE	WM	WATER METER
MH	MANHOLE	WMF	WIRE MESH FENCE
MK	UTILITY MARKER POST	WO	WASH OUT
MW	MONITORING WELL	WV	WATER VALVE

SYMBOLS & LINSTYLES

	BORE HOLE		OVERHEAD ELECTRIC
	TREE		OVERHEAD TELECOM
	BANK		SURVEY STATION

SHEET LEGEND

SHEET 2



SURVEY STATIONS

NAME	EASTING	NORTHING	HEIGHT
STN1	617173.399	166594.806	10.860
STN3	617142.883	166529.921	11.795
STN4X	617132.017	166414.382	10.401
STN201	617084.159	166530.617	11.736
STN202	617035.594	166449.433	19.720
STN203	616993.598	166396.135	20.537
STN203A	617023.738	166371.303	14.289
STN204	616978.863	166405.725	13.100
STN205	616988.720	166475.100	13.345
STN206	617023.446	166510.695	13.673
STN207	617048.986	166589.902	15.496
STN208	617026.306	166645.633	14.553
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STN212	617112.722	166690.579	14.021
STN212A	617078.820	166768.318	16.596
STN213	617180.991	166753.611	12.362
STN214	617258.132	166626.045	10.885
STN214A	617329.161	166790.250	9.077
STN214B	617336.322	166798.499	9.036
STN215	617159.080	166594.239	15.622
STN216	617194.756	166604.652	10.699

REVISION:

PROJECT
PHASE 3 & 4
HERNE BAY

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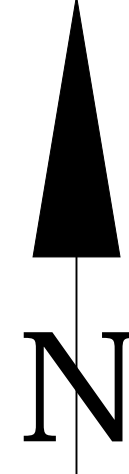
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SE19 2TA



GENERAL NOTES

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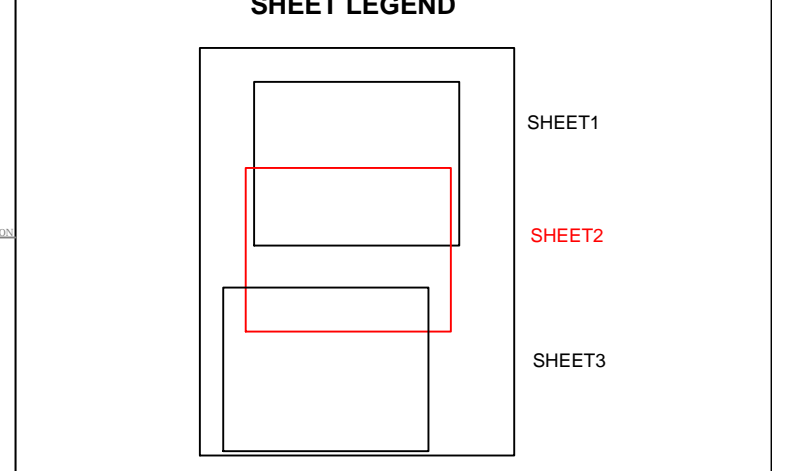
DO NOT SCALE FROM THIS DRAWING.

ABBREVIATIONS

A	AIR CONDITIONING	OH	OVER HEAD
ACO	ACO CHANNEL	P	POST
AV	AIR VALVE	PAL	PALE FENCE
B	BOLLARD	PAV	PAVING
BAR	BARBED WIRE FENCE	PB	POST BOX
BB	BELISHA BEACON	PCF	POST & CHAIN FENCE
BD	BACK DROP	PPF	PUBLIC FOOTPATH
BH	BORE HOLE	PM	PARKING METER
BLW	BLOCKWALL	PR	POST & RAIL FENCE
BPV	BLOCK PAVING	PT	PICKET FENCE
BRW	BRICK RETAINING WALL	PW	POST & WIRE FENCE
BS	BUS STOP	RE	RODDING EYE
BT	BRITISH TELECOM	RFL	GENERAL ROOF LEVEL
BW	BRICK WALL	RL	RIDGE LEVEL
CB	CLOSE BOARD FENCE	RNP	ROAD NAME PLATE
CCTV	CLOSE CIRCUIT TELEVISION	RS	ROAD SIGN
CH	CEILING HEIGHT	RSJ	ROLLED STEEL JOIST
CHP	CHESTNUT PALING FENCE	RTW	RETAINING WALL
CL	COVER LEVEL	RWP	RAIN WATER PIPE
EL	EARTH ROD	SAP	SALE FENCE
CON	CONCRETE	SC	SPEED CAMERA
COL	COLUMN	SFL	SOFFIT LEVEL
CONC	CONCRETE	SO	SMOKE OUTLET
CP	CONCRETE PANEL FENCE	SP	SIGN POST
CRB	CRASH BARRIER	SRW	STONE RETAINING WALL
CRW	CONCRETE RETAINING WALL	SV	STOP VALVE
CTV	CABLE TELEVISION	SVF	SOIL VENT PIPE
CW	CONCRETE WALL	SW	SURFACE WATER
DCH	DRAINAGE CHANNEL	SWL	STONE WALL
DK	DROPPED KERB	ST	STAY
EB	ELECTRIC BOX	TB	TELEPHONE BOX
EC	ELECTRIC COVER	TL	TRANSPORT FOR LONDON
EL	EAVES LEVEL	THL	THRESHOLD LEVEL
EP	ELECTRIC POLE	TL	TRAFFIC LIGHT
ER	EARTH ROD	TLB	TRAFFIC LIGHT BUTTON
FB	FLOWER BED	TOC	TOP OF CHIMNEY
FH	FIRE HYDRANT	TOF	TOP OF FENCE LEVEL
FL	FLOOR LEVEL	TOV	TOP OF VEGETATION
FLD	FLOOD LIGHT	TOW	TOP OF WALL LEVEL
FP	FLAG POLE	TP	TELEGRAPH POLE
FW	FOUL WATER	TPIT	TRIAL PIT
G	GULLY	TPV	TACTILE PAVING
GB	GAS BOX	TR	TRELLES FENCE
GP	GATE POST	UK	UNKNOWN
GV	GAS VALVE	UTA	UNABLE TO ACCESS
HR	HAND RAIL	UTL	UNABLE TO LIFT
IC	INSPECTION COVER	UTS	UNABLE TO SURVEY
IL	INVERT LEVEL	V	VALVE
IR	IRON RAILING	VP	VENT PIPE
JB	JUNCTION BOX	W	WATER COVER
KB	KERB OUTLET	WB	WASTE BIN
LL	LARCH LAP FENCE	WBW	WILDLIFE BURROW
LP	LAMP POST	WL	WATER LEVEL
MB	MULTI HOLE	WM	WATER METER
MH	MANHOLE	WMF	WIRE MESH FENCE
MK	UTILITY MARKER POST	WO	WASH OUT
MW	MONITORING WELL	WV	WATER VALVE

SYMBOLS & LINSTYLES

	BORE HOLE		OVERHEAD ELECTRIC
	TREE		OVERHEAD TELECOM
	BANK		SURVEY STATION



REVISION:

PROJECT	PHASE 3 & 4 HERNE BAY
CLIENT	REDROW HOMES LTD
DRAWING TITLE	TOPOGRAPHICAL SURVEY

SCALE	DATE	
1:500	JANUARY 2020	
DRAWING NUMBER	REVISION	PAPER SIZE
2111_0120_02	-	A1
LEVELS RELATED TO:		
ORDNANCE SURVEY LEVEL DATUM OSGM15GB VIA GNSS SMARTNET AT A SINGLE CONTROL STN		
GRID RELATED TO:		
OSGB36(15) NATIONAL GRID VIA GNSS SMARTNET AT A SINGLE CONTROL STN ORIENTATED TO GRID NORTH WITH A SCALE FACTOR OF 1.000		

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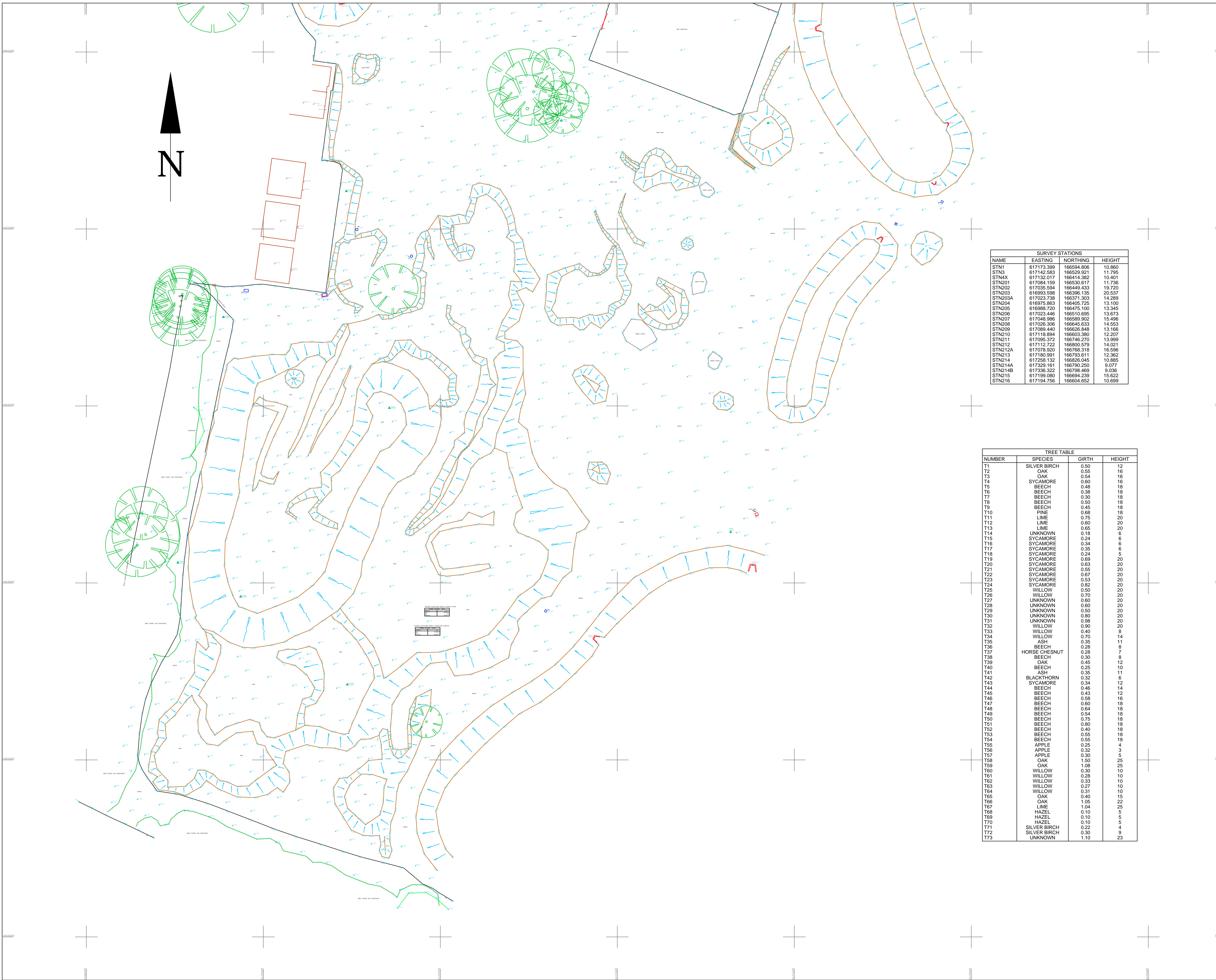
91 CHURCH ROAD
SE19 2TA

SURVEY STATIONS

NAME	EASTING	NORTHING	HEIGHT
STN1	617173.399	166594.806	10.860
STN3	617142.583	166529.921	11.795
STN4X	617132.017	166414.382	10.401
STN201	617084.159	166530.617	11.736
STN202	617035.594	166449.433	19.720
STN203	616993.598	166396.135	20.537
STN203A	617023.738	166371.303	14.289
STN204	616975.863	166405.725	13.100
STN205	616988.720	166475.100	13.345
STN206	617023.446	166510.695	13.673
STN207	617048.966	166599.902	15.496
STN208	617028.306	166545.833	14.553
STN209	617089.440	166626.848	13.166
STN210	617118.894	166603.380	12.207
STN211	617095.372	166746.270	13.999
STN212	617112.722	166900.579	14.021
STN212A	617078.920	166798.318	16.596
STN213	617180.991	166793.611	12.362
STN214	617258.132	166826.045	10.885
STN214A	617329.161	166790.250	9.077
STN214B	617336.322	166798.469	9.036
STN215	617199.080	166694.239	15.822
STN216	617194.756	166604.652	10.699

TREE TABLE

NUMBER	SPECIES	GIRTH	HEIGHT
T1	SILVER BIRCH	0.50	12
T2	OAK	0.55	16
T3	OAK	0.54	16
T4	SYCAMORE	0.60	16
T5	BEECH	0.48	18
T6	BEECH	0.38	18
T7	BEECH	0.30	18
T8	BEECH	0.50	18
T9	BEECH	0.45	18
T10	PINE	0.68	18
T11	LIME	0.75	20
T12	LIME	0.60	20
T13	LIME	0.65	20
T14	UNKNOWN	0.18	6
T15	SYCAMORE	0.24	6
T16	SYCAMORE	0.34	6
T17	SYCAMORE	0.35	6
T18	SYCAMORE	0.24	5
T19	SYCAMORE	0.69	20
T20	SYCAMORE	0.63	20
T21	SYCAMORE	0.55	20
T22	SYCAMORE	0.67	20
T23	SYCAMORE	0.53	20
T24	SYCAMORE	0.82	20
T25	WILLOW	0.50	20
T26	WILLOW	0.70	20
T27	UNKNOWN	0.60	20
T28	UNKNOWN	0.60	20
T29	UNKNOWN	0.50	20
T30	UNKNOWN	0.80	20
T31	UNKNOWN	0.98	20
T32	WILLOW	0.90	20
T33	WILLOW	0.40	8
T34	WILLOW	0.70	14
T35	ASH	0.35	11
T36	BEECH	0.28	8
T37	HORSE CHESTNUT	0.28	7
T38	BEECH	0.30	8
T39	OAK	0.45	12
T40	BEECH	0.25	10
T41	ASH	0.35	11
T42	BLACKTHORN	0.32	6
T43	SYCAMORE	0.34	12
T44	BEECH	0.46	14
T45	BEECH	0.43	12
T46	BEECH	0.58	16
T47	BEECH	0.60	16
T48	BEECH	0.64	18
T49	BEECH	0.54	18
T50	BEECH	0.75	18
T51	BEECH	0.80	18
T52	BEECH	0.40	18
T53	BEECH	0.55	18
T54	BEECH	0.55	18
T55	APPLE	0.25	4
T56	APPLE	0.32	3
T57	APPLE	0.30	5
T58	OAK	1.50	25
T59	OAK	1.08	25
T60	WILLOW	0.90	10
T61	WILLOW	0.28	10
T62	WILLOW	0.33	10
T63	WILLOW	0.27	10
T64	WILLOW	0.31	10
T65	OAK	1.40	15
T66	OAK	1.05	22
T67	LIME	1.04	25
T68	HAZEL	5.10	5
T69	HAZEL	0.10	5
T70	HAZEL	0.10	5
T71	SILVER BIRCH	0.22	4
T72	SILVER BIRCH	0.30	9
T73	UNKNOWN	1.10	23



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T31	UNKNOWN	0.98	20
T32	WILLOW	0.90	20
T33	WILLOW	0.40	8
T34	WILLOW	0.70	14
T35	ASH	0.35	11
T36	BEECH	0.28	8
T37	BEECH	0.30	8
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T64	WILLOW	0.31	10
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T66	OAK	1.06	22
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T68	HAZEL	0.10	5
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T72	SILVER BIRCH	0.30	9
T73	UNKNOWN	1.10	23

SYMBOLS & LINSTYLES

	BORE HOLE		OVERHEAD ELECTRIC
	TREE		OVERHEAD TELECOM
	BANK		SURVEY STATION

SHEET LEGEND

	SHEET1
	SHEET2
	SHEET3

REVISION:

PROJECT
**PHASE 3 & 4
HERNE BAY**

CLIENT
REDROW HOMES LTD

DRAWING TITLE
TOPOGRAPHICAL SURVEY

SCALE: 1:500 DATE: JANUARY 2020

DRAWING NUMBER	REVISION	PAPER SIZE
2111_0120_03	-	A1

LEVELS RELATED TO:
ORDNANCE SURVEY LEVEL DATUM OSGM15GB
VIA GNSS SMARTNET AT A SINGLE CONTROL STN

GRID RELATED TO:
OSGB36(15) NATIONAL GRID VIA GNSS SMARTNET
AT A SINGLE CONTROL STN ORIENTATED TO
GRID NORTH WITH A SCALE FACTOR OF 1.000

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LAND & MEASUREMENT BUILDING SURVEYORS

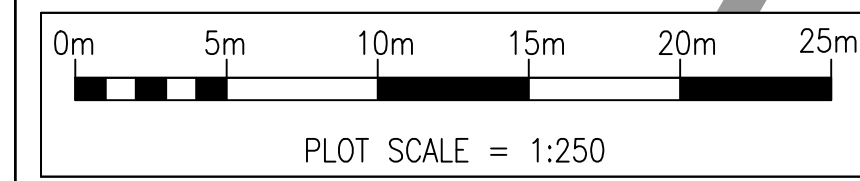
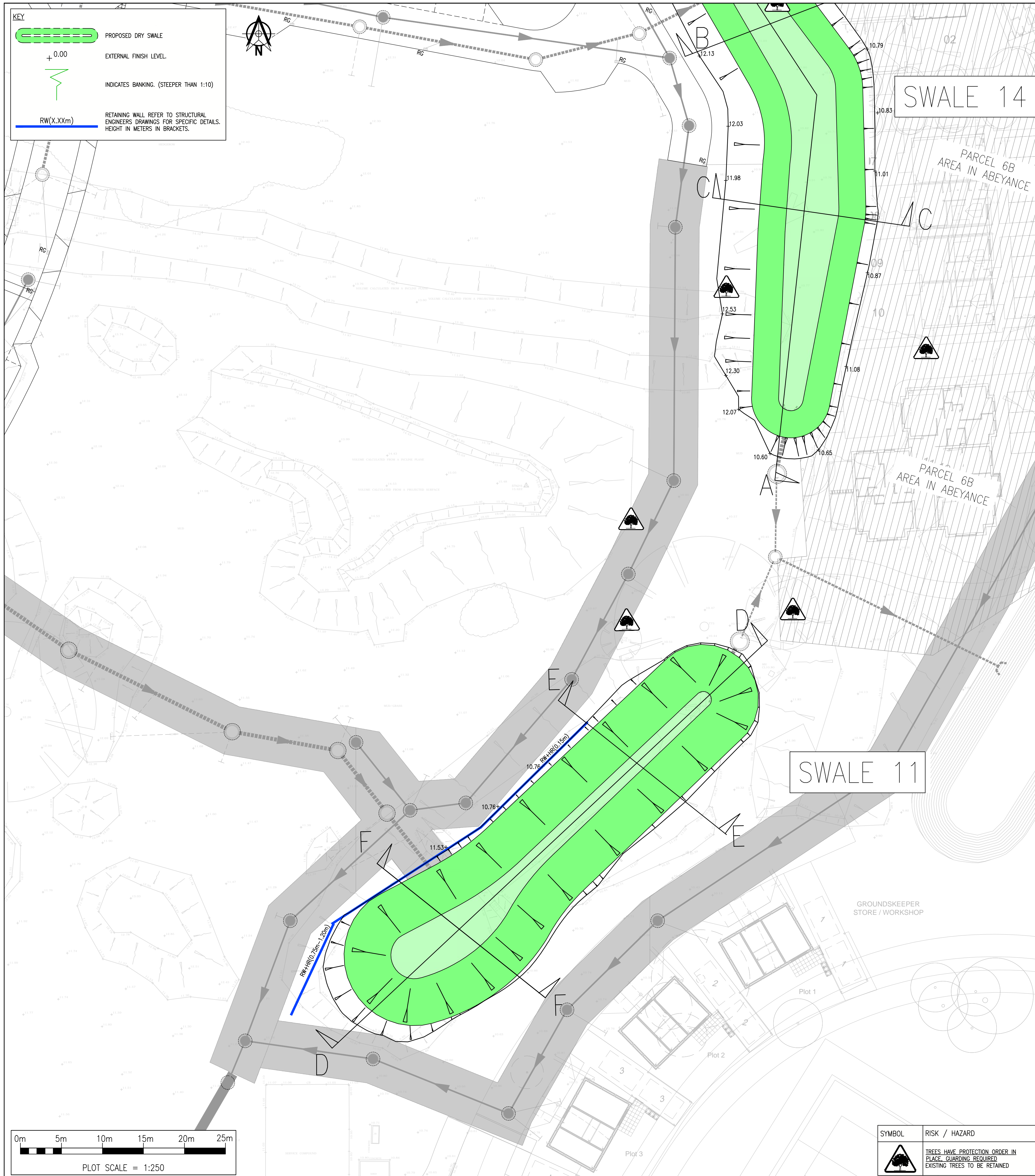
T: 0208 771 3477 91 CHURCH ROAD
E: INFO@SCOPESURVEYS.CO.UK LONDON
W: WWW.SCOPESURVEYS.CO.UK SE19 2TA

THE SURVEY ASSOCIATION FULL MEMBER worksafe contractor ISO 9001 CERTIFIED

B. Drainage Strategy and Basin Drawings

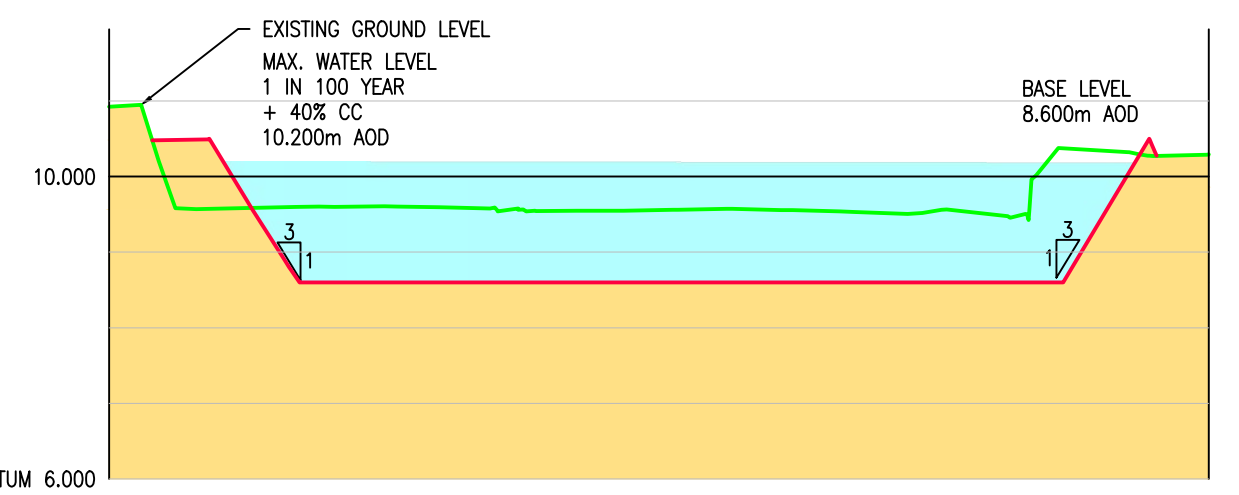
KEY

- PROPOSED DRY SWALE
- +0.00 EXTERNAL FINISH LEVEL
- INDICATES BANKING. (STEEPER THAN 1:10)
- RETAINING WALL REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR SPECIFIC DETAILS. HEIGHT IN METERS IN BRACKETS.



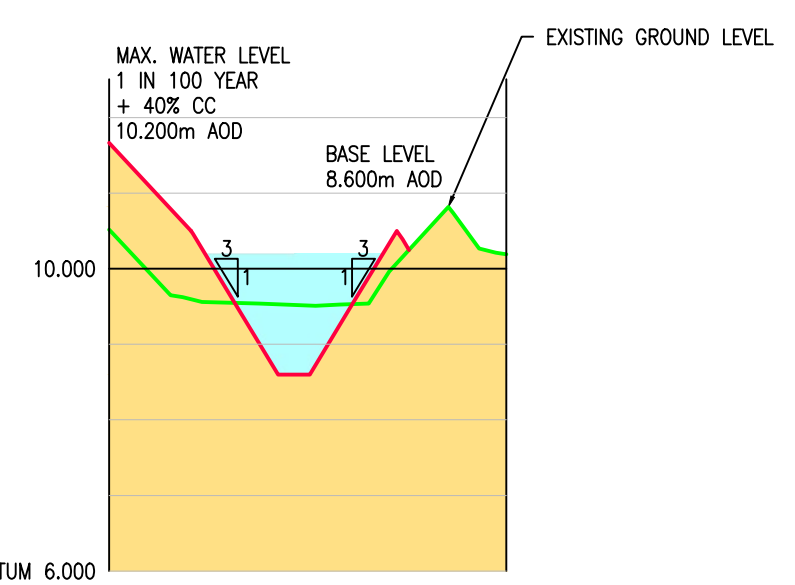
SYMBOL	RISK / HAZARD
	TREES HAVE PROTECTION ORDER IN PLACE. GUARDING REQUIRED. EXISTING TREES TO BE RETAINED

SWALE 11



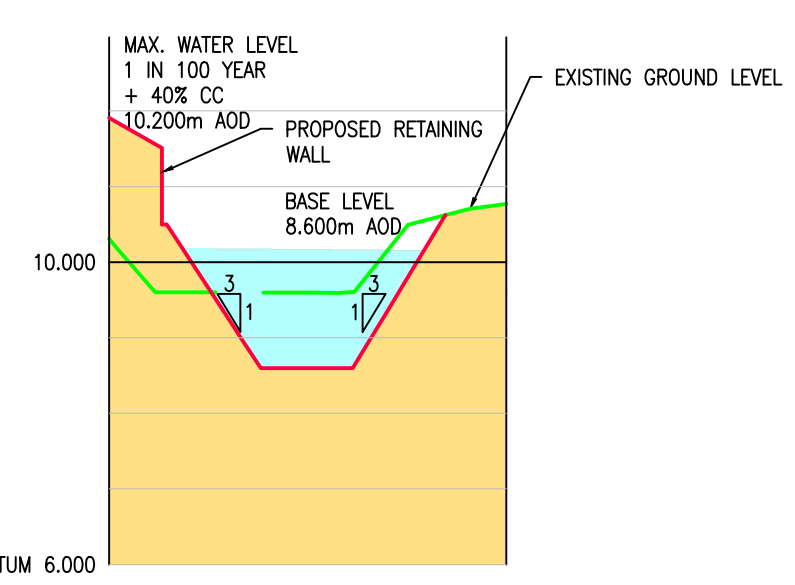
CHAINAGE	0.00	4.177	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	69.282	70.000	72.716	
EXISTING LEVEL	10.925	9.893	9.984	9.577	9.589	8.601	8.600	8.601	8.600	9.580	9.546	8.600	9.550	9.569	9.555	8.600	9.527	9.560	9.477
PROPOSED LEVEL		9.893	9.984	9.577	9.589	8.600	8.600	8.600	8.600	8.600	8.600	8.600	8.600	8.600	8.600	8.600	8.600	8.600	8.600

SECTION D-D



CHAINAGE	0.000	3.320	5.000	10.000	15.000	19.822	20.000	25.000	26.249
EXISTING LEVEL	10.517	9.806	10.363	9.536	9.523	10.286	10.239	10.183	10.183
PROPOSED LEVEL		9.806	10.363	9.536	9.523	10.247	10.247	10.247	10.247

SECTION E-E



CHAINAGE	0.000	1.857	5.000	10.000	15.000	20.000	22.229	25.000	26.249
EXISTING LEVEL	10.306	9.873	9.601	9.598	8.600	8.600	10.508	10.736	10.770
PROPOSED LEVEL		9.873	10.133	8.606	8.600	8.600	10.622	10.736	10.770

SECTION F-F

- DO NOT SCALE FROM THIS DRAWING**
- NOTES:
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS (SEE CDM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 - ANY WORKS OUTSIDE SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY. UNLESS SPECIFICALLY NOTED, ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
 - THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
 - ALL SETTING OUT SHALL BE AGREED ON-SITE WITH THE ENGINEER, PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - WHERE SETTING OUT OF FOUNDATIONS AND/OR PILES HAS BEEN PROVIDED BY FAIRHURST (OR OTHERS) THESE MUST BE CROSS CHECKED AGAINST THE BUILDING SETTING OUT INFORMATION, BY THE CONTRACTOR, PRIOR TO INSTALLATION AS DETAILED BELOW:
 - CONTRACTOR TO INSTALL PEGS FOR FOUNDATIONS AND PILE LOCATIONS.
 - CONTRACTOR TO INSTALL PEGS FOR CORNERS OF BUILDING AND KEY FEATURES.
 - CONTRACTOR TO VERIFY (USING TAPE MEASURE OR OTHER APPROVED METHOD) BUILDING AND FOUNDATION FOOTPRINTS ALONG.
 - CONTRACTOR TO INFORM CLIENT AND ENGINEER(S) OF ANY DISCREPANCIES AND CONFLICTS PRIOR TO INSTALLATION WORKS.

CONSTRUCTION

Rev	Date	Revision Description	Drn/Chkd/Appd.
C1	15.12.20	CONSTRUCTION ISSUE	TH/TH/AC
T2	07.10.20	PHASE 6B ADDED	REM/TH/AC
T1	18.09.20	SWALES UPDATED.	CDU/TH/AC
P2	08.09.20	NEW SITE LAYOUT ADDED. SWALE 14 ADDED. SWALE 14A REMOVED.	JJ/TH/AC
P1	11.08.20	FOR INFORMATION	JJ/TH/AC

FAIRHURST
135 Park Street,
LONDON
SE1 9EA

REDROW HOMES

Tel: 020 7828 8205
Fax: 084 4381 4412
Web: www.fairhurst.co.uk
Email: london@fairhurst.co.uk

Client:
HERNE BAY PHASE 4

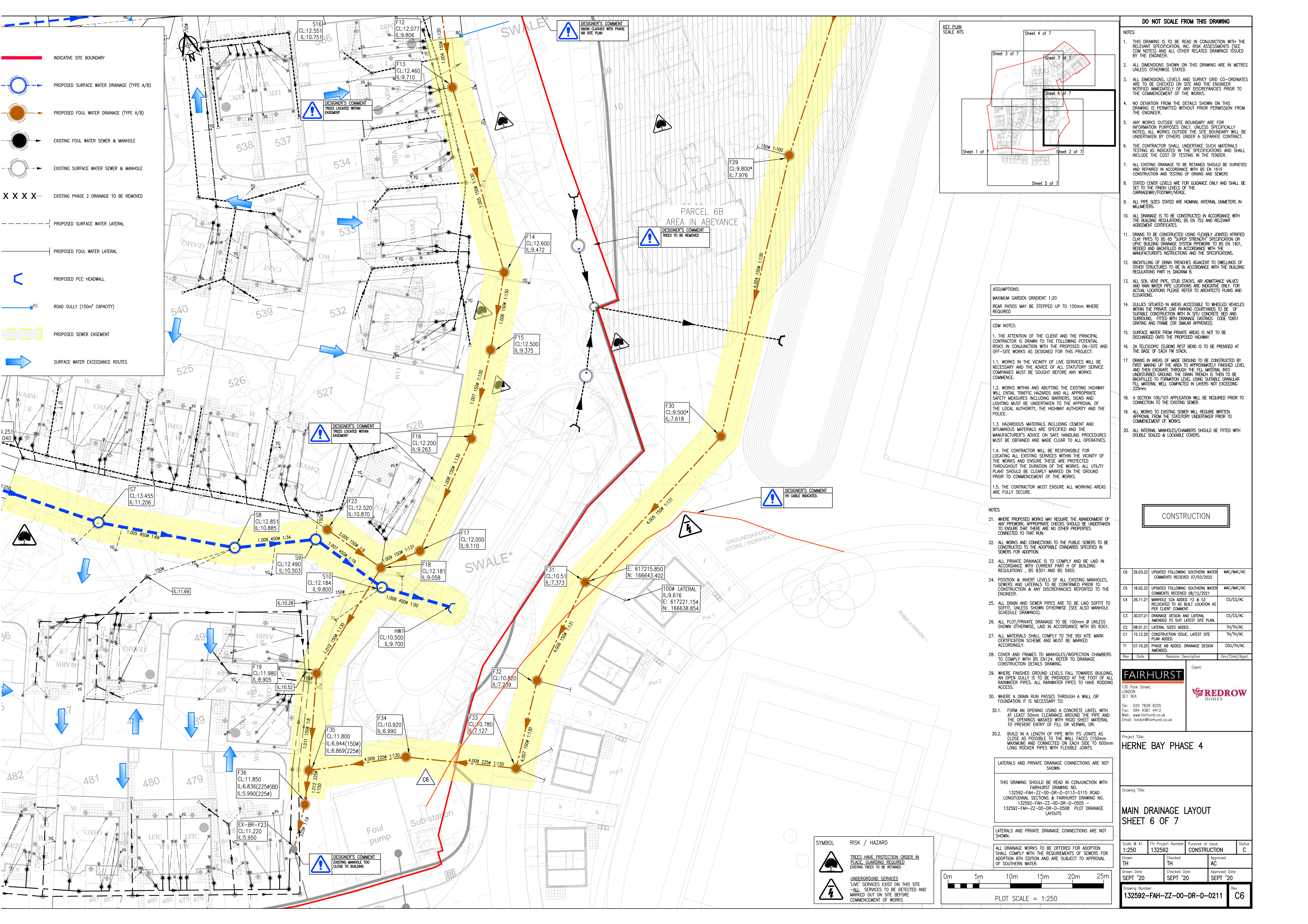
Drawing Title:
BASIN GENERAL ARRANGEMENT & SECTIONS SHEET 2 OF 2

Scale @ A1	F# Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C

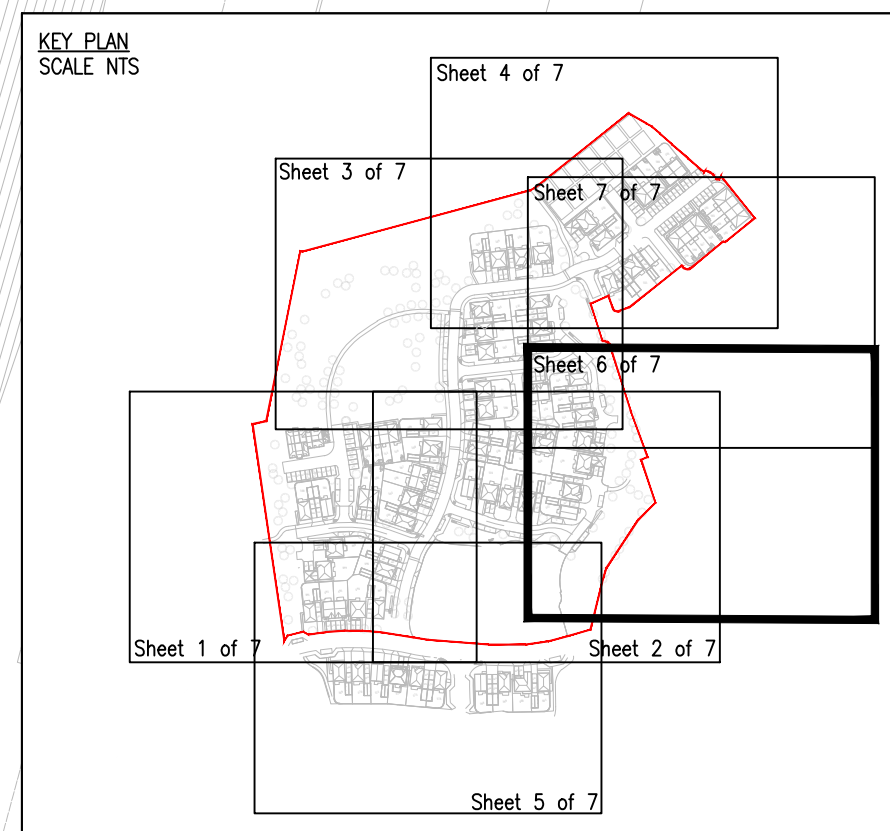
Drawn	Checked	Approved
JJ	TH	AC

Drawn Date	Checked Date	Approved Date
AUG 2020	AUG 2020	AUG 2020

Drawing Number	Rev
132592-FAH-ZZ-00-DR-C-0526	C1



- INDICATIVE SITE BOUNDARY
- PROPOSED SURFACE WATER DRAINAGE (TYPE A/B)
- PROPOSED FOUL WATER DRAINAGE (TYPE A/B)
- EXISTING FOUL WATER SEWER & MANHOLE
- EXISTING SURFACE WATER SEWER & MANHOLE
- EXISTING PHASE 2 DRAINAGE TO BE REMOVED
- PROPOSED SURFACE WATER LATERAL
- PROPOSED FOUL WATER LATERAL
- PROPOSED PCC HEADWALL
- ROAD GULLY (150m² CAPACITY)
- PROPOSED SEWER EASEMENT
- SURFACE WATER EXCEEDANCE ROUTES



- DO NOT SCALE FROM THIS DRAWING**
- NOTES:
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS (SEE CDM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 2. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 3. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 4. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 5. ANY WORKS OUTSIDE SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY, UNLESS SPECIFICALLY NOTED. ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
 6. THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
 7. ALL EXISTING DRAINAGE TO BE RETAINED SHOULD BE SURVEYED AND REPAIRED IN ACCORDANCE WITH BS EN 1610 CONSTRUCTION AND TESTING OF DRAINS AND SEWERS
 8. STATED COVER LEVELS ARE FOR GUIDANCE ONLY AND SHALL BE SET TO THE FINISH LEVELS OF THE CARRIAGEWAY/FOOTWAY/VERGE.
 9. ALL PIPE SIZES STATED ARE NOMINAL INTERNAL DIAMETERS IN MILLIMETERS.
 10. ALL DRAINAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND RELEVANT AGREEMENT CERTIFICATES.
 11. DRAINS TO BE CONSTRUCTED USING FLEXIBLY JOINTED VITRIFIED CLAY PIPES TO BS 65 'SUPER STRENGTH' SPECIFICATION OR U/PVC BUILDING DRAINAGE SYSTEMS EQUIPMENT TO BS EN 1401, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE SPECIFICATIONS.
 12. BACKFILLING OF DRAIN TRENCHES ADJACENT TO DWELLINGS OF OTHER STRUCTURES TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS PART 4, CHAPTER 8.
 13. ALL SOIL VENT PIPE, STUB STACKS, AIR ADMITTANCE VALVES AND RAIN WATER PIPE LOCATIONS ARE INDICATIVE ONLY. FOR ACTUAL LOCATIONS PLEASE REFER TO ARCHITECTS PLANS AND ELEVATIONS.
 14. GULLIES SITUATED IN AREAS ACCESSIBLE TO WHEELED VEHICLES WITHIN THE PRIVATE CAR PARKING COURTYARDS TO BE OF SUITABLE CONSTRUCTION WITH IN SITU CONCRETE BED AND SURROUND, FITTED WITH DRAINAGE CASTINGS (CODE TD05) GRATING AND FRAME (OR SIMILAR APPROVED).
 15. SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED ONTO THE PROPOSED HIGHWAY.
 16. 2A TELESCOPIC (ELBOW) REST BEND IS TO BE PROVIDED AT THE BASE OF EACH FW STACK.
 17. DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MARKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL AND UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
 18. A SECTION 106/107 APPLICATION WILL BE REQUIRED PRIOR TO CONNECTION TO THE EXISTING SEWER.
 19. ALL WORKS TO EXISTING SEWER WILL REQUIRE WRITTEN APPROVAL FROM THE STATUTORY UNDERTAKER PRIOR TO COMMENCEMENT OF WORKS.
 20. ALL INTERNAL MANHOLES/CHAMBERS SHOULD BE FITTED WITH DOUBLE SEALED & LOCKABLE COVERS.

ASSUMPTIONS:
MAXIMUM GARDEN GRADIENT 1:20
REAR PATIOS MAY BE STEPPED UP TO 150mm WHERE REQUIRED

- CDM NOTES:
1. THE ATTENTION OF THE CLIENT AND THE PRINCIPAL CONTRACTOR IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONJUNCTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT:
 - 1.1. WORKS IN THE VICINITY OF LIVE SERVICES WILL BE NECESSARY AND THE ADVICE OF ALL STATUTORY SERVICE COMPANIES MUST BE SOUGHT BEFORE ANY WORKS COMMENCE.
 - 1.2. WORKS WITHIN AND ABUTTING THE EXISTING HIGHWAY WILL ENTAIL TRAFFIC HAZARDS AND ALL APPROPRIATE SAFETY MEASURES INCLUDING BARRIERS, SIGNS AND LIGHTING MUST BE UNDERTAKEN TO THE APPROVAL OF THE LOCAL AUTHORITY, THE HIGHWAY AUTHORITY AND THE POLICE.
 - 1.3. HAZARDOUS MATERIALS INCLUDING CEMENT AND BITUMINOUS MATERIALS ARE SPECIFIED AND THE MANUFACTURER'S ADVICE ON SAFE HANDLING PROCEDURES MUST BE OBTAINED AND MADE CLEAR TO ALL OPERATIVES.
 - 1.4. THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS AND ENSURE THESE ARE PROTECTED THROUGHOUT THE DURATION OF THE WORKS. ALL UTILITY PLANT SHOULD BE CLEARLY MARKED ON THE GROUND PRIOR TO COMMENCEMENT OF THE WORKS.
 - 1.5. THE CONTRACTOR MUST ENSURE ALL WORKING AREAS ARE FULLY SECURE.

- NOTES:
21. WHERE PROPOSED WORKS MAY REQUIRE THE ABANDONMENT OF ANY NETWORK, APPROPRIATE CHECKS SHOULD BE UNDERTAKEN TO ENSURE THAT THERE ARE NO OTHER PROPERTIES CONNECTED TO THAT RUN.
 22. ALL WORKS AND CONNECTIONS TO THE PUBLIC SEWERS TO BE CONSTRUCTED TO THE APPLICABLE STANDARDS SPECIFIED IN SEWERS FOR ADOPTION.
 23. ALL PRIVATE DRAINAGE IS TO COMPLY AND BE LAID IN ACCORDANCE WITH CURRENT PART H OF BUILDING REGULATIONS - BS 8301 AND BS 5955.
 24. POSITION & INVERT LEVELS OF ALL EXISTING MANHOLES, SEWERS AND LATERALS TO BE CONFIRMED PRIOR TO CONSTRUCTION & ANY DISCREPANCIES REPORTED TO THE ENGINEER.
 25. ALL DRAIN AND SEWER PIPES ARE TO BE LAID SOFFIT TO SOFFIT, UNLESS SHOWN OTHERWISE (SEE ALSO MANHOLE SCHEDULE DRAWINGS).
 26. ALL PLOT/PRIVATE DRAINAGE TO BE 100mm Ø UNLESS SHOWN OTHERWISE, LAID IN ACCORDANCE WITH BS 8301.
 27. ALL MATERIALS SHALL COMPLY TO THE BSI KITE MARK ACCORDINGLY.
 28. COVER AND FRAMES TO MANHOLES/INSPECTION CHAMBERS TO COMPLY WITH BS EN124. REFER TO DRAINAGE CONSTRUCTION DETAILS DRAWING.
 29. WHERE FINISHED GROUND LEVELS FALL TOWARDS BUILDING, AN OPEN GULLY IS TO BE PROVIDED AT THE FOOT OF ALL RAINWATER PIPES. ALL RAINWATER PIPES TO HAVE RODDING ACCESS.
 30. WHERE A DRAIN RUN PASSES THROUGH A WALL OR FOUNDATION IT IS NECESSARY TO:
 - 30.1. FORM AN OPENING USING A CONCRETE LINTEL WITH AT LEAST 50mm CLEARANCE AROUND THE PIPE AND THE OPENINGS MASKED WITH RIGID SHEET MATERIAL TO PREVENT ENTRY OF FILL OR VERMIN, OR;
 - 30.2. BUILD IN A LENGTH OF PIPE WITH ITS JOINTS AS CLOSE AS POSSIBLE TO THE WALL FACES (150mm MAXIMUM) AND CONNECTED ON EACH SIDE TO 600mm LONG ROCKER PIPES WITH FLEXIBLE JOINTS.

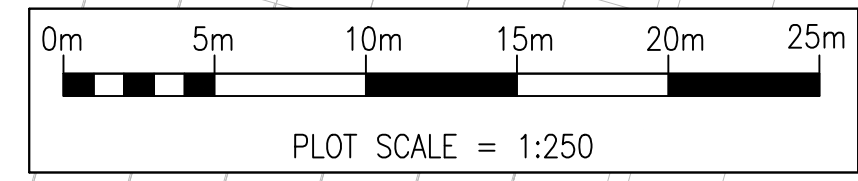
LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0113-0115 ROAD LONGITUDINAL SECTIONS & FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0505 - 132592-FAH-ZZ-00-DR-D-0508 PLOT DRAINAGE LAYOUTS

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

ALL DRAINAGE WORKS TO BE OFFERED FOR ADOPTION SHALL COMPLY WITH THE REQUIREMENTS OF SEWERS FOR ADOPTION 6TH EDITION AND ARE SUBJECT TO APPROVAL OF SOUTHERN WATER.

- SYMBOL RISK / HAZARD**
- TREES HAVE PROTECTION ORDER IN PLACE. GUARDING REQUIRED EXISTING TREES TO BE RETAINED
 - UNDERGROUND SERVICES 'LIVE' SERVICES EXIST ON THIS SITE - ALL SERVICES TO BE DETECTED AND MARKED OUT ON SITE BEFORE COMMENCEMENT OF WORKS



Rev	Date	Revision Description	Drn/Chkd/Appd.
C6	29.03.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 07/03/2022	MAC/MAC/AC
C5	18.02.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 08/12/2021	MAC/MAC/AC
C4	26.11.21	MANHOLE S24 ADDED. F2 & S3 RELOCATED TO AS BUILT LOCATION AS PER CLIENT COMMENT	CS/CS/AC
C3	30.07.21	DRAINAGE DESIGN AND LATERAL AMENDED TO SUIT LATEST SITE PLAN.	CS/CS/AC
C2	08.01.21	LATERAL SIZES ADDED.	TH/TH/AC
C1	15.12.20	CONSTRUCTION ISSUE. LATEST SITE PLAN ADDED.	TH/TH/AC
T1	07.10.20	PHASE 6B ADDED. DRAINAGE DESIGN AMENDED.	CDU/TH/AC

Client:

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135 Park Street,
LONDON
SE1 9EA

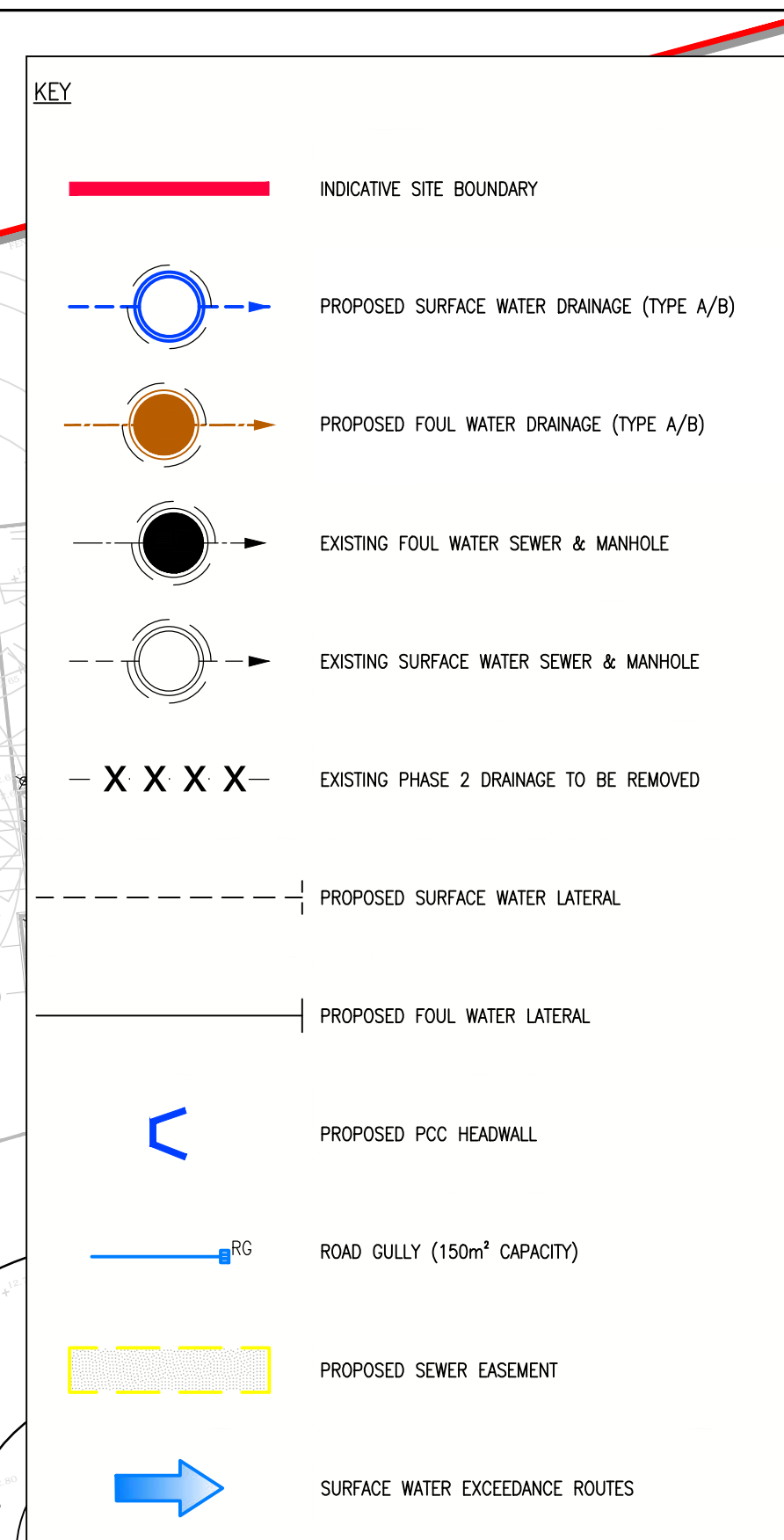
REDROW HOMES

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Email: london@fairhurst.co.uk

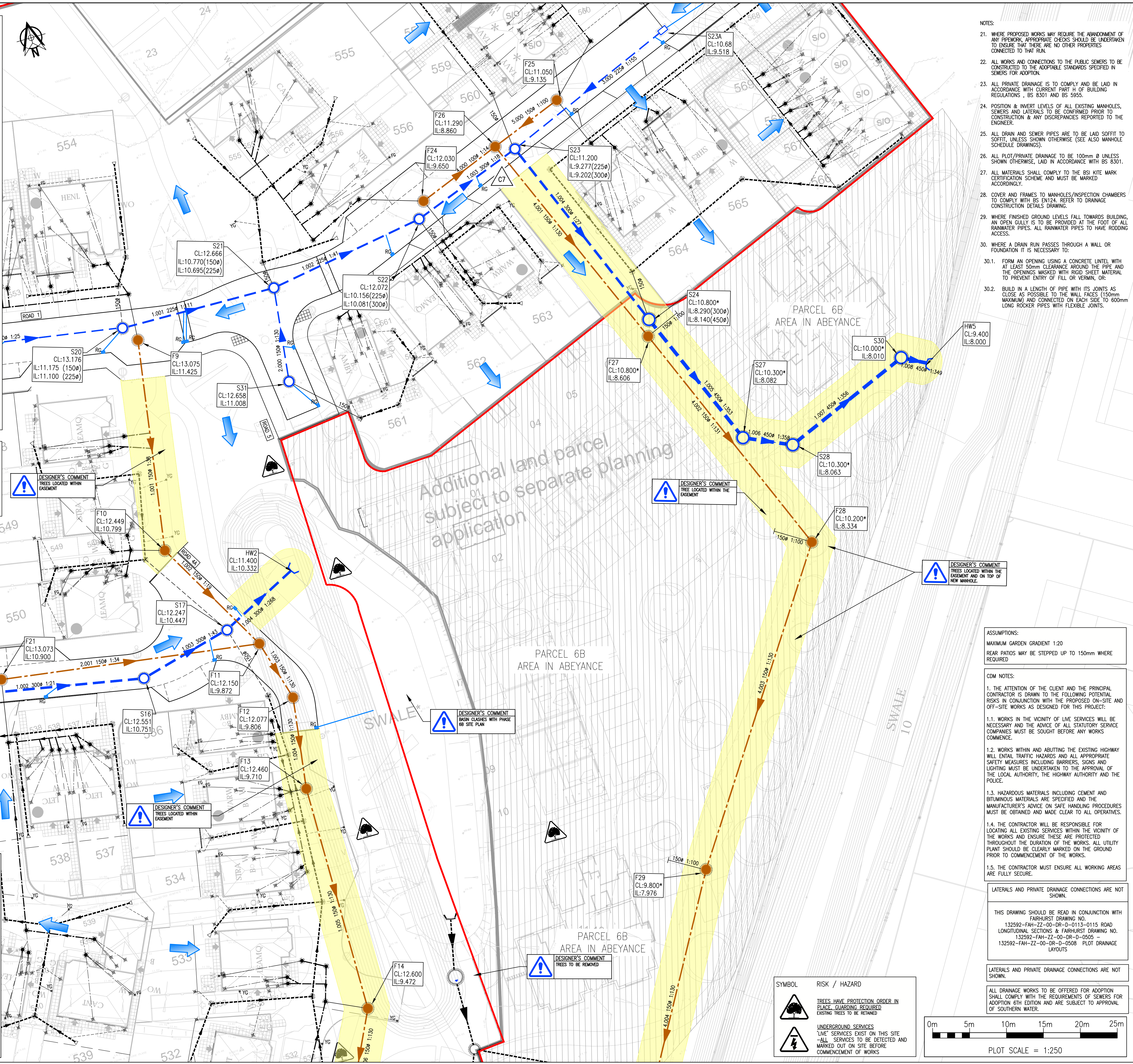
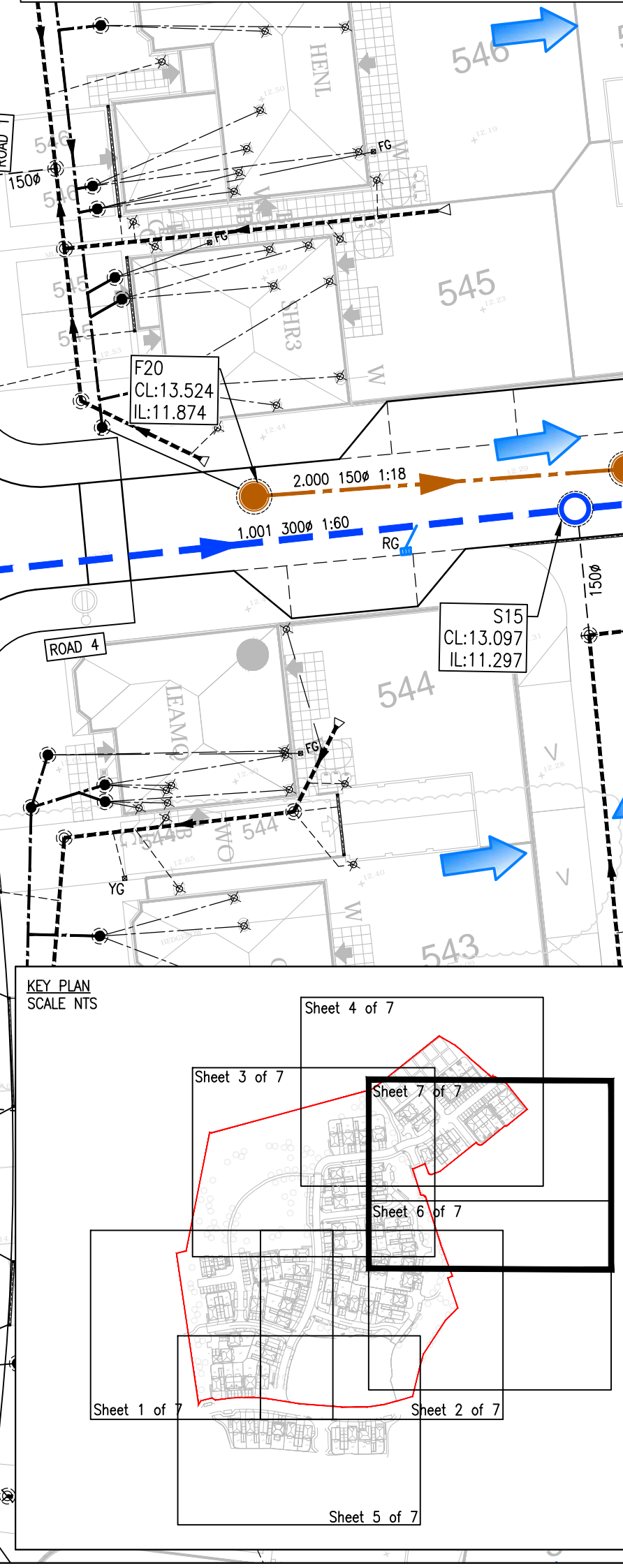
Project Title:
HERNE BAY PHASE 4

Drawing Title:
**MAIN DRAINAGE LAYOUT
SHEET 6 OF 7**

Scale @ A1	FH Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C
Drawn TH	Checked TH	Approved AC	
Drawn Date SEPT '20	Checked Date SEPT '20	Approved Date SEPT '20	
Drawn Number 132592-FAH-ZZ-00-DR-D-0211	Rev C6		



ORIGINAL TOPOGRAPHICAL SURVEY FILE : 2111_TS_HERNEBAY_0120 RECEIVED 29/01/2020
 ORIGINAL ARCHITECT PLAN : 2756F-SITE PLAN PHASE 6A RECEIVED 05/03/2020 FROM REDROW
 ORIGINAL POND LAYOUT : HERNE BAY - SWALE LAYOUT RECEIVED 30/01/2020 FROM MLM
 ORIGINAL SPINE ROAD : 617232-SPINE ROAD CAD MODEL REVISION C5, RECEIVED 25/07/2019 FROM MLM



DO NOT SCALE FROM THIS DRAWING

- NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INK ASSESSMENTS (SEE COM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 - ANY WORKS OUTSIDE SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY UNLESS SPECIFICALLY NOTED. ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
 - THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
 - ALL EXISTING DRAINAGE TO BE SURVEYED AND REPAIRED IN ACCORDANCE WITH BS EN 1610 CONSTRUCTION AND TESTING OF DRAINS AND SEWERS.
 - STATED COVER LEVELS ARE FOR GUIDANCE ONLY AND SHALL BE SET TO THE FINISHED LEVEL OF THE CARRIAGEWAY/FOOTWAY/VERGE.
 - ALL PIPE SIZES STATED ARE NOMINAL INTERNAL DIAMETERS IN MILLIMETERS.
 - ALL DRAINAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND RELEVANT AGREEMENT CERTIFICATES.
 - DRAINS TO BE CONSTRUCTED USING FLEXIBLY JOINTED VITRIFIED CLAY PIPES TO BS 65 SUPER STRENGTH SPECIFICATION OR UPVC BUILDING DRAINAGE SYSTEM PIPEWORK TO BS EN 14611, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE SPECIFICATIONS.
 - BACKFILLING OF DRAIN TRENCHES ADJACENT TO DWELLINGS OF OTHER STRUCTURES TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS PART 4, PARAGRAPH 5.
 - ALL SOIL VENT PIPE, STUB STACKS, AIR ADMITTANCE VALVES AND RAIN WATER PIPE LOCATIONS ARE INDICATIVE ONLY. FOR ACTUAL LOCATIONS PLEASE REFER TO ARCHITECTS PLANS AND ELEVATIONS.
 - GULLIES SITUATED IN AREAS ACCESSIBLE TO WHEELED VEHICLES WITHIN THE PRIVATE CAR PARKING COURTYARDS TO BE OF SUITABLE BUILDING DRAINAGE SYSTEM PIPEWORK TO BS EN 14611, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE SPECIFICATIONS.
 - SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED INTO THE PROPOSED HIGHWAY.
 - 2A TELESCOPIC (ELBOW) REST BEND IS TO BE PROVIDED AT THE BASE OF EACH FW STACK.
 - DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MAKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
 - A SECTION 106/107 APPLICATION WILL BE REQUIRED PRIOR TO CONNECTION TO THE EXISTING SEWER.
 - ALL WORKS TO EXISTING SEWER WILL REQUIRE WRITTEN APPROVAL FROM THE STATUTORY UNDERTAKER PRIOR TO COMMENCEMENT OF WORKS.
 - ALL INTERNAL MANHOLES/CHAMBERS SHOULD BE FITTED WITH DOUBLE SEALED & LOCKABLE COVERS.

CONSTRUCTION

Rev	Date	Revision Description	Drn/Chkd/Appd.
C7	05.09.22	UPDATED PIPE 3.000 DIAMETER	MAC/MAC/AC
C6	29.03.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 07/03/2022	MAC/MAC/AC
C5	18.02.22	EXCEEDANCE FLOW ROUTES ADDED.	RA/MAC/AC
C4	26.11.21	MANHOLE S24 ADDED. F2 & S3 RELOCATED TO AS BUILT LOCATION AS PER CLIENT COMMENT.	CS/CS/AC
C3	30.07.21	DRAINAGE DESIGN AND LATERAL AMENDED TO SUIT LATEST SITE PLAN.	CS/CS/AC
C2	08.01.21	LATERAL SIZES ADDED.	TH/TH/AC
C1	15.12.20	CONSTRUCTION ISSUE. LATEST SITE PLAN ADDED.	TH/TH/AC
T1	07.10.20	PHASE 6B ADDED. DRAINAGE DESIGN AMENDED.	CDU/TH/AC

FAIRHURST
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 SE1 9EA

REDROW
 HERMES

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Client:
HERNE BAY PHASE 4

Drawing Title:
MAIN DRAINAGE LAYOUT SHEET 7 OF 7

Scale @ A1	F# Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C

Drawn	Checked	Approved
TH	TH	AC

Drawn Date	Checked Date	Approved Date
SEPT '20	SEPT '20	SEPT '20

Drawing Number: **132592-FAH-ZZ-00-DR-D-0212** Rev: **C7**

ASSUMPTIONS:
 MAXIMUM GARDEN GRADIENT 1:20
 REAR PATIOS MAY BE STEPPED UP TO 150mm WHERE REQUIRED

CDM NOTES:
 1. THE ATTENTION OF THE CLIENT AND THE PRINCIPAL CONTRACTOR IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONJUNCTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT:
 1.1. WORKS IN THE VICINITY OF LIVE SERVICES WILL BE NECESSARY AND THE ADVICE OF ALL STATUTORY SERVICE COMPANIES MUST BE SOUGHT BEFORE ANY WORKS COMMENCE.
 1.2. WORKS WITHIN AND ABUTTING THE EXISTING HIGHWAY WILL ENTAIL TRAFFIC HAZARDS AND ALL APPROPRIATE SAFETY MEASURES INCLUDING BARRIERS, SIGNS AND LIGHTING MUST BE UNDERTAKEN TO THE APPROVAL OF THE LOCAL AUTHORITY, THE HIGHWAY AUTHORITY AND THE POLICE.
 1.3. HAZARDOUS MATERIALS INCLUDING CEMENT AND BITUMINOUS MATERIALS ARE SPECIFIED AND THE MANUFACTURER'S ADVICE ON SAFE HANDLING PROCEDURES MUST BE OBTAINED AND MADE CLEAR TO ALL OPERATIVES.
 1.4. THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS AND ENSURE THESE ARE PROTECTED THROUGHOUT THE DURATION OF THE WORKS. ALL UTILITY PLANT SHOULD BE CLEARLY MARKED ON THE GROUND PRIOR TO COMMENCEMENT OF THE WORKS.
 1.5. THE CONTRACTOR MUST ENSURE ALL WORKING AREAS ARE FULLY SECURE.

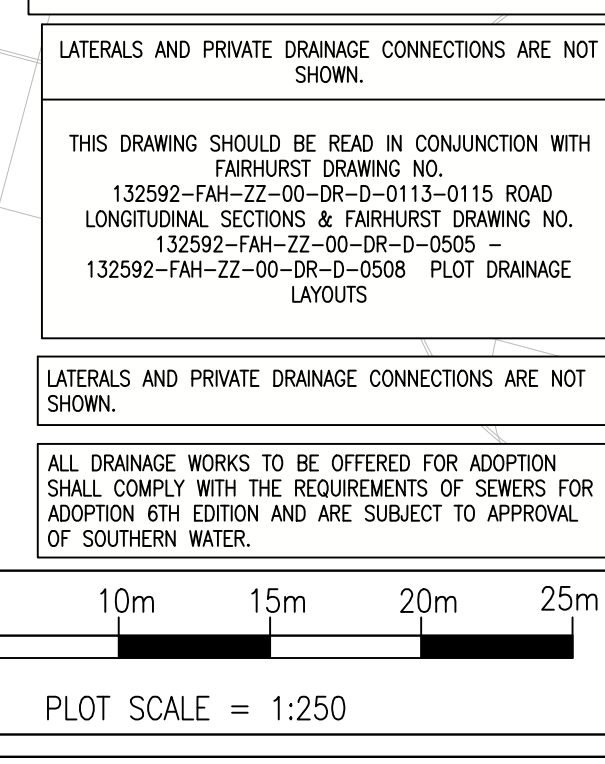
LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

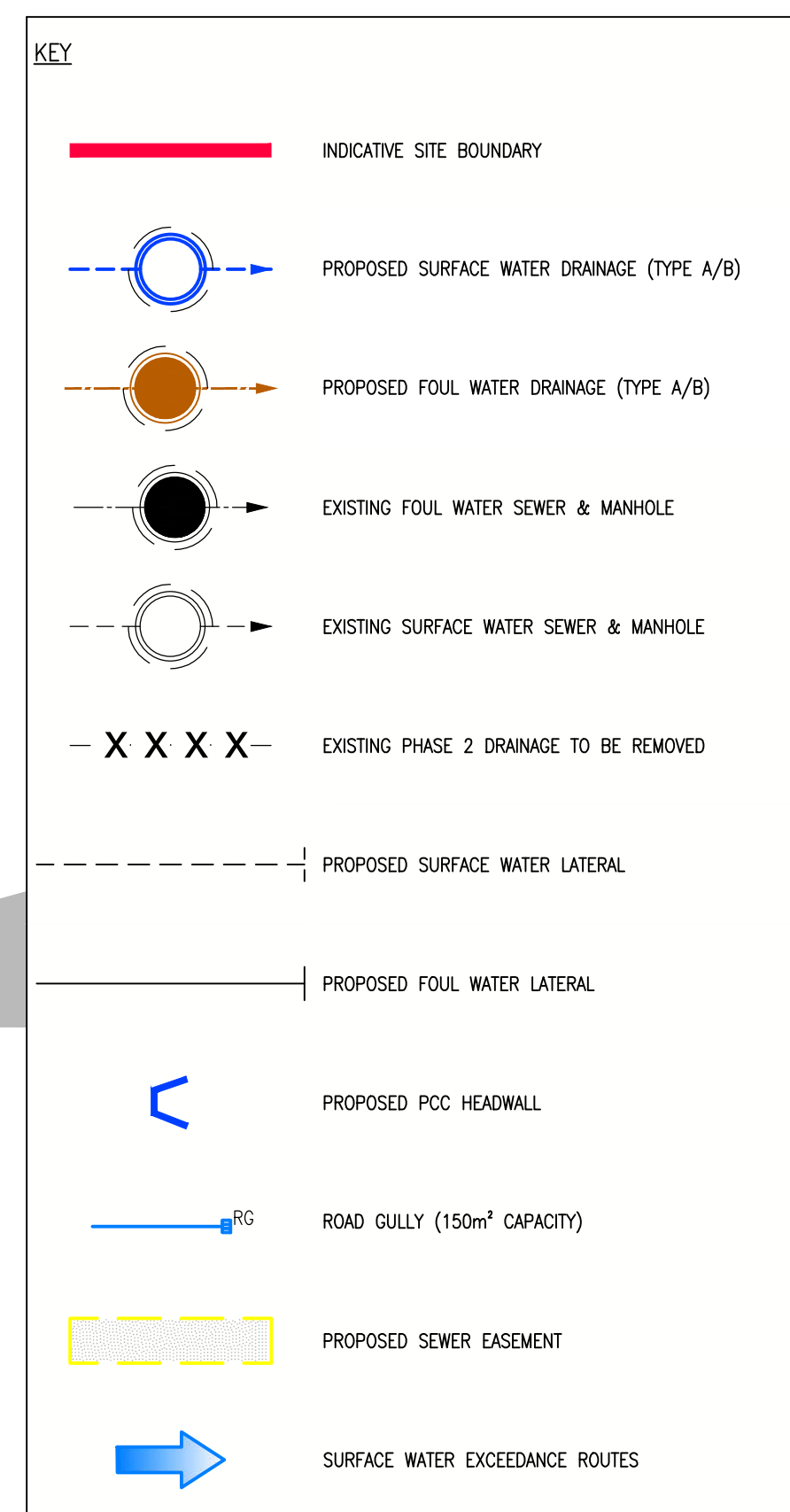
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0113-0115 ROAD LONGITUDINAL SECTIONS & FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0505 - 132592-FAH-ZZ-00-DR-D-0508 PLOT DRAINAGE LAYOUTS

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

ALL DRAINAGE WORKS TO BE OFFERED FOR ADOPTION SHALL COMPLY WITH THE REQUIREMENTS OF SEWERS FOR ADOPTION 6TH EDITION AND ARE SUBJECT TO APPROVAL OF SOUTHERN WATER.



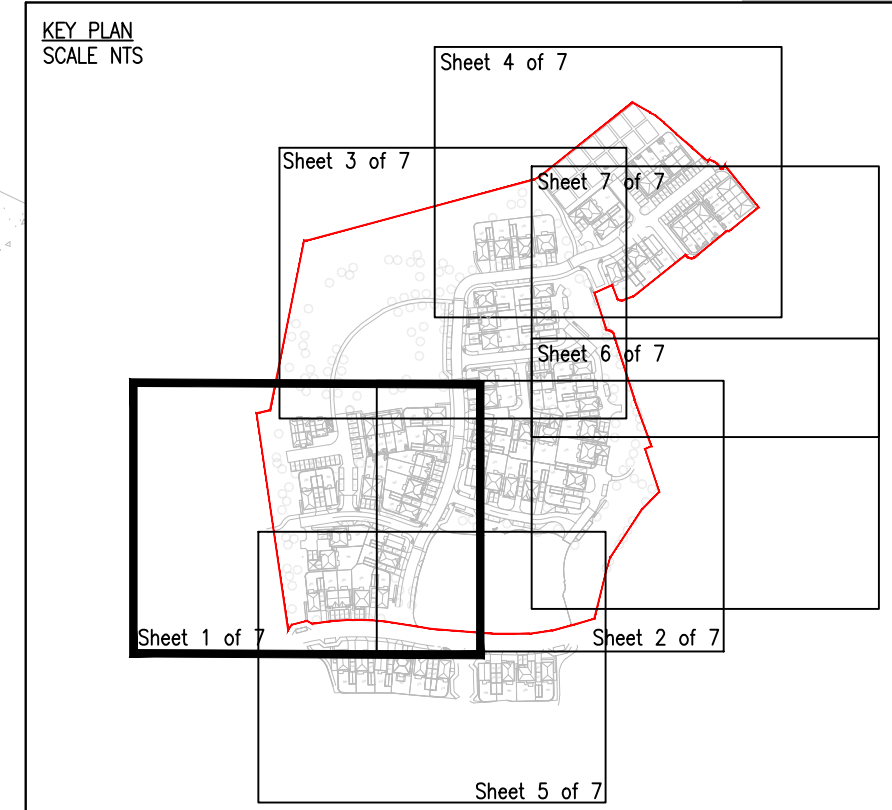


CDM NOTES:

- THE ATTENTION OF THE CLIENT AND THE PRINCIPAL CONTRACTOR IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONJUNCTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT:
- WORKS IN THE VICINITY OF LIVE SERVICES WILL BE NECESSARY AND THE ADVICE OF ALL STATUTORY SERVICE COMPANIES MUST BE SOUGHT BEFORE ANY WORKS COMMENCE.
- WORKS WITHIN AND ADJUTING THE EXISTING HIGHWAY WILL ENTAIL TRAFFIC HAZARDS AND ALL APPROPRIATE SAFETY MEASURES INCLUDING BARRIERS, SIGNS AND LIGHTING MUST BE UNDERTAKEN TO THE APPROVAL OF THE LOCAL AUTHORITY, THE HIGHWAY AUTHORITY AND THE POLICE.
- HAZARDOUS MATERIALS INCLUDING CEMENT AND BITUMINOUS MATERIALS ARE SPECIFIED AND THE MANUFACTURER'S ADVICE ON SAFE HANDLING PROCEDURES MUST BE OBTAINED AND MADE CLEAR TO ALL OPERATIVES.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS AND ENSURE THESE ARE PROTECTED THROUGHOUT THE DURATION OF THE WORKS. ALL UTILITY PLANT SHOULD BE CLEARLY MARKED ON THE GROUND PRIOR TO COMMENCEMENT OF THE WORKS.
- THE CONTRACTOR MUST ENSURE ALL WORKING AREAS ARE FULLY SECURE.

SYMBOL	RISK / HAZARD
	TREES HAVE PROTECTION ORDER IN PLACE, GUARDING REQUIRED EXISTING TREES TO BE RETAINED
	UNDERGROUND SERVICES LIVE SERVICES EXIST ON THIS SITE - ALL SERVICES TO BE DETECTED AND MARKED OUT ON SITE BEFORE COMMENCEMENT OF WORKS

ORIGINAL TOPOGRAPHICAL SURVEY FILE : 2111_TS_HERNEBAY_0120 RECEIVED 29/01/2020
 ORIGINAL ARCHITECT PLAN : 2756F-SITE PLAN PHASE 6A RECEIVED 05/03/2020 FROM REDROW
 ORIGINAL POND LAYOUT : HERNE BAY - SWALE LAYOUT RECEIVED 30/01/2020 FROM MLM
 ORIGINAL SPINE ROAD : 617232-SPINE ROAD CAD MODEL REVISION C5, RECEIVED 25/07/2019 FROM MLM



CONTINUATION ON SHEET
132592-FAH-ZZ-00-DR-D-0503

- NOTES:**
- WHERE PROPOSED WORKS MAY REQUIRE THE ABANDONMENT OF ANY PIPEWORK, APPROPRIATE CHECKS SHOULD BE UNDERTAKEN TO ENSURE THAT THERE ARE NO OTHER PROPERTIES CONNECTED TO THAT RUN.
 - ALL WORKS AND CONNECTIONS TO THE PUBLIC SEWERS TO BE CONSTRUCTED TO THE ADAPTABLE STANDARDS SPECIFIED IN SEWERS FOR ADOPTION.
 - ALL PRIVATE DRAINAGE IS TO COMPLY AND BE LAID IN ACCORDANCE WITH CURRENT PART H OF BUILDING REGULATIONS - BS 8301 AND BS 9955.
 - POSITION & INVERT LEVELS OF ALL EXISTING MANHOLES, SEWERS AND LATERALS TO BE CONFIRMED PRIOR TO CONSTRUCTION & ANY DISCREPANCIES REPORTED TO THE ENGINEER.
 - ALL DRAIN AND SEWER PIPES ARE TO BE LAID SOFFIT TO SOFFIT, UNLESS SHOWN OTHERWISE (SEE ALSO MANHOLE SCHEDULE DRAWINGS).
 - ALL PLOT/PRIVATE DRAINAGE TO BE 100mm Ø UNLESS SHOWN OTHERWISE, LAID IN ACCORDANCE WITH BS 8301.
 - ALL MATERIALS SHALL COMPLY TO THE BS KITE MARK CERTIFICATION SCHEME AND MUST BE MARKED ACCORDINGLY.
 - COVER AND FRAMES TO MANHOLES/INSPECTION CHAMBERS TO COMPLY WITH BS EN124. REFER TO DRAINAGE CONSTRUCTION DETAILS DRAWING.
 - WHERE FINISHED GROUND LEVELS FALL TOWARDS BUILDING, AN OPEN GULLY IS TO BE PROVIDED AT THE FOOT OF ALL RAINWATER PIPES. ALL RAINWATER PIPES TO HAVE ROODING ACCESS.
 - WHERE A DRAIN RUN PASSES THROUGH A WALL OR FOUNDATION IT IS NECESSARY TO:
 - FORM AN OPENING USING A CONCRETE LINTEL WITH AT LEAST 50mm CLEARANCE AROUND THE PIPE AND THE OPENINGS MASKED WITH RIGID SHEET MATERIAL TO PREVENT ENTRY OF FILL OR VERMIN, OR:
 - BUILD IN A LENGTH OF PIPE WITH ITS JOINTS AS CLOSE AS POSSIBLE TO THE WALL FACES (150mm MAXIMUM) AND CONNECTED ON EACH SIDE TO 800mm LONG ROCKER PIPES WITH FLEXIBLE JOINTS.

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0113-0115 ROAD LONGITUDINAL SECTIONS & FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0505 - 132592-FAH-ZZ-00-DR-D-0508 PLOT DRAINAGE LAYOUTS.

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

ALL DRAINAGE WORKS TO BE OFFERED FOR ADOPTION SHALL COMPLY WITH THE REQUIREMENTS OF SEWERS FOR ADOPTION 6TH EDITION AND ARE SUBJECT TO APPROVAL OF SOUTHERN WATER.



- DO NOT SCALE FROM THIS DRAWING**
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 - THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
 - ALL EXISTING DRAINAGE TO BE RETAINED SHOULD BE SURVEYED AND REPAIRED IN ACCORDANCE WITH BS EN 1610 CONSTRUCTION AND TESTING OF DRAINS AND SEWERS.
 - STATED COVER LEVELS ARE FOR GUIDANCE ONLY AND SHALL BE CARRIAGEWAY/FOOTWAY/VERGE.
 - ALL PIPE SIZES STATED ARE NOMINAL INTERNAL DIAMETERS IN MILLIMETERS.
 - ALL DRAINAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND RELEVANT AGREEMENT CERTIFICATES.
 - DRAINS TO BE CONSTRUCTED USING FLEXIBLY JOINTED VITRIFIED CLAY PIPES TO BS 85 'SUPER STRENGTH' SPECIFICATION OR UPEVC BUILDING DRAINAGE SYSTEM PIPEWORK TO BS EN 14611, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE SPECIFICATIONS.
 - BACKFILLING OF DRAIN TRENCHES ADJACENT TO DWELLINGS OF OTHER STRUCTURES TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS PART 4, PARAGRAPH 3.
 - ALL SOIL VENT PIPE, STUB STACKS, AIR ADMITTANCE VALVES AND RAIN WATER PIPE LOCATIONS TO BE INDICATIVE ONLY. FOR ACTUAL LOCATIONS PLEASE REFER TO ARCHITECTS PLANS AND ELEVATIONS.
 - GULLIES SITUATED IN AREAS ACCESSIBLE TO WHEELED VEHICLES WITHIN THE PRIVATE CAR PARKING COURTYARDS TO BE OF SUITABLE CONSTRUCTION WITH IN SITU CONCRETE BED AND SURROUND, FITTED WITH DRAINAGE CASTINGS CODE T061 GRATING AND FRAME (OR SIMILAR APPROVED).
 - SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED ONTO THE PROPOSED HIGHWAY.
 - 2A TELESCOPIC (ELBOW) REST BEND IS TO BE PROVIDED AT THE BASE OF EACH FW STACK.
 - DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MAKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL, WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
 - A SECTION 106/107 APPLICATION WILL BE REQUIRED PRIOR TO CONNECTION TO THE EXISTING SEWER.
 - ALL WORKS TO EXISTING SEWER WILL REQUIRE WRITTEN APPROVAL FROM THE STATUTORY UNDERTAKER PRIOR TO COMMENCEMENT OF WORKS.
 - ALL INTERNAL MANHOLES/CHAMBERS SHOULD BE FITTED WITH DOUBLE SEALED & LOCKABLE COVERS.

CONSTRUCTION

Rev	Date	Revision Description	Drn/CDM/Appl.
C6	18.02.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 08/12/2021	MAC/MAC/AC
C5	26.11.21	MANHOLE S2A ADDED. F2 & S3 RELOCATED TO AS BUILT LOCATION AS PER CLIENT COMMENT.	CS/CS/AC
C4	30.07.21	DRAINAGE DESIGN AND LATERAL SITE PLAN.	CS/CS/AC
C3	17.05.21	SW PIPE NAMES AMENDED	GM/PP/AC
C2	08.01.21	LATERAL SIZES ADDED.	TH/TH/AC
C1	15.12.20	CONSTRUCTION ISSUE. LATEST SITE PLAN ADDED.	TH/TH/AC
T2	07.10.20	PHASE 6B ADDED. DRAINAGE DESIGN AMENDED.	CDU/TH/AC
T1	17.09.20	LATEST SITE LAYOUT ADDED.	CDU/TH/AC
P3	23.07.20	LATEST SITE LAYOUT ADDED.	JH/TH/AC
P2	27.02.20	PRELIMINARY ISSUE.	CDU/TH/AC
P1	18.02.20	PRELIMINARY ISSUE.	CDU/TH/AC

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Project Title:
HERNE BAY PHASE 4

Drawing Title:
MAIN DRAINAGE LAYOUT SHEET 1 OF 7

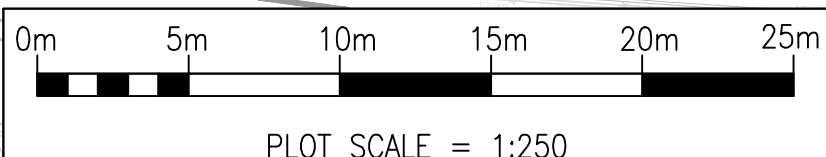
Scale @ A1	FH Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C

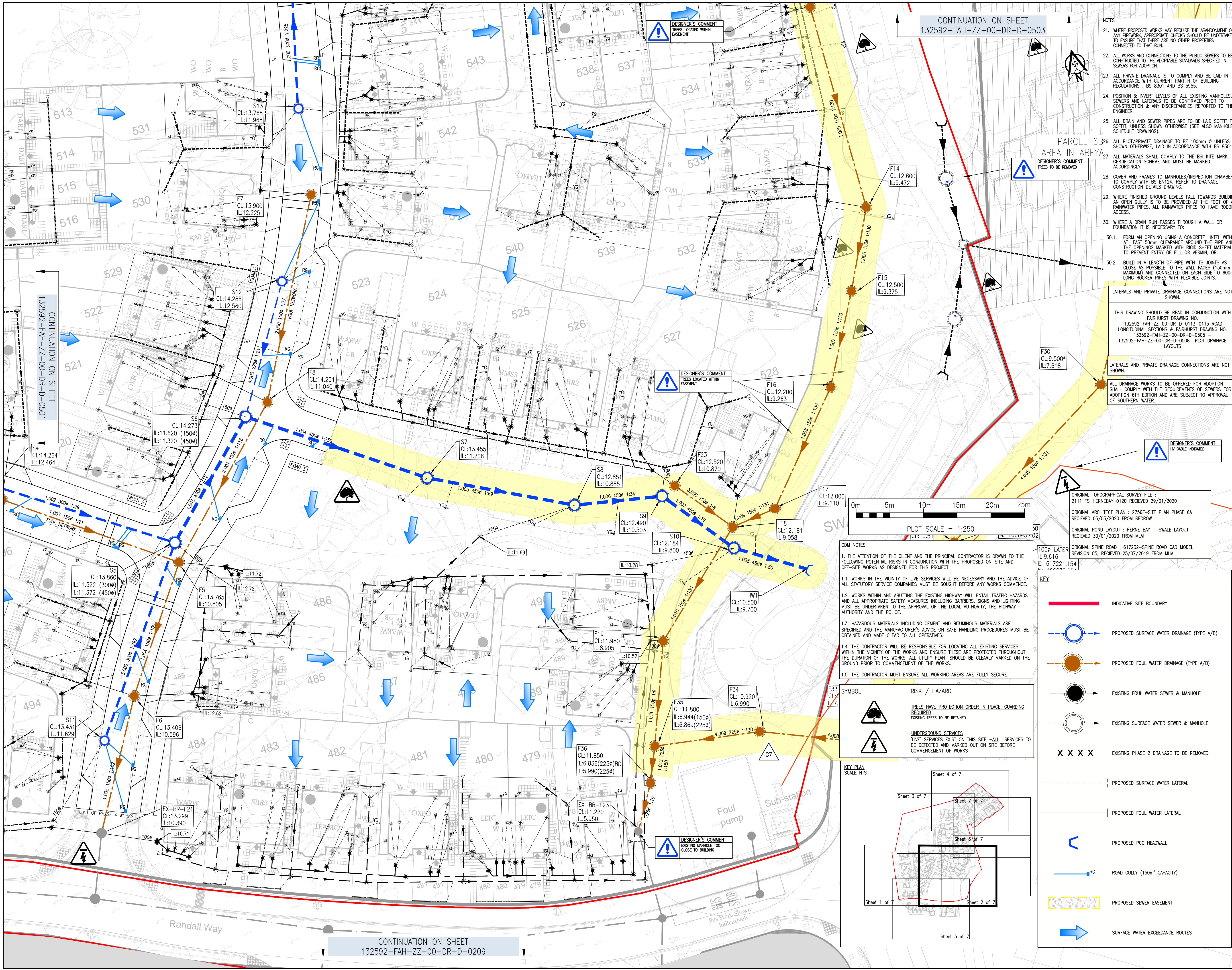
Drawn	Checked	Approved
CDU	HJ	AC

Drawn Date	Checked Date	Approved Date
10/02/20	10/02/20	10/02/20

Drawing Number: **132592-FAH-ZZ-00-DR-D-0501** Rev: **C6**

CONTINUATION ON SHEET
132592-FAH-ZZ-00-DR-D-0209





CONTINUATION ON SHEET
132592-FAH-ZZ-00-DR-D-0503

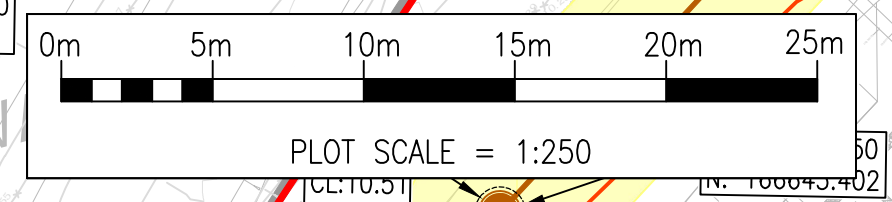
CONTINUATION ON SHEET
132592-FAH-ZZ-00-DR-D-0501

CONTINUATION ON SHEET
132592-FAH-ZZ-00-DR-D-0209

- NOTES:
- WHERE PROPOSED WORKS MAY REQUIRE THE ABANDONMENT OF ANY PIPEWORK, APPROPRIATE CHECKS SHOULD BE UNDERTAKEN TO ENSURE THAT THERE ARE NO OTHER PROPERTIES CONNECTED TO THAT RUN.
 - ALL WORKS AND CONNECTIONS TO THE PUBLIC SEWERS TO BE CONSTRUCTED TO THE APPLICABLE STANDARDS SPECIFIED IN SEWERS FOR ADOPTION.
 - ALL PRIVATE DRAINAGE IS TO COMPLY AND BE LAID IN ACCORDANCE WITH CURRENT PART H OF BUILDING REGULATIONS, BS 8301 AND BS 5955.
 - POSITION & INVERT LEVELS OF ALL EXISTING MANHOLES, SEWERS AND LATERALS TO BE CONFIRMED PRIOR TO CONSTRUCTION & ANY DISCREPANCIES REPORTED TO THE ENGINEER.
 - ALL DRAIN AND SEWER PIPES ARE TO BE LAID SOFFIT TO SOFFIT, UNLESS SHOWN OTHERWISE (SEE ALSO MANHOLE SCHEDULE DRAWINGS).
 - ALL PLOT/PRIVATE DRAINAGE TO BE 100mm Ø UNLESS SHOWN OTHERWISE, LAID IN ACCORDANCE WITH BS 8301.
 - ALL MATERIALS SHALL COMPLY TO THE BSI KITE MARK CERTIFICATION SCHEME AND MUST BE MARKED ACCORDINGLY.
 - COVER AND FRAMES TO MANHOLES/INSPECTION CHAMBERS TO COMPLY WITH BS EN124. REFER TO DRAINAGE CONSTRUCTION DETAILS DRAWING.
 - WHERE FINISHED GROUND LEVELS FALL TOWARDS BUILDING, AN OPEN GULLY IS TO BE PROVIDED AT THE FOOT OF ALL RAINWATER PIPES. ALL RAINWATER PIPES TO HAVE ROOFING ACCESS.
 - WHERE A DRAIN RUN PASSES THROUGH A WALL OR FOUNDATION IT IS NECESSARY TO:
 - FORM AN OPENING USING A CONCRETE LINTEL WITH AT LEAST 50mm CLEARANCE AROUND THE PIPE AND THE OPENINGS MASKED WITH RIGID SHEET MATERIAL TO PREVENT ENTRY OF RIGID OR VERMIN, OR;
 - BUILD IN A LENGTH OF PIPE WITH ITS JOINTS AS CLOSE AS POSSIBLE TO THE WALL FACES (150mm MAXIMUM) AND CONNECTED ON EACH SIDE TO 600mm LONG ROCKER PIPES WITH FLEXIBLE JOINTS.
 - LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.
 - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0113-0115 ROAD LONGITUDINAL SECTIONS & FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0505 132592-FAH-ZZ-00-DR-D-0508 PLOT DRAINAGE LAYOUTS
 - LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.
 - ALL SOIL VENT PIPE, STUB STACKS, AIR ADMITTANCE VALVES AND RAIN WATER PIPE LOCATIONS ARE INDICATIVE ONLY. FOR ACTUAL LOCATIONS PLEASE REFER TO ARCHITECTS PLANS AND ELEVATIONS.
 - SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED ONTO THE PROPOSED HIGHWAY.
 - 2A TELESCOPIC (ELBOW) REST BEND IS TO BE PROVIDED AT THE BASE OF EACH FW STACK.
 - DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MAKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL, WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
 - A SECTION 106/107 APPLICATION WILL BE REQUIRED PRIOR TO CONNECTION TO THE EXISTING SEWER.
 - ALL WORKS TO EXISTING SEWER WILL REQUIRE WRITTEN APPROVAL FROM THE STATUTORY UNDERTAKER PRIOR TO COMMENCEMENT OF WORKS.
 - ALL INTERNAL MANHOLES/CHAMBERS SHOULD BE FITTED WITH DOUBLE SEALED & LOCKABLE COVERS.

DO NOT SCALE FROM THIS DRAWING

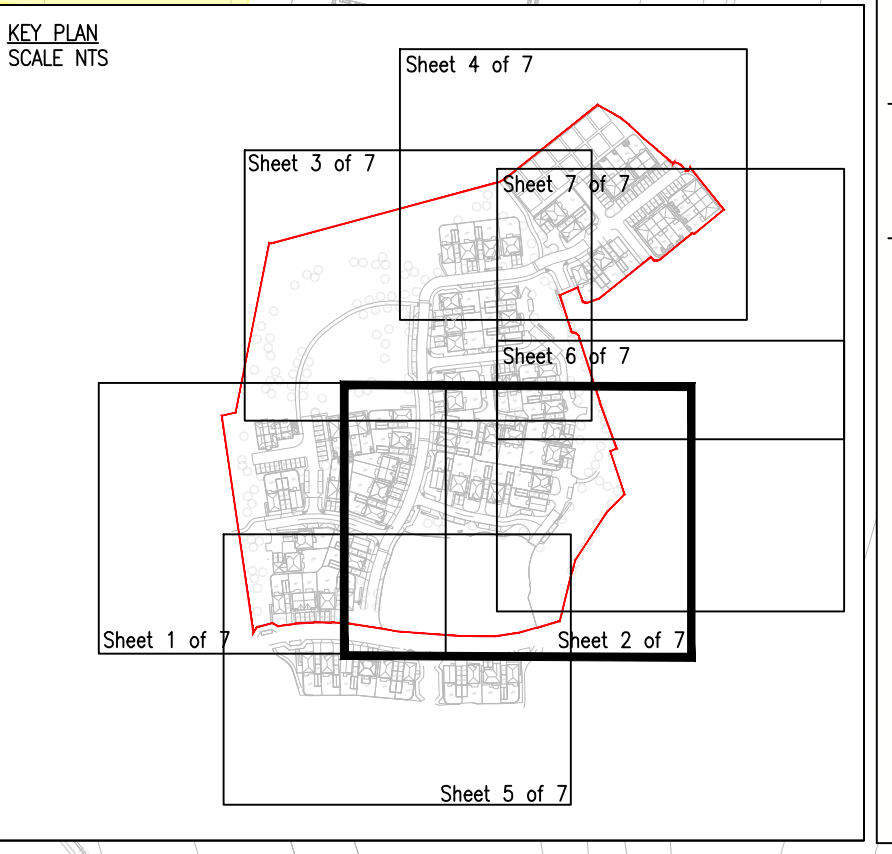
- NOTES:
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS (SEE CDM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 - ANY WORKS OUTSIDE SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY. UNLESS SPECIFICALLY NOTED, ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
 - THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
 - ALL EXISTING DRAINAGE TO BE SURVEYED AND REPAIRED IN ACCORDANCE WITH BS EN 1610 CONSTRUCTION AND TESTING OF DRAINS AND SEWERS
 - STATED COVER LEVELS ARE FOR GUIDANCE ONLY AND SHALL BE THE CARRIAGEWAY/FOOTWAY/VERGE.
 - ALL PIPE SIZES STATED ARE NOMINAL INTERNAL DIAMETERS IN MILLIMETRES.
 - ALL DRAINAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND RELEVANT AGREEMENT CERTIFICATES.
 - DRAINS TO BE CONSTRUCTED USING FLEXIBLY JOINTED VITRIFIED CLAY PIPES TO BS 65 SUPER STRENGTH SPECIFICATION OR UPVC BUILDING DRAINAGE SYSTEM PIPEWORK TO BS EN 14611, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE SPECIFICATIONS.
 - BACKFILLING OF DRAIN TRENCHES ADJACENT TO DWELLINGS OF OTHER STRUCTURES TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS PART 4, TABLE 1.
 - ALL SOIL VENT PIPE, STUB STACKS, AIR ADMITTANCE VALVES AND RAIN WATER PIPE LOCATIONS ARE INDICATIVE ONLY. FOR ACTUAL LOCATIONS PLEASE REFER TO ARCHITECTS PLANS AND ELEVATIONS.
 - GULLIES SITUATED IN AREAS ACCESSIBLE TO WHEELED VEHICLES WITHIN THE PRIVATE CAR PARKING COURTYARDS TO BE OF SUBSTANTIAL CONSTRUCTION WITH IN SITU CONCRETE BED AND SURROUND, FITTED WITH DRAINAGE CASTINGS CODE T061 GRATING AND FRAME (OR SIMILAR APPROVED).
 - SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED ONTO THE PROPOSED HIGHWAY.
 - 2A TELESCOPIC (ELBOW) REST BEND IS TO BE PROVIDED AT THE BASE OF EACH FW STACK.
 - DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MAKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL, WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
 - A SECTION 106/107 APPLICATION WILL BE REQUIRED PRIOR TO CONNECTION TO THE EXISTING SEWER.
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 - ALL INTERNAL MANHOLES/CHAMBERS SHOULD BE FITTED WITH DOUBLE SEALED & LOCKABLE COVERS.



ORIGINAL TOPOGRAPHICAL SURVEY FILE :
2111_TS_HERNEBAY_0120 RECEIVED 29/01/2020
ORIGINAL ARCHITECT PLAN : 2756F-SITE PLAN PHASE 6A
RECEIVED 05/03/2020 FROM REDROW
ORIGINAL POND LAYOUT : HERNE BAY - SWALE LAYOUT
RECEIVED 30/01/2020 FROM MLM
ORIGINAL SPINE ROAD : 617232-SPINE ROAD CAD MODEL
REVISION C5, RECEIVED 25/07/2019 FROM MLM

- CDM NOTES:
- THE ATTENTION OF THE CLIENT AND THE PRINCIPAL CONTRACTOR IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONJUNCTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT:
 - WORKS IN THE VICINITY OF LIVE SERVICES WILL BE NECESSARY AND THE ADVICE OF ALL STATUTORY SERVICE COMPANIES MUST BE SOUGHT BEFORE ANY WORKS COMMENCE.
 - WORKS WITHIN AND ABUTTING THE EXISTING HIGHWAY WILL ENTAIL TRAFFIC HAZARDS AND ALL APPROPRIATE SAFETY MEASURES INCLUDING BARRIERS, SIGNS AND LIGHTING MUST BE UNDERTAKEN TO THE APPROVAL OF THE LOCAL AUTHORITY, THE HIGHWAY AUTHORITY AND THE POLICE.
 - HAZARDOUS MATERIALS INCLUDING CEMENT AND BITUMINOUS MATERIALS ARE SPECIFIED AND THE MANUFACTURER'S ADVICE ON SAFE HANDLING PROCEDURES MUST BE OBTAINED AND MADE CLEAR TO ALL OPERATIVES.
 - THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS AND ENSURE THESE ARE PROTECTED THROUGHOUT THE DURATION OF THE WORKS. ALL UTILITY PLANT SHOULD BE CLEARLY MARKED ON THE GROUND PRIOR TO COMMENCEMENT OF THE WORKS.
 - THE CONTRACTOR MUST ENSURE ALL WORKING AREAS ARE FULLY SECURE.

- SYMBOL RISK / HAZARD
- TREES HAVE PROTECTION ORDER IN PLACE, GUARDING REQUIRED. EXISTING TREES TO BE RETAINED
 - UNDERGROUND SERVICES 'LIVE' SERVICES EXIST ON THIS SITE - ALL SERVICES TO BE DETECTED AND MARKED OUT ON SITE BEFORE COMMENCEMENT OF WORKS



- KEY
- INDICATIVE SITE BOUNDARY
 - PROPOSED SURFACE WATER DRAINAGE (TYPE A/B)
 - PROPOSED FOUL WATER DRAINAGE (TYPE A/B)
 - EXISTING FOUL WATER SEWER & MANHOLE
 - EXISTING SURFACE WATER SEWER & MANHOLE
 - EXISTING PHASE 2 DRAINAGE TO BE REMOVED
 - PROPOSED SURFACE WATER LATERAL
 - PROPOSED FOUL WATER LATERAL
 - PROPOSED PCC HEADWALL
 - ROAD GULLY (150m² CAPACITY)
 - PROPOSED SEWER EASEMENT
 - SURFACE WATER EXCEEDANCE ROUTES

CONSTRUCTION

Rev	Date	Revision Description	Drn/CDM/Aspd.
C7	28.03.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 07/03/2022	MAC/MAC/AC
C6	18.02.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 08/12/2021	MAC/MAC/AC
C5	26.11.21	MANHOLE S24 ADDED: F2 & S3 RELOCATED TO AS BUILT LOCATION AS PER CLIENT COMMENT.	CS/CS/AC
C4	30.07.21	DRAINAGE DESIGN AND LATERAL AMENDED TO SUIT LATEST SITE PLAN.	CS/CS/AC
C3	17.05.21	SW PIPE NAMES AMENDED.	GM/PP/AC
C2	08.01.21	LATERAL SIZES ADDED.	TH/TH/AC
C1	15.12.20	CONSTRUCTION ISSUE. LATEST SITE PLAN ADDED.	TH/TH/AC
T2	07.10.20	PHASE 6B ADDED. DRAINAGE DESIGN AMENDED.	CDU/TH/AC
T1	17.09.20	LATEST SITE LAYOUT ADDED.	CDU/TH/AC
P3	23.07.20	SHEET 5 ADDED AND PHASING AMENDED.	JJ/TH/AC
P2	27.02.20	PRELIMINARY ISSUE.	CDU/TH/AC
P1	18.02.20	PRELIMINARY ISSUE.	CDU/TH/AC

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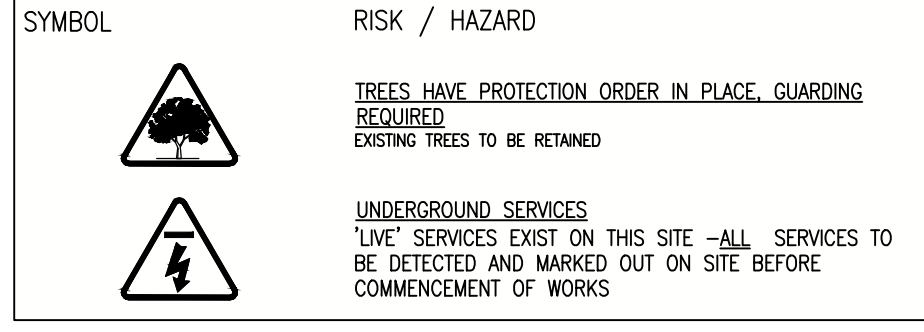
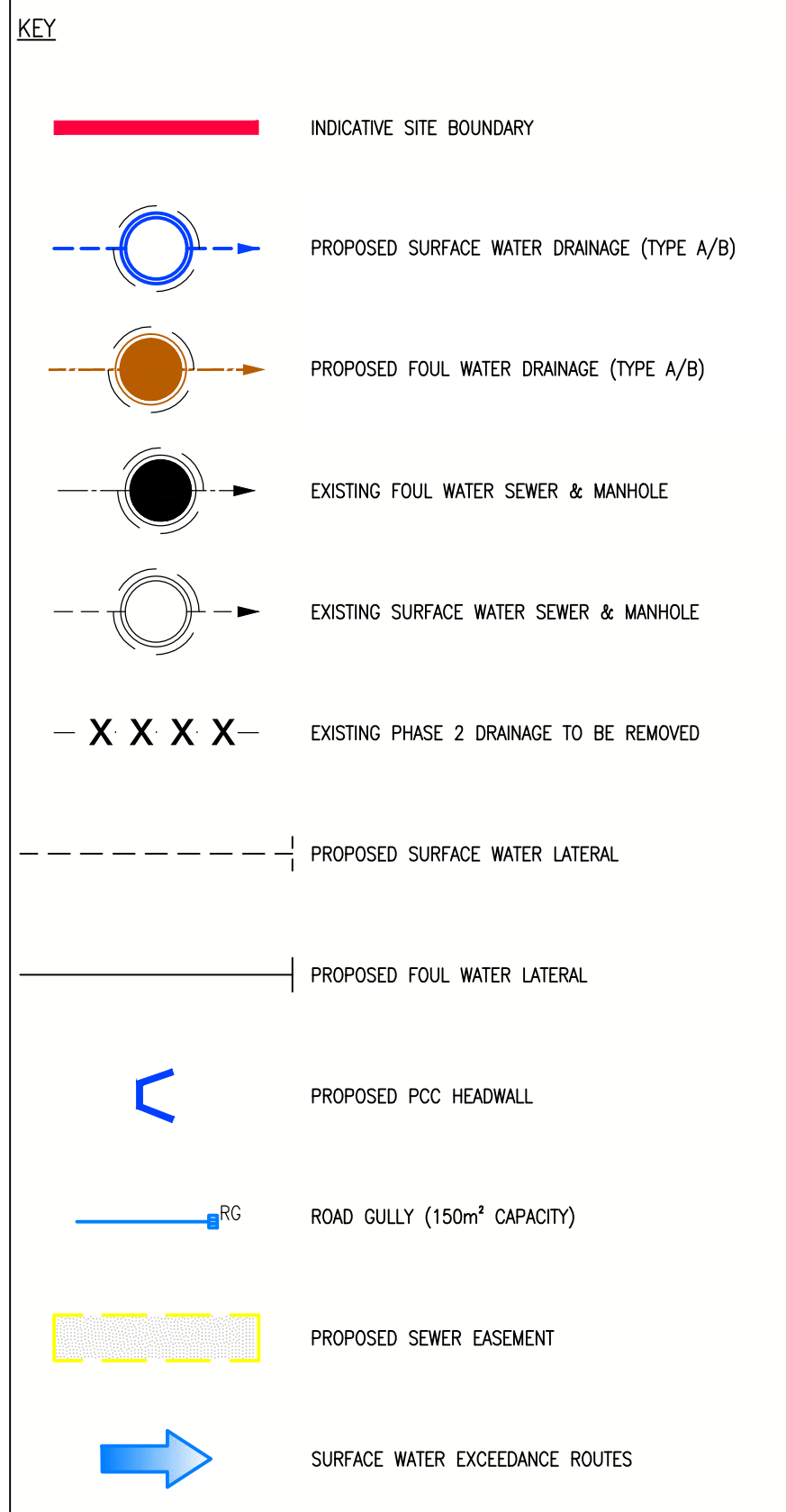
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Project Title:
HERNE BAY PHASE 4

Drawing Title:
**MAIN DRAINAGE LAYOUT
SHEET 2 OF 7**

Scale @ A1	FH Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C
Drawn	Checked	Approved	
CDU	HJ	AC	
Drawn Date	Checked Date	Approved Date	
10/02/20	10/02/20	10/02/20	
Drawing Number	Rev		
132592-FAH-ZZ-00-DR-D-0502	C7		



- NOTES:**
- WHERE PROPOSED WORKS MAY REQUIRE THE ABANDONMENT OF ANY PROPERTY, APPROPRIATE CHECKS SHOULD BE UNDERTAKEN TO ENSURE THAT THERE ARE NO OTHER PROPERTIES CONNECTED TO THAT RUN.
 - ALL WORKS AND CONNECTIONS TO THE PUBLIC SEWERS TO BE CONSTRUCTED TO THE ADOPTABLE STANDARDS SPECIFIED IN SEWERS FOR ADOPTION.
 - ALL PRIVATE DRAINAGE IS TO COMPLY AND BE LAID IN ACCORDANCE WITH CURRENT PART H OF BUILDING REGULATIONS, BS 8301 AND BS 5955.
 - POSITION & INVERT LEVELS OF ALL EXISTING MANHOLES, SEWERS AND LATERALS TO BE CONFIRMED PRIOR TO CONSTRUCTION & ANY DISCREPANCIES REPORTED TO THE ENGINEER.
 - ALL DRAIN AND SEWER PIPES ARE TO BE LAID SOFFIT TO SOFFIT, UNLESS SHOWN OTHERWISE (SEE ALSO MANHOLE SCHEDULE DRAWINGS).
 - ALL PLOT/PRIVATE DRAINAGE TO BE 100mm Ø UNLESS SHOWN OTHERWISE, LAID IN ACCORDANCE WITH BS 8301.
 - ALL MATERIALS SHALL COMPLY TO THE BS KITE MARK CERTIFICATION SCHEME AND MUST BE MARKED ACCORDINGLY.
 - COVER AND FRAMES TO MANHOLES/INSPECTION CHAMBERS TO COMPLY WITH BS EN124. REFER TO DRAINAGE CONSTRUCTION DETAILS DRAWING.
 - WHERE FINISHED GROUND LEVELS FALL TOWARDS BUILDING, AN OPEN GULLY IS TO BE PROVIDED AT THE FOOT OF ALL RAINWATER PIPES. ALL RAINWATER PIPES TO HAVE RODDING ACCESS.
 - WHERE A DRAIN RUN PASSES THROUGH A WALL OR FOUNDATION IT IS NECESSARY TO:
 - FORM AN OPENING USING A CONCRETE LINTEL WITH AT LEAST 50mm CLEARANCE AROUND THE PIPE AND THE OPENINGS MASKED WITH RIGID SHEET MATERIAL TO PREVENT ENTRY OF FILL OR VERMIN, OR
 - BUILD IN A LENGTH OF PIPE WITH ITS JOINTS AS CLOSE AS POSSIBLE TO THE WALL FACES (150mm MAXIMUM) AND CONNECTED ON EACH SIDE TO 600mm LONG ROCKER PIPES WITH FLEXIBLE JOINTS.

- CDM NOTES:**
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 - HAZARDOUS MATERIALS INCLUDING CEMENT AND BITUMINOUS MATERIALS ARE SPECIFIED AND THE MANUFACTURER'S ADVICE ON SAFE HANDLING PROCEDURES MUST BE OBTAINED AND MADE CLEAR TO ALL OPERATIVES.
 - THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS AND ENSURE THESE ARE PROTECTED THROUGHOUT THE DURATION OF THE WORKS. ALL UTILITY PLANT SHOULD BE CLEARLY MARKED ON THE GROUND PRIOR TO COMMENCEMENT OF THE WORKS.
 - THE CONTRACTOR MUST ENSURE ALL WORKING AREAS ARE FULLY SECURE.

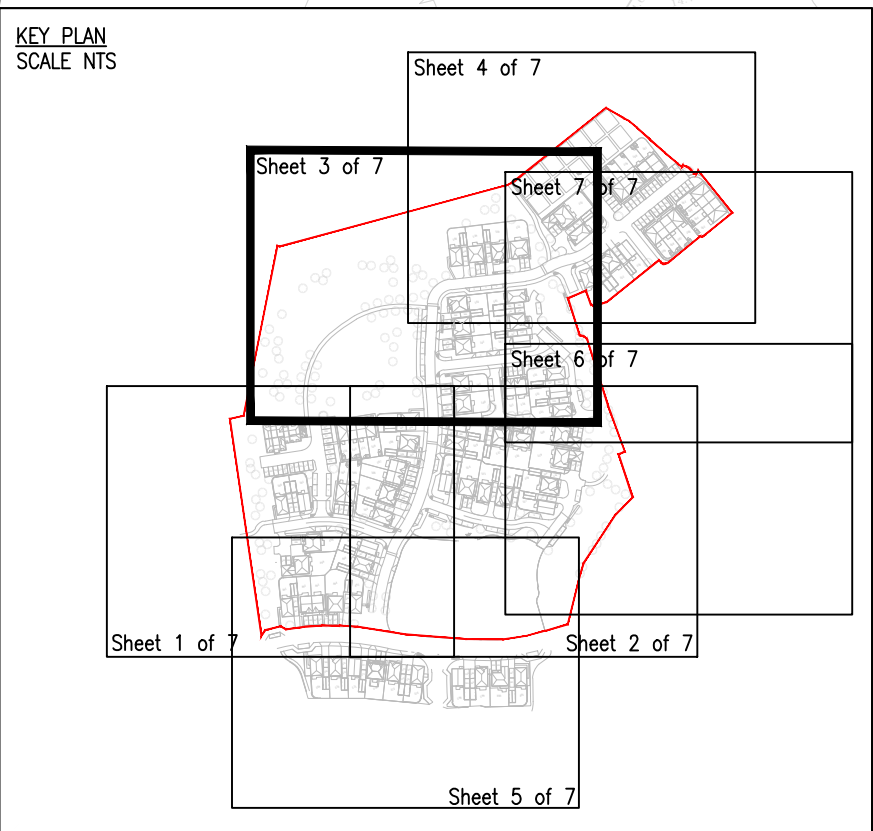
ORIGINAL TOPOGRAPHICAL SURVEY FILE : 2111_TS_HERNEBAY_0120 RECEIVED 29/01/2020
 ORIGINAL ARCHITECT PLAN : 2796F-SITE PLAN PHASE 6A RECEIVED 05/03/2020 FROM REDROW
 ORIGINAL POND LAYOUT : HERNE BAY - SWALE LAYOUT RECEIVED 30/01/2020 FROM MLM
 ORIGINAL SPINE ROAD : 617232-SPINE ROAD CAD MODEL REVISION C5, RECEIVED 25/07/2019 FROM MLM

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

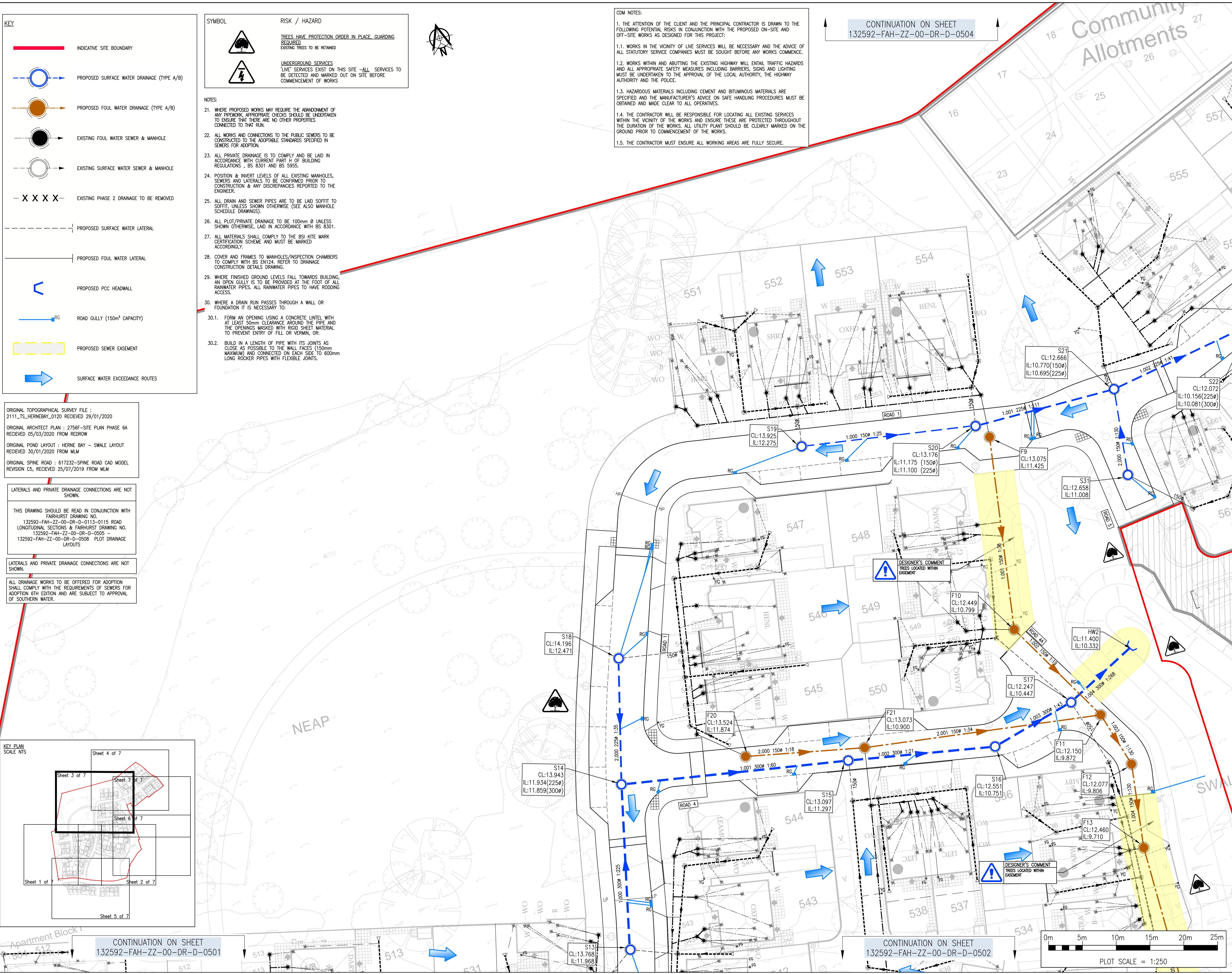
THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0113-0115 ROAD LONGITUDINAL SECTIONS & FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0505 - 0505 - 0508 PLOT DRAINAGE LAYOUTS

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

ALL DRAINAGE WORKS TO BE OFFERED FOR ADOPTION SHALL COMPLY WITH THE REQUIREMENTS OF SEWERS FOR ADOPTION 6TH EDITION AND ARE SUBJECT TO APPROVAL OF SOUTHERN WATER.

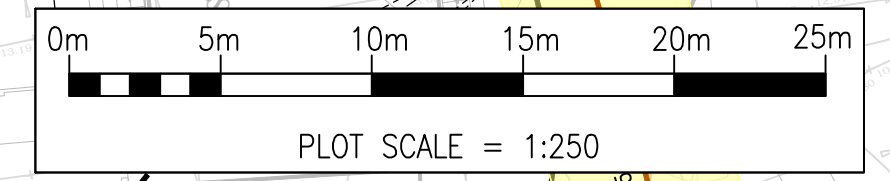


CONTINUATION ON SHEET 132592-FAH-ZZ-00-DR-D-0501



CONTINUATION ON SHEET 132592-FAH-ZZ-00-DR-D-0504

CONTINUATION ON SHEET 132592-FAH-ZZ-00-DR-D-0502



DO NOT SCALE FROM THIS DRAWING

- NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, RISK ASSESSMENTS (SEE CDM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 - ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
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 - THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
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 - DRAINS TO BE CONSTRUCTED USING FLEXIBLY JOINTED VITRIFIED CLAY PIPES TO BS 65 SUPER STRENGTH SPECIFICATION OR UPVC BUILDING DRAINAGE SYSTEM PIPEWORK TO BS EN 1401, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE SPECIFICATIONS.
 - BACKFILLING OF DRAIN TRENCHES ADJACENT TO DWELLINGS OF OTHER STRUCTURES TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS PART H, PARAGRAPHS 5.
 - ALL SOIL VENT PIPE, STUB STACKS, AIR ADMITTANCE VALVES AND RAIN WATER PIPE LOCATIONS ARE INDICATIVE ONLY. FOR ACTUAL LOCATIONS PLEASE REFER TO ARCHITECTS PLANS AND ELEVATIONS.
 - GULLIES SITUATED IN AREAS ACCESSIBLE TO WHEELED VEHICLES WITHIN THE PRIVATE CAR PARKING COURTYARDS TO BE OF SUITABLE CONSTRUCTION WITH IN SITU CONCRETE BED AND SURROUND, FITTED WITH DRAINAGE CASTINGS CODE T0651 GRATING AND FRAME (OR SIMILAR APPROVED).
 - SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED ONTO THE PROPOSED HIGHWAY.
 - 2A TELESCOPIC (ELBOW) REST BEND IS TO BE PROVIDED AT THE BASE OF EACH FW STACK.
 - DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MARKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
 - A SECTION 106/107 APPLICATION WILL BE REQUIRED PRIOR TO CONNECTION TO THE EXISTING SEWER.
 - ALL WORKS TO EXISTING SEWER WILL REQUIRE WRITTEN APPROVAL FROM THE STATUTORY UNDERTAKER PRIOR TO COMMENCEMENT OF WORKS.
 - ALL INTERNAL MANHOLES/CHAMBERS SHOULD BE FITTED WITH DOUBLE SEALED & LOCKABLE COVERS.

CONSTRUCTION

Rev	Date	Revision Description	Drn/CDM/Appl.
C6	28.03.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 07/03/2022	MAC/MAC/AC
C5	18.02.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 08/12/2021	MAC/MAC/AC
C4	26.11.21	MANHOLE S24 ADDED. F2 & S3 RELOCATED TO AS BUILT LOCATION AS PER CLIENT COMMENT.	CS/CS/AC
C3	30.07.21	DRAINAGE DESIGN AND LATERAL AMENDED TO SUIT LATEST SITE PLAN.	CS/CS/AC
C2	08.01.21	LATERAL SIZES ADDED.	TH/TH/AC
C1	15.12.20	CONSTRUCTION ISSUE. LATEST SITE PLAN ADDED.	TH/TH/AC
T2	07.10.20	PHASE 6B ADDED. DRAINAGE DESIGN AMENDED.	CDU/TH/AC
T1	17.09.20	LATEST SITE LAYOUT ADDED.	CDU/TH/AC
P3	23.07.20	SHEET 5 ADDED AND PHASING AMENDED.	JU/TH/AC
P2	27.02.20	PRELIMINARY ISSUE	CDU/TH/AC
P1	18.02.20	PRELIMINARY ISSUE	CDU/TH/AC

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REDROW
 HERMES

Project Title: **HERNE BAY PHASE 4**

Drawing Title: **MAIN DRAINAGE LAYOUT SHEET 3 OF 7**

Scale @ A1	F# Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C

Drawn	Checked	Approved
CDU	HJ	AC

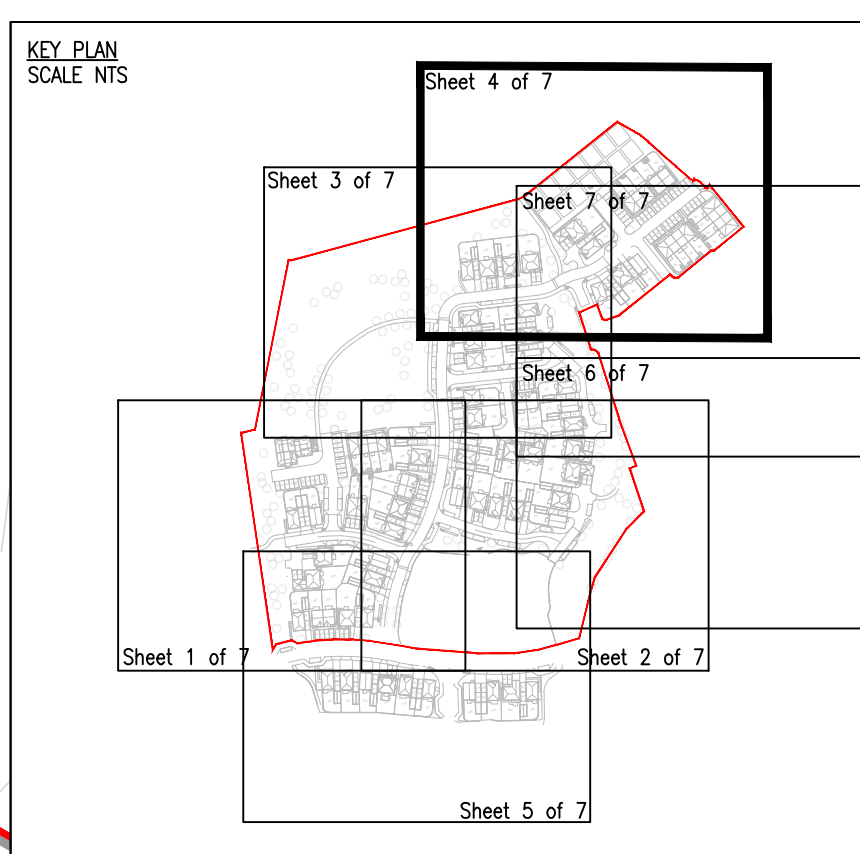
Drawn Date	Checked Date	Approved Date
10/02/20	10/02/20	10/02/20

Drawing Number: **132592-FAH-ZZ-00-DR-D-0503** Rev: **C6**

KEY

- INDICATIVE SITE BOUNDARY
- PROPOSED SURFACE WATER DRAINAGE (TYPE A/B)
- PROPOSED FOUL WATER DRAINAGE (TYPE A/B)
- EXISTING FOUL WATER SEWER & MANHOLE
- EXISTING SURFACE WATER SEWER & MANHOLE
- EXISTING PHASE 2 DRAINAGE TO BE REMOVED
- PROPOSED SURFACE WATER LATERAL
- PROPOSED FOUL WATER LATERAL
- PROPOSED PCC HEADWALL
- ROAD GULLY (150m³ CAPACITY)
- PROPOSED SEWER EASEMENT
- SURFACE WATER EXCEEDANCE ROUTES

ORIGINAL TOPOGRAPHICAL SURVEY FILE : 2111_TS_HERNEBAY_0120 RECEIVED 29/01/2020
 ORIGINAL ARCHITECT PLAN : 2756F-SITE PLAN PHASE 6A RECEIVED 05/03/2020 FROM REDROW
 ORIGINAL POND LAYOUT : HERNE BAY - SWALE LAYOUT RECEIVED 30/01/2020 FROM MLM
 ORIGINAL SPINE ROAD : 617232-SPINE ROAD CAD MODEL REVISION C5, RECEIVED 25/07/2019 FROM MLM



ASSUMPTIONS:
 MAXIMUM GARDEN GRADIENT 1:20
 REAR PATIOS MAY BE STEPPED UP TO 150mm WHERE REQUIRED

CDM NOTES:
 1. THE ATTENTION OF THE CLIENT AND THE PRINCIPAL CONTRACTOR IS DRAWN TO THE FOLLOWING POTENTIAL RISKS IN CONJUNCTION WITH THE PROPOSED ON-SITE AND OFF-SITE WORKS AS DESIGNED FOR THIS PROJECT:
 1.1. WORKS IN THE VICINITY OF LIVE SERVICES WILL BE NECESSARY AND THE ADVICE OF ALL STATUTORY SERVICE COMPANIES MUST BE SOUGHT BEFORE ANY WORKS COMMENCE.
 1.2. WORKS WITHIN AND ABUTTING THE EXISTING HIGHWAY WILL ENTAIL TRAFFIC HAZARDS AND ALL APPROPRIATE SAFETY MEASURES INCLUDING BARRIERS, SIGNS AND LIGHTING MUST BE UNDERTAKEN TO THE APPROVAL OF THE LOCAL AUTHORITY, THE HIGHWAY AUTHORITY AND THE POLICE.
 1.3. HAZARDOUS MATERIALS INCLUDING CEMENT AND BITUMINOUS MATERIALS ARE SPECIFIED AND THE MANUFACTURER'S ADVICE ON SAFE HANDLING PROCEDURES MUST BE OBTAINED AND MADE CLEAR TO ALL OPERATIVES.
 1.4. THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES WITHIN THE VICINITY OF THE WORKS AND ENSURE THESE ARE PROTECTED THROUGHOUT THE DURATION OF THE WORKS. ALL UTILITY PLANT SHOULD BE CLEARLY MARKED ON THE GROUND PRIOR TO COMMENCEMENT OF THE WORKS.
 1.5. THE CONTRACTOR MUST ENSURE ALL WORKING AREAS ARE FULLY SECURE.

SYMBOL RISK / HAZARD

- TREES HAVE PROTECTION ORDER IN PLACE, GUARDING REQUIRED EXISTING TREES TO BE RETAINED
- UNDERGROUND SERVICES LIVE SERVICES EXIST ON THIS SITE - ALL SERVICES TO BE DETECTED AND MARKED OUT ON SITE BEFORE COMMENCEMENT OF WORKS

NOTES:

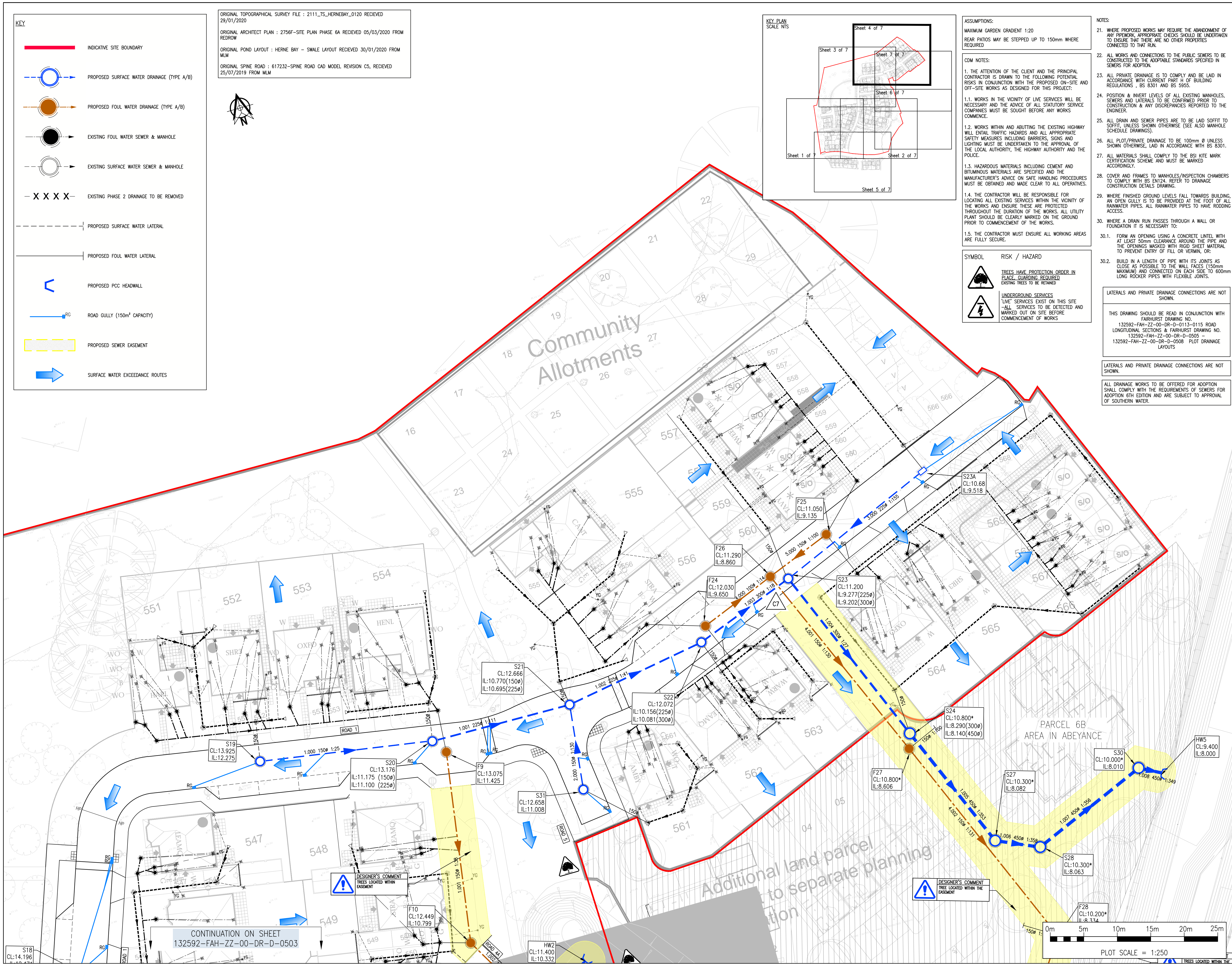
- WHERE PROPOSED WORKS MAY REQUIRE THE ABANDONMENT OF ANY PIPEWORK, APPROPRIATE CHECKS SHOULD BE UNDERTAKEN TO ENSURE THAT THERE ARE NO OTHER PROPERTIES CONNECTED TO THAT RUN.
- ALL WORKS AND CONNECTIONS TO THE PUBLIC SEWERS TO BE CONSTRUCTED TO THE ADAPTABLE STANDARDS SPECIFIED IN SEWERS FOR ADOPTION.
- ALL PRIVATE DRAINAGE IS TO COMPLY AND BE LAID IN ACCORDANCE WITH CURRENT PART H OF BUILDING REGULATIONS, BS 8301 AND BS 5955.
- POSITION & INVERT LEVELS OF ALL EXISTING MANHOLES, SEWERS AND LATERALS TO BE CONFIRMED PRIOR TO CONSTRUCTION & ANY DISCREPANCIES REPORTED TO THE ENGINEER.
- ANY WORKS OUTSIDE SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY, UNLESS SPECIFICALLY NOTED. ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.
- THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
- ALL EXISTING DRAINAGE TO BE RETAINED SHOULD BE SURVEYED AND REPAIRED IN ACCORDANCE WITH BS EN 1610 CONSTRUCTION AND TESTING OF DRAINS AND SEWERS
- STATED COVER LEVELS ARE FOR GUIDANCE ONLY AND SHALL BE SET TO THE FINISH LEVELS OF THE CARRIAGEWAY/FOOTWAY/VERGE.
- ALL PIPE SIZES STATED ARE NOMINAL INTERNAL DIAMETERS IN MILLIMETERS.
- ALL DRAINAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND RELEVANT AGREEMENT CERTIFICATES.
- DRAINS TO BE CONSTRUCTED USING FLEXIBLY JOINTED VITRIFIED CLAY PIPES TO BS 65 'SUPER STRENGTH' SPECIFICATION OR UPVC BUILDING DRAINAGE SYSTEM PIPEWORK TO BS EN 1401, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE SPECIFICATIONS.
- BACKFILLING OF DRAIN TRENCHES ADJACENT TO DWELLINGS OF OTHER STRUCTURES TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS PART 6, PARAGRAPH 6.
- ALL SOIL VENT PIPE, STUB STACKS, AIR ADMITTANCE VALVES AND RAIN WATER PIPE LOCATIONS ARE INDICATIVE ONLY. FOR ACTUAL LOCATIONS PLEASE REFER TO ARCHITECTS PLANS AND ELEVATIONS.
- GULLIES SITUATED IN AREAS ACCESSIBLE TO WHEELED VEHICLES WITHIN THE PRIVATE CAR PARKING COURTYARDS TO BE OF SUITABLE CONSTRUCTION WITH IN-SITU CONCRETE BED AND SURROUND, FITTED WITH DRAINAGE CASTINGS CODE T061 GRATING AND FRAME (OR SIMILAR APPROVED).
- SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED ONTO THE PROPOSED HIGHWAY.
- 2A TELESCOPIC (ELBOW) REST BEND IS TO BE PROVIDED AT THE BASE OF EACH FW STACK.
- DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MAKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL WELL COMPACTED IN LAYERS NOT EXCEEDING 225mm.
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- ALL INTERNAL MANHOLES/CHAMBERS SHOULD BE FITTED WITH DOUBLE SEALED & LOCKABLE COVERS.

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0113-0115 ROAD LONGITUDINAL SECTIONS & FAIRHURST DRAWING NO. 132592-FAH-ZZ-00-DR-D-0505 - 132592-FAH-ZZ-00-DR-D-0508 PLOT DRAINAGE LAYOUTS

LATERALS AND PRIVATE DRAINAGE CONNECTIONS ARE NOT SHOWN.

ALL DRAINAGE WORKS TO BE OFFERED FOR ADOPTION SHOULD COMPLY WITH THE REQUIREMENTS OF SEWERS FOR ADOPTION 6TH EDITION AND ARE SUBJECT TO APPROVAL OF SOUTHERN WATER.



DO NOT SCALE FROM THIS DRAWING

NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS (SEE CDM NOTES) AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
- ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
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CONSTRUCTION

Rev	Date	Revision Description	Drn/CDM/Aspd.
C7	05.09.22	UPDATED PIPE 3,000 DIAMETER	MAC/MAC/AC
C6	29.03.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 07/03/2022	MAC/MAC/AC
C5	18.02.22	UPDATED FOLLOWING SOUTHERN WATER COMMENTS RECEIVED 08/12/2021	MAC/MAC/AC
C4	26.11.21	MANHOLE S24 ADDED. F24 & S21 RELOCATED TO AS BUILT LOCATION AS PER CLIENT COMMENT.	CS/CS/AC
C3	30.07.21	DRAINAGE DESIGN AND LATERAL AMENDED TO SUIT LATEST SITE PLAN.	CS/CS/AC
C2	08.01.21	LATERAL SIZES ADDED.	TH/TH/AC
C1	15.12.20	CONSTRUCTION ISSUE LATEST SITE PLAN ADDED.	TH/TH/AC
T2	07.10.20	PHASE 6B ADDED. DRAINAGE DESIGN AMENDED.	CDU/TH/AC
T1	17.09.20	LATEST SITE LAYOUT ADDED.	CDU/TH/AC
P3	23.07.20	SHEET 5 ADDED AND PHASING AMENDED.	JJ/TH/AC
P2	27.02.20	PRELIMINARY ISSUE	CDU/TH/AC
P1	18.02.20	PRELIMINARY ISSUE	CDU/TH/AC

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Project Title:
HERNE BAY PHASE 4

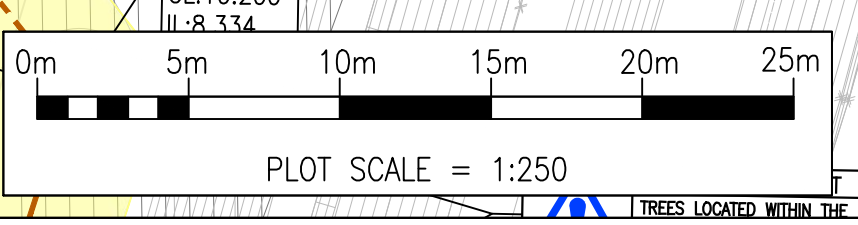
Drawing Title:
**MAIN DRAINAGE LAYOUT
 SHEET 4 OF 7**

Scale @ A1	FH Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C

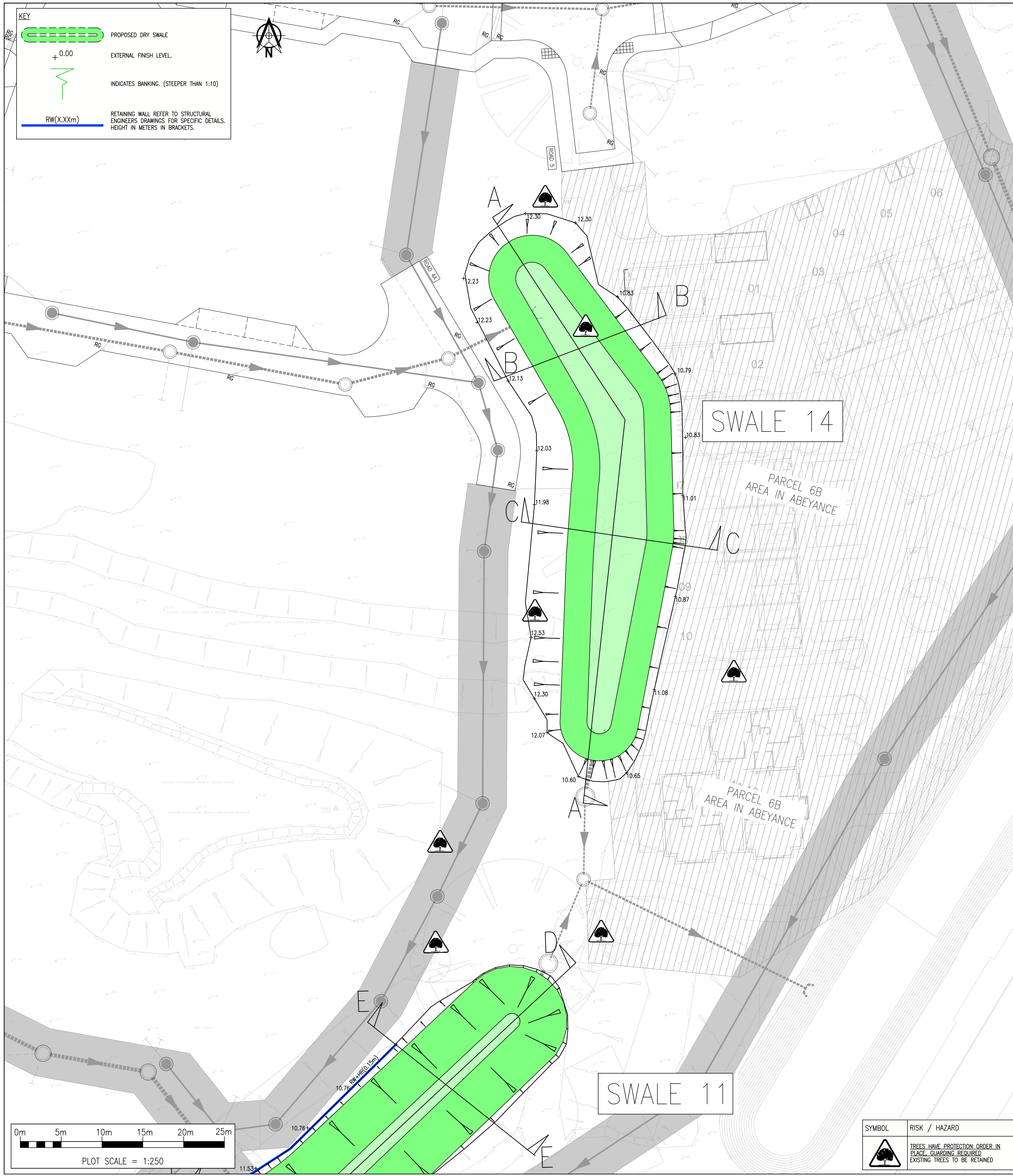
Drawn	Checked	Approved
CDU	HJ	AC

Drawn Date	Checked Date	Approved Date
10/02/20	10/02/20	10/02/20

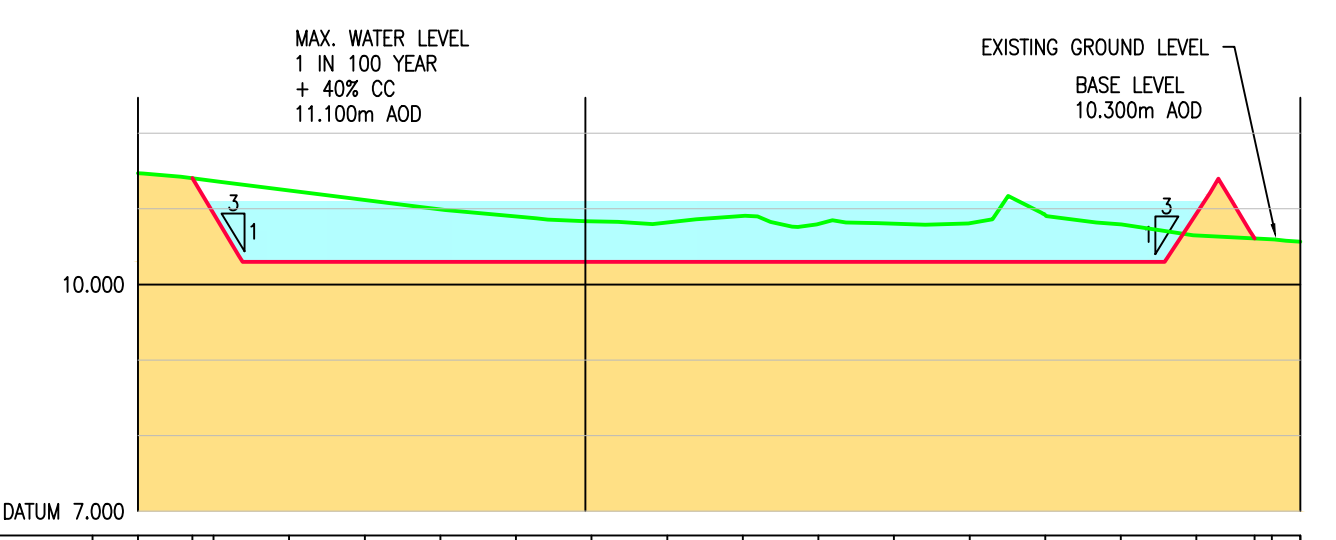
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CONTINUATION ON SHEET
 132592-FAH-ZZ-00-DR-D-0503

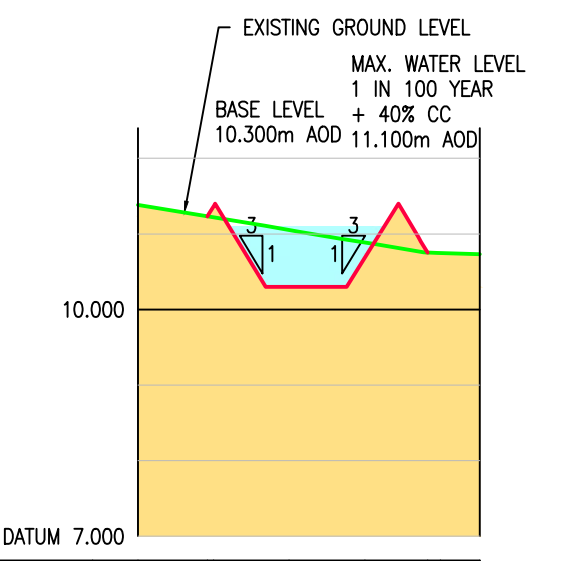


SWALE 14



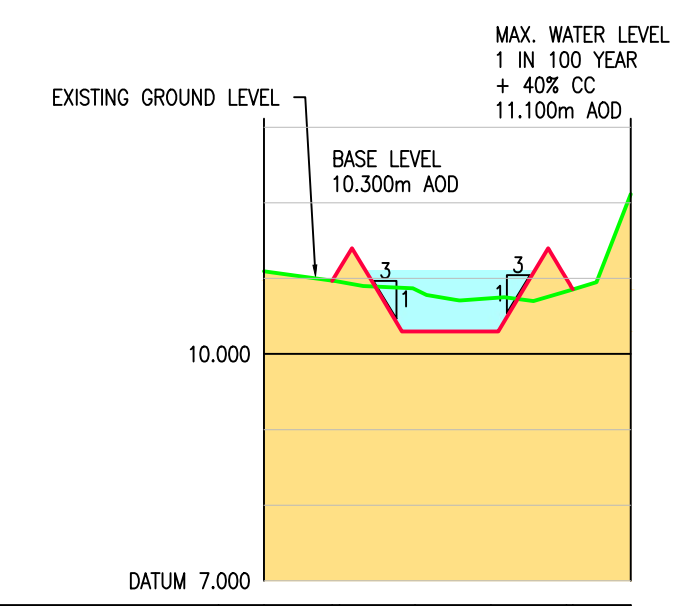
CHAINAGE	0.00	3.591	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	73.847	75.000	76.871
EXISTING LEVEL	11.472	11.370	11.242	10.000	11.115	10.994	10.900	10.836	10.819	10.905	10.800	10.803	10.810	10.916	10.793	10.647	10.595	10.500	10.365
PROPOSED LEVEL	11.406	10.940	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.300	10.607	10.500	10.365

SECTION A-A



CHAINAGE	0.000	4.601	5.000	10.000	15.000	19.155	20.000	22.802
EXISTING LEVEL	11.382	11.233	11.284	10.300	10.886	10.922	10.748	10.732
PROPOSED LEVEL	11.233	11.284	10.300	10.300	10.886	10.922	10.748	10.732

SECTION B-B



CHAINAGE	0.000	4.516	5.000	10.000	15.000	20.000	22.243
EXISTING LEVEL	11.092	10.953	10.853	10.000	10.736	10.929	12.114
PROPOSED LEVEL	10.953	11.128	10.300	10.300	10.736	10.929	10.655

SECTION C-C

- DO NOT SCALE FROM THIS DRAWING**
- NOTES:
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 - THE CONTRACTOR SHALL UNDERTAKE SUCH MATERIALS TESTING AS INDICATED IN THE SPECIFICATIONS AND SHALL INCLUDE THE COST OF TESTING IN THE TENDER.
 - ALL SETTING OUT SHALL BE AGREED ON-SITE WITH THE ENGINEER, PRIOR TO THE COMMENCEMENT OF THE WORKS.
 - WHERE SETTING OUT OF FOUNDATIONS AND/OR PILES HAS BEEN PROVIDED BY FAIRHURST (OR OTHERS) THESE MUST BE GROSS CHECKED AGAINST THE BUILDING SETTING OUT INFORMATION, BY THE CONTRACTOR, PRIOR TO INSTALLATION AS DETAILED BELOW:
 - CONTRACTOR TO INSTALL PEGS FOR FOUNDATIONS AND PILE LOCATIONS.
 - CONTRACTOR TO INSTALL PEGS FOR CORNERS OF BUILDING AND KEY FEATURES.
 - CONTRACTOR TO VERIFY (USING TAPE MEASURE OR OTHER APPROVED METHOD) BUILDING AND FOUNDATION FOOTPRINTS ALONG.
 - CONTRACTOR TO INFORM CLIENT AND ENGINEER(S) OF ANY DISCREPANCIES AND CONFLICTS PRIOR TO INSTALLATION WORKS.

CONSTRUCTION

Rev	Date	Revision Description	Dr/Chkd/Appd.
C1	15.12.20	CONSTRUCTION ISSUE	REM/TH/AC
T2	07.10.20	PHASE 6B ADDED	REM/TH/AC
T1	18.09.20	SWALES UPDATED.	CDU/TH/AC
P2	08.09.20	NEW SITE LAYOUT ADDED. SWALE 14 ADDED. SWALE 14A REMOVED.	JJ/TH/AC
P1	11.08.20	FOR INFORMATION	JJ/TH/AC

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Project Title:
HERNE BAY PHASE 4

Drawing Title:
BASIN GENERAL ARRANGEMENT & SECTIONS SHEET 1 OF 2

Scale @ A1	F# Project Number	Purpose of Issue	Status
1:250	132592	CONSTRUCTION	C
Drawn	Checked	Approved	
JJ	TH	AC	
Drawn Date	Checked Date	Approved Date	
AUG 2020	AUG 2020	AUG 2020	
Drawing Number	Rev		
132592-FAH-ZZ-00-DR-C-0525	C1		

C. MicroDrainage Calculations

135 Park Street
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HERNE BAY
PHASE 4



Date 26/11/2021
File 132592 PHASE 4.MDX

Designed by CS
Checked by AC

Innovyze

Network 2020.1

FOUL SEWERAGE DESIGN

Design Criteria for Foul - Main 2

Pipe Sizes FH-PIPE Manhole Sizes FH-MH

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200
Flow Per Person (l/per/day)	222.00	Maximum Backdrop Height (m)	1.500
Persons per House	3.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Foul - Main 2

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.000	28.712	0.626	45.9	0.000	4	0.0	1.500	o	150	Pipe/Conduit	☑
F1.001	17.988	0.927	19.4	0.000	3	0.0	1.500	o	150	Pipe/Conduit	☑
F2.000	17.668	0.724	24.4	0.000	3	0.0	1.500	o	150	Pipe/Conduit	☑
F2.001	35.289	1.278	27.6	0.000	4	0.0	1.500	o	150	Pipe/Conduit	☑
F1.002	8.583	0.066	130.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☑
F1.003	12.493	0.096	130.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☑
F1.004	30.903	0.238	129.8	0.000	2	0.0	1.500	o	150	Pipe/Conduit	☑
F1.005	12.663	0.097	130.5	0.000	1	0.0	1.500	o	150	Pipe/Conduit	☑
F1.006	14.586	0.112	130.2	0.000	1	0.0	1.500	o	150	Pipe/Conduit	☑
F1.007	19.840	0.153	130.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	☑
F1.008	6.807	0.052	130.9	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☑
F3.000	10.581	1.812	5.8	0.000	3	0.0	1.500	o	150	Pipe/Conduit	☑
F1.009	19.921	0.153	130.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☑
F1.010	15.643	1.866	8.4	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☑

Network Results Table

PN	US/IL (m)	E Area (ha)	E Base Flow (l/s)	E Hse	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.000	11.425	0.000	0.0	4	0.0	10	0.37	1.30	22.9	0.2
F1.001	10.799	0.000	0.0	7	0.0	11	0.60	1.99	35.3	0.3
F2.000	11.874	0.000	0.0	3	0.0	8	0.42	1.78	31.4	0.1
F2.001	11.150	0.000	0.0	7	0.0	11	0.53	1.67	29.5	0.3
F1.002	9.872	0.000	0.0	14	0.0	23	0.39	0.77	13.6	0.6
F1.003	9.806	0.000	0.0	14	0.0	23	0.39	0.77	13.6	0.6
F1.004	9.710	0.000	0.0	16	0.0	24	0.40	0.77	13.6	0.7
F1.005	9.472	0.000	0.0	17	0.0	25	0.41	0.77	13.5	0.8
F1.006	9.375	0.000	0.0	18	0.0	25	0.42	0.77	13.6	0.8
F1.007	9.263	0.000	0.0	20	0.0	27	0.43	0.77	13.6	0.9
F1.008	9.110	0.000	0.0	20	0.0	27	0.43	0.76	13.5	0.9
F3.000	10.870	0.000	0.0	3	0.0	5	0.67	3.64	64.3	0.1
F1.009	9.058	0.000	0.0	23	0.0	29	0.45	0.77	13.6	1.1
F1.010	8.905	0.000	0.0	23	0.0	15	1.17	3.04	53.7	1.1

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Network Design Table for Foul - Main 2

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F4.000	12.185	0.790	15.4	0.000	5	0.0	1.500	o	150	Pipe/Conduit	☺
F5.000	10.457	0.275	38.0	0.000	13	0.0	1.500	o	150	Pipe/Conduit	☺
F4.001	33.007	0.254	129.9	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☹
F4.002	35.607	0.272	130.9	0.000	2	0.0	1.500	o	150	Pipe/Conduit	☹
F4.003	46.603	0.358	130.2	0.000	6	0.0	1.500	o	150	Pipe/Conduit	☹
F4.004	46.483	0.358	129.8	0.000	5	0.0	1.500	o	150	Pipe/Conduit	☹
F4.005	33.857	0.260	130.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☹
F4.006	15.493	0.119	130.2	0.000	1	0.0	1.500	o	150	Pipe/Conduit	☹
F4.007	14.513	0.112	129.6	0.000	1	0.0	1.500	o	150	Pipe/Conduit	☹
F4.008	17.808	0.137	130.0	0.000	2	0.0	1.500	o	150	Pipe/Conduit	☹
F4.009	15.743	0.121	130.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☹
F1.011	5.514	1.049	5.3	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☹
F1.012	7.400	0.050	148.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	☹

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse Flow (l/s)	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F4.000	9.650	0.000	0.0	5	0.0	9	0.58	2.24	39.6	0.2
F5.000	9.135	0.000	0.0	13	0.0	16	0.58	1.42	25.2	0.6
F4.001	8.860	0.000	0.0	18	0.0	25	0.42	0.77	13.6	0.8
F4.002	8.606	0.000	0.0	20	0.0	27	0.43	0.76	13.5	0.9
F4.003	8.334	0.000	0.0	26	0.0	30	0.47	0.77	13.6	1.2
F4.004	7.976	0.000	0.0	31	0.0	33	0.50	0.77	13.6	1.4
F4.005	7.618	0.000	0.0	31	0.0	33	0.49	0.77	13.6	1.4
F4.006	7.358	0.000	0.0	32	0.0	34	0.50	0.77	13.6	1.5
F4.007	7.239	0.000	0.0	33	0.0	34	0.50	0.77	13.6	1.5
F4.008	7.127	0.000	0.0	35	0.0	35	0.51	0.77	13.6	1.6
F4.009	6.990	0.000	0.0	35	0.0	35	0.51	0.77	13.6	1.6
F1.011	6.869	0.000	0.0	58	0.0	21	1.83	3.84	67.8	2.7
F1.012	5.990	0.000	0.0	58	0.0	47	0.57	0.72	12.7	2.7

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Manhole Schedules for Foul - Main 2

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out			Pipes In			Backdrop (mm)
					PN	Invert Level (m)	Diameter (mm)	PN	Invert Level (m)	Diameter (mm)	
F9	13.075	1.650	Open Manhole	1200	F1.000	11.425	150				
F10	12.408	1.609	Open Manhole	1200	F1.001	10.799	150	F1.000	10.799	150	
F20	13.524	1.650	Open Manhole	1200	F2.000	11.874	150				
F21	13.073	1.923	Open Manhole	1200	F2.001	11.150	150	F2.000	11.150	150	
F11	12.150	2.278	Open Manhole	1200	F1.002	9.872	150	F1.001	9.872	150	
								F2.001	9.872	150	
F12	12.077	2.271	Open Manhole	1200	F1.003	9.806	150	F1.002	9.806	150	
F13	12.460	2.750	Open Manhole	1200	F1.004	9.710	150	F1.003	9.710	150	
F14	12.600	3.128	Open Manhole	1200	F1.005	9.472	150	F1.004	9.472	150	
F15	12.500	3.125	Open Manhole	1200	F1.006	9.375	150	F1.005	9.375	150	
F16	12.200	2.937	Open Manhole	1200	F1.007	9.263	150	F1.006	9.263	150	
F17	12.000	2.890	Open Manhole	1200	F1.008	9.110	150	F1.007	9.110	150	
F23	12.520	1.650	Open Manhole	1200	F3.000	10.870	150				
F18	12.181	3.123	Open Manhole	1200	F1.009	9.058	150	F1.008	9.058	150	
								F3.000	9.058	150	
F19	11.980	3.075	Open Manhole	1200	F1.010	8.905	150	F1.009	8.905	150	
F24	12.030	2.380	Open Manhole	1200	F4.000	9.650	150				
F25	11.050	1.915	Open Manhole	1200	F5.000	9.135	150				
F26	11.290	2.430	Open Manhole	1200	F4.001	8.860	150	F4.000	8.860	150	
								F5.000	8.860	150	
F27	10.800	2.194	Open Manhole	1200	F4.002	8.606	150	F4.001	8.606	150	
F28	10.200	1.866	Open Manhole	1200	F4.003	8.334	150	F4.002	8.334	150	
F29	9.800	1.824	Open Manhole	1200	F4.004	7.976	150	F4.003	7.976	150	
F30	9.500	1.882	Open Manhole	1200	F4.005	7.618	150	F4.004	7.618	150	
F31	10.670	3.312	Open Manhole	1200	F4.006	7.358	150	F4.005	7.358	150	
F32	10.820	3.581	Open Manhole	1200	F4.007	7.239	150	F4.006	7.239	150	
F33	10.780	3.653	Open Manhole	1200	F4.008	7.127	150	F4.007	7.127	150	
F34	10.920	3.930	Open Manhole	1200	F4.009	6.990	150	F4.008	6.990	150	
F35	11.800	4.931	Open Manhole	1200	F1.011	6.869	150	F1.010	7.039	150	170
								F4.009	6.869	150	
F36	11.850	6.030	Open Manhole	1200	F1.012	5.990	150	F1.011	5.820	150	
FBRF23	11.220	5.280	Open Manhole	0		OUTFALL		F1.012	5.940	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
F9	617212.072	166790.432	617212.072	166790.432	Required	
F10	617207.728	166762.051	617207.728	166762.051	Required	
F20	617164.333	166754.953	617164.333	166754.953	Required	
F21	617181.629	166751.348	617181.629	166751.348	Required	

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Manhole Schedules for Foul - Main 2

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
F11	617216.567	166746.384	617216.567	166746.384	Required	
F12	617218.936	166738.135	617218.936	166738.135	Required	
F13	617217.259	166725.755	617217.259	166725.755	Required	
F14	617217.066	166694.853	617217.066	166694.853	Required	
F15	617211.527	166683.465	617211.527	166683.465	Required	
F16	617204.619	166670.619	617204.619	166670.619	Required	
F17	617191.712	166655.552	617191.712	166655.552	Required	
F23	617178.330	166662.934	617178.330	166662.934	Required	
F18	617184.960	166654.688	617184.960	166654.688	Required	
F19	617170.311	166641.188	617170.311	166641.188	Required	
F24	617254.460	166797.867	617254.460	166797.867	Required	
F25	617275.575	166806.041	617275.575	166806.041	Required	
F26	617265.815	166802.287	617265.815	166802.287	Required	
F27	617278.655	166771.880	617278.655	166771.880	Required	
F28	617292.294	166738.988	617292.294	166738.988	Required	
F29	617266.300	166700.309	617266.300	166700.309	Required	
F30	617243.316	166659.905	617243.316	166659.905	Required	
F31	617215.103	166641.189	617215.103	166641.189	Required	
F32	617204.054	166630.328	617204.054	166630.328	Required	

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Manhole Schedules for Foul - Main 2

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
F33	617196.924	166617.687	617196.924	166617.687	Required	
F34	617180.404	166624.338	617180.404	166624.338	Required	
F35	617164.816	166626.542	617164.816	166626.542	Required	
F36	617162.694	166621.452	617162.694	166621.452	Required	
FBRF23	617158.982	166615.050			No Entry	

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PIPELINE SCHEDULES for Foul - Main 2

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	o	150	F9	13.075	11.425	1.500	Open Manhole	1200
F1.001	o	150	F10	12.408	10.799	1.459	Open Manhole	1200
F2.000	o	150	F20	13.524	11.874	1.500	Open Manhole	1200
F2.001	o	150	F21	13.073	11.150	1.773	Open Manhole	1200
F1.002	o	150	F11	12.150	9.872	2.128	Open Manhole	1200
F1.003	o	150	F12	12.077	9.806	2.121	Open Manhole	1200
F1.004	o	150	F13	12.460	9.710	2.600	Open Manhole	1200
F1.005	o	150	F14	12.600	9.472	2.978	Open Manhole	1200
F1.006	o	150	F15	12.500	9.375	2.975	Open Manhole	1200
F1.007	o	150	F16	12.200	9.263	2.787	Open Manhole	1200
F1.008	o	150	F17	12.000	9.110	2.740	Open Manhole	1200
F3.000	o	150	F23	12.520	10.870	1.500	Open Manhole	1200
F1.009	o	150	F18	12.181	9.058	2.973	Open Manhole	1200
F1.010	o	150	F19	11.980	8.905	2.925	Open Manhole	1200
F4.000	o	150	F24	12.030	9.650	2.230	Open Manhole	1200
F5.000	o	150	F25	11.050	9.135	1.765	Open Manhole	1200
F4.001	o	150	F26	11.290	8.860	2.280	Open Manhole	1200
F4.002	o	150	F27	10.800	8.606	2.044	Open Manhole	1200
F4.003	o	150	F28	10.200	8.334	1.716	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	28.712	45.9	F10	12.408	10.799	1.459	Open Manhole	1200
F1.001	17.988	19.4	F11	12.150	9.872	2.128	Open Manhole	1200
F2.000	17.668	24.4	F21	13.073	11.150	1.773	Open Manhole	1200
F2.001	35.289	27.6	F11	12.150	9.872	2.128	Open Manhole	1200
F1.002	8.583	130.0	F12	12.077	9.806	2.121	Open Manhole	1200
F1.003	12.493	130.0	F13	12.460	9.710	2.600	Open Manhole	1200
F1.004	30.903	129.8	F14	12.600	9.472	2.978	Open Manhole	1200
F1.005	12.663	130.5	F15	12.500	9.375	2.975	Open Manhole	1200
F1.006	14.586	130.2	F16	12.200	9.263	2.787	Open Manhole	1200
F1.007	19.840	130.0	F17	12.000	9.110	2.740	Open Manhole	1200
F1.008	6.807	130.9	F18	12.181	9.058	2.973	Open Manhole	1200
F3.000	10.581	5.8	F18	12.181	9.058	2.973	Open Manhole	1200
F1.009	19.921	130.0	F19	11.980	8.905	2.925	Open Manhole	1200
F1.010	15.643	8.4	F35	11.800	7.039	4.611	Open Manhole	1200
F4.000	12.185	15.4	F26	11.290	8.860	2.280	Open Manhole	1200
F5.000	10.457	38.0	F26	11.290	8.860	2.280	Open Manhole	1200
F4.001	33.007	129.9	F27	10.800	8.606	2.044	Open Manhole	1200
F4.002	35.607	130.9	F28	10.200	8.334	1.716	Open Manhole	1200
F4.003	46.603	130.2	F29	9.800	7.976	1.674	Open Manhole	1200

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PIPELINE SCHEDULES for Foul - Main 2

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F4.004	o	150	F29	9.800	7.976	1.674	Open Manhole	1200
F4.005	o	150	F30	9.500	7.618	1.732	Open Manhole	1200
F4.006	o	150	F31	10.670	7.358	3.162	Open Manhole	1200
F4.007	o	150	F32	10.820	7.239	3.431	Open Manhole	1200
F4.008	o	150	F33	10.780	7.127	3.503	Open Manhole	1200
F4.009	o	150	F34	10.920	6.990	3.780	Open Manhole	1200
F1.011	o	150	F35	11.800	6.869	4.781	Open Manhole	1200
F1.012	o	150	F36	11.850	5.990	5.710	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F4.004	46.483	129.8	F30	9.500	7.618	1.732	Open Manhole	1200
F4.005	33.857	130.2	F31	10.670	7.358	3.162	Open Manhole	1200
F4.006	15.493	130.2	F32	10.820	7.239	3.431	Open Manhole	1200
F4.007	14.513	129.6	F33	10.780	7.127	3.503	Open Manhole	1200
F4.008	17.808	130.0	F34	10.920	6.990	3.780	Open Manhole	1200
F4.009	15.743	130.1	F35	11.800	6.869	4.781	Open Manhole	1200
F1.011	5.514	5.3	F36	11.850	5.820	5.880	Open Manhole	1200
F1.012	7.400	148.0	FBRF23	11.220	5.940	5.130	Open Manhole	0

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm 1

Pipe Sizes FH-PIPE Manhole Sizes FH-MH

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	26.250	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm 1

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.556	4-8	0.235

Total Area Contributing (ha) = 0.791

Total Pipe Volume (m³) = 31.271

Network Design Table for Storm 1

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	13.339	0.198	67.4	0.077	5.00	0.0	0.600	o	300	Pipe/Conduit	☺
S2.000	6.724	0.067	100.4	0.034	5.00	0.0	0.600	o	150	Pipe/Conduit	☺
S1.001	12.668	0.287	44.1	0.095	0.00	0.0	0.600	o	300	Pipe/Conduit	☺
S1.002	27.729	0.942	29.4	0.027	0.00	0.0	0.600	o	300	Pipe/Conduit	☺
S3.000	31.202	0.107	291.6	0.080	5.00	0.0	0.600	o	300	Pipe/Conduit	☺
S1.003	21.448	0.052	412.5	0.016	0.00	0.0	0.600	o	450	Pipe/Conduit	☺
S4.000	20.822	1.015	20.5	0.091	5.00	0.0	0.600	o	225	Pipe/Conduit	☺

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.12	12.919	0.077	0.0	0.0	0.0	1.92	135.6	10.4
S2.000	50.00	5.11	12.938	0.034	0.0	0.0	0.0	1.00	17.7	4.6
S1.001	50.00	5.20	12.721	0.206	0.0	0.0	0.0	2.37	167.7	27.9
S1.002	50.00	5.36	12.464	0.233	0.0	0.0	0.0	2.91	205.6	31.6
S3.000	50.00	5.57	11.629	0.080	0.0	0.0	0.0	0.92	64.7	10.8
S1.003	50.00	5.93	11.372	0.329	0.0	0.0	0.0	0.99	158.2	44.6
S4.000	50.00	5.12	12.560	0.091	0.0	0.0	0.0	2.90	115.4	12.3

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Network Design Table for Storm 1

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.004	28.441	0.114	249.5	0.083	0.00	0.0	0.600	o	450	Pipe/Conduit	☹
S1.005	22.265	0.321	69.4	0.005	0.00	0.0	0.600	o	450	Pipe/Conduit	☹
S1.006	13.083	0.382	34.2	0.015	0.00	0.0	0.600	o	450	Pipe/Conduit	☹
S1.007	9.704	0.703	13.8	0.039	0.00	0.0	0.600	o	450	Pipe/Conduit	☹
S1.008	9.891	0.100	98.9	0.020	0.00	0.0	0.600	o	450	Pipe/Conduit	☹
S1.009	26.139	1.100	23.8	0.208	0.00	0.0	0.600	o	450	Pipe/Conduit	☹
S1.010	6.362	0.030	212.1	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	☹
S1.011	15.582	0.520	30.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	☹

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.004	50.00	6.30	11.320	0.504	0.0	0.0	0.0	1.28	204.0	68.2
S1.005	50.00	6.45	11.206	0.509	0.0	0.0	0.0	2.44	388.7	68.9
S1.006	50.00	6.51	10.885	0.524	0.0	0.0	0.0	3.48	554.0	70.9
S1.007	50.00	6.54	10.503	0.563	0.0	0.0	0.0	5.49	873.8	76.2
S1.008	50.00	6.62	9.800	0.583	0.0	0.0	0.0	2.04	325.1	78.9
S1.009	50.00	6.73	9.700	0.791	0.0	0.0	0.0	4.18	665.5	107.1
S1.010	50.00	6.80	8.600	0.791	0.0	0.0	0.0	1.39	221.4	107.1
S1.011	50.00	6.87	8.570	0.791	0.0	0.0	0.0	3.72	592.4	107.1

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Manhole Schedules for Storm 1

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S2	14.719	1.800	Open Manhole	1200	S1.000	12.919	300				
S2A	14.670	1.732	Open Manhole	1200	S2.000	12.938	150				
S3	14.521	1.800	Open Manhole	1200	S1.001	12.721	300	S1.000	12.721	300	
								S2.000	12.871	150	
S4	14.264	1.830	Open Manhole	1200	S1.002	12.464	300	S1.001	12.434	300	
S11	13.431	1.802	Open Manhole	1200	S3.000	11.629	300				
S5	13.860	2.488	Open Manhole	1500	S1.003	11.372	450	S1.002	11.522	300	
								S3.000	11.522	300	
S12	14.285	1.725	Open Manhole	1200	S4.000	12.560	225				
S6	14.273	2.953	Open Manhole	1500	S1.004	11.320	450	S1.003	11.320	450	
								S4.000	11.545	225	
S7	13.455	2.249	Open Manhole	1500	S1.005	11.206	450	S1.004	11.206	450	
S8	12.851	1.966	Open Manhole	1500	S1.006	10.885	450	S1.005	10.885	450	
S9	12.490	1.987	Open Manhole	1500	S1.007	10.503	450	S1.006	10.503	450	
S10	12.184	2.384	Open Manhole	1500	S1.008	9.800	450	S1.007	9.800	450	
SHW1	10.500	0.800	Open Manhole	1500	S1.009	9.700	450	S1.008	9.700	450	
SSW11	10.500	1.900	Open Manhole	1500	S1.010	8.600	450	S1.009	8.600	450	
SHW2	10.500	1.930	Open Manhole	1500	S1.011	8.570	450	S1.010	8.570	450	
S25	11.640	3.590	Open Manhole	0		OUTFALL		S1.011	8.050	450	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S2	617057.093	166697.925	617057.093	166697.925	Required	
S2A	617066.722	166702.171	617066.722	166702.171	Required	
S3	617070.357	166696.515	617070.357	166696.515	Required	
S4	617081.511	166690.508	617081.511	166690.508	Required	
S11	617086.507	166649.868	617086.507	166649.868	Required	
S5	617104.662	166675.244	617104.662	166675.244	Required	
S12	617130.650	166708.169	617130.650	166708.169	Required	
S6	617119.904	166690.334	617119.904	166690.334	Required	
S7	617143.308	166674.174	617143.308	166674.174	Required	

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Manhole Schedules for Storm 1

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S8	617163.234	166664.239	617163.234	166664.239	Required	
S9	617176.114	166661.942	617176.114	166661.942	Required	
S10	617182.103	166654.308	617182.103	166654.308	Required	
SHW1	617188.202	166646.520	617188.202	166646.520	Required	
SSW11	617211.368	166658.628	617211.368	166658.628	Required	
SHW2	617216.149	166662.824	617216.149	166662.824	Required	
S25	617225.209	166675.502			No Entry	

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PIPELINE SCHEDULES for Storm 1

Upstream Manhole

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	S2	14.719	12.919	1.500	Open Manhole	1200
S2.000	o	150	S2A	14.670	12.938	1.582	Open Manhole	1200
S1.001	o	300	S3	14.521	12.721	1.500	Open Manhole	1200
S1.002	o	300	S4	14.264	12.464	1.500	Open Manhole	1200
S3.000	o	300	S11	13.431	11.629	1.502	Open Manhole	1200
S1.003	o	450	S5	13.860	11.372	2.038	Open Manhole	1500
S4.000	o	225	S12	14.285	12.560	1.500	Open Manhole	1200
S1.004	o	450	S6	14.273	11.320	2.503	Open Manhole	1500
S1.005	o	450	S7	13.455	11.206	1.799	Open Manhole	1500
S1.006	o	450	S8	12.851	10.885	1.516	Open Manhole	1500
S1.007	o	450	S9	12.490	10.503	1.537	Open Manhole	1500
S1.008	o	450	S10	12.184	9.800	1.934	Open Manhole	1500
S1.009	o	450	SHW1	10.500	9.700	0.350	Open Manhole	1500
S1.010	o	450	SSW11	10.500	8.600	1.450	Open Manhole	1500
S1.011	o	450	SHW2	10.500	8.570	1.480	Open Manhole	1500

Downstream Manhole

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	13.339	67.4	S3	14.521	12.721	1.500	Open Manhole	1200
S2.000	6.724	100.4	S3	14.521	12.871	1.500	Open Manhole	1200
S1.001	12.668	44.1	S4	14.264	12.434	1.530	Open Manhole	1200
S1.002	27.729	29.4	S5	13.860	11.522	2.038	Open Manhole	1500
S3.000	31.202	291.6	S5	13.860	11.522	2.038	Open Manhole	1500
S1.003	21.448	412.5	S6	14.273	11.320	2.503	Open Manhole	1500
S4.000	20.822	20.5	S6	14.273	11.545	2.503	Open Manhole	1500
S1.004	28.441	249.5	S7	13.455	11.206	1.799	Open Manhole	1500
S1.005	22.265	69.4	S8	12.851	10.885	1.516	Open Manhole	1500
S1.006	13.083	34.2	S9	12.490	10.503	1.537	Open Manhole	1500
S1.007	9.704	13.8	S10	12.184	9.800	1.934	Open Manhole	1500
S1.008	9.891	98.9	SHW1	10.500	9.700	0.350	Open Manhole	1500
S1.009	26.139	23.8	SSW11	10.500	8.600	1.450	Open Manhole	1500
S1.010	6.362	212.1	SHW2	10.500	8.570	1.480	Open Manhole	1500
S1.011	15.582	30.0	S25	11.640	8.050	3.140	Open Manhole	0

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Area Summary for Storm 1

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.077	0.077	0.077
2.000	-	-	100	0.034	0.034	0.034
1.001	User	-	100	0.023	0.023	0.023
	User	-	100	0.015	0.015	0.038
	User	-	100	0.009	0.009	0.046
	User	-	100	0.003	0.003	0.049
	User	-	100	0.009	0.009	0.058
	User	-	100	0.029	0.029	0.087
	User	-	100	0.008	0.008	0.095
1.002	-	-	100	0.027	0.027	0.027
3.000	-	-	100	0.080	0.080	0.080
1.003	-	-	100	0.016	0.016	0.016
4.000	-	-	100	0.091	0.091	0.091
1.004	User	-	100	0.011	0.011	0.011
	User	-	100	0.005	0.005	0.016
	User	-	100	0.009	0.009	0.025
	User	-	100	0.003	0.003	0.028
	User	-	100	0.014	0.014	0.042
	User	-	100	0.012	0.012	0.055
	User	-	100	0.014	0.014	0.068
	User	-	100	0.015	0.015	0.083
1.005	-	-	100	0.005	0.005	0.005
1.006	-	-	100	0.015	0.015	0.015
1.007	-	-	100	0.039	0.039	0.039
1.008	-	-	100	0.020	0.020	0.020
1.009	-	-	100	0.208	0.208	0.208
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.791	0.791	0.791

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Network Classifications for Storm 1

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S2	300	1.500	1.500	Unclassified	1200	0	1.500	Unclassified
S2.000	S2A	150	1.500	1.582	Unclassified	1200	0	1.582	Unclassified
S1.001	S3	300	1.500	1.530	Unclassified	1200	0	1.500	Unclassified
S1.002	S4	300	1.500	2.038	Unclassified	1200	0	1.500	Unclassified
S3.000	S11	300	1.502	2.038	Unclassified	1200	0	1.502	Unclassified
S1.003	S5	450	2.038	2.503	Unclassified	1500	0	2.038	Unclassified
S4.000	S12	225	1.500	2.503	Unclassified	1200	0	1.500	Unclassified
S1.004	S6	450	1.618	2.503	Unclassified	1500	0	2.503	Unclassified
S1.005	S7	450	1.516	1.799	Unclassified	1500	0	1.799	Unclassified
S1.006	S8	450	1.516	1.537	Unclassified	1500	0	1.516	Unclassified
S1.007	S9	450	1.537	1.934	Unclassified	1500	0	1.537	Unclassified
S1.008	S10	450	0.350	1.934	Unclassified	1500	0	1.934	Unclassified
S1.009	SHW1	450	0.350	1.450	Unclassified	1500	0	0.350	Unclassified
S1.010	SSW11	450	1.450	1.480	Unclassified	1500	0	1.450	Unclassified
S1.011	SHW2	450	1.480	3.140	Unclassified	1500	0	1.480	Unclassified

Free Flowing Outfall Details for Storm 1

Outfall Pipe Number	Outfall C. Name	Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.011	S25	11.640	8.050	0.000	0	0

Simulation Criteria for Storm 1

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	26.250	Storm Duration (mins)	30
Ratio R	0.400		

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S2	15 Winter	1	+0%	100/15 Summer				12.990	-0.229	0.000
S2.000	S2A	15 Winter	1	+0%	100/15 Summer				13.006	-0.082	0.000
S1.001	S3	15 Winter	1	+0%	100/15 Summer				12.826	-0.195	0.000
S1.002	S4	15 Winter	1	+0%	100/15 Summer				12.559	-0.205	0.000
S3.000	S11	15 Winter	1	+0%	30/15 Summer				11.731	-0.198	0.000
S1.003	S5	15 Winter	1	+0%	30/15 Summer				11.596	-0.226	0.000
S4.000	S12	15 Winter	1	+0%					12.621	-0.164	0.000
S1.004	S6	15 Winter	1	+0%	30/15 Summer				11.543	-0.227	0.000
S1.005	S7	15 Winter	1	+0%	100/15 Summer				11.364	-0.292	0.000
S1.006	S8	15 Winter	1	+0%	100/15 Summer				11.037	-0.298	0.000
S1.007	S9	15 Winter	1	+0%	100/15 Summer				10.638	-0.315	0.000
S1.008	S10	15 Winter	1	+0%	30/15 Summer				10.035	-0.215	0.000
S1.009	SHW1	15 Winter	1	+0%	100/360 Winter				9.843	-0.307	0.000
S1.010	SSW11	360 Winter	1	+0%	1/60 Winter				9.180	0.130	0.000
S1.011	SHW2	360 Winter	1	+0%	1/30 Winter				9.199	0.179	0.000

PN	US/MH Name	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2	0.13		14.3	OK	
S2.000	S2A	0.42		6.3	OK	
S1.001	S3	0.26		35.4	OK	
S1.002	S4	0.21		39.7	OK	
S3.000	S11	0.25		14.6	OK	
S1.003	S5	0.43		56.3	OK	
S4.000	S12	0.16		16.9	OK	
S1.004	S6	0.48		84.0	OK	
S1.005	S7	0.27		85.4	OK	
S1.006	S8	0.25		87.5	OK	
S1.007	S9	0.20		92.7	OK	
S1.008	S10	0.53		95.0	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 1

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Pipe		Status	Level Exceeded
				Time (mins)	Flow (l/s)		
S1.009	SHW1	0.22			123.8		OK
S1.010	SSW11	0.04			5.9		SURCHARGED
S1.011	SHW2	0.01			3.2		SURCHARGED

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S2	15 Winter	30	+0%	100/15 Summer				13.035	-0.184	0.000
S2.000	S2A	15 Winter	30	+0%	100/15 Summer				13.080	-0.008	0.000
S1.001	S3	15 Winter	30	+0%	100/15 Summer				12.911	-0.110	0.000
S1.002	S4	15 Winter	30	+0%	100/15 Summer				12.631	-0.133	0.000
S3.000	S11	15 Winter	30	+0%	30/15 Summer				11.962	0.033	0.000
S1.003	S5	15 Winter	30	+0%	30/15 Summer				11.884	0.062	0.000
S4.000	S12	15 Winter	30	+0%					12.659	-0.126	0.000
S1.004	S6	15 Winter	30	+0%	30/15 Summer				11.816	0.046	0.000
S1.005	S7	15 Winter	30	+0%	100/15 Summer				11.483	-0.173	0.000
S1.006	S8	15 Winter	30	+0%	100/15 Summer				11.150	-0.185	0.000
S1.007	S9	15 Winter	30	+0%	100/15 Summer				10.731	-0.222	0.000
S1.008	S10	15 Winter	30	+0%	30/15 Summer				10.325	0.075	0.000
S1.009	SHW1	15 Winter	30	+0%	100/360 Winter				9.946	-0.204	0.000
S1.010	SSW11	480 Winter	30	+0%	1/60 Winter				9.678	0.628	0.000
S1.011	SHW2	480 Winter	30	+0%	1/30 Winter				9.697	0.677	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2	0.31			35.0	OK	
S2.000	S2A	1.00			15.0	OK	
S1.001	S3	0.71			95.9	OK	
S1.002	S4	0.59			108.6	OK	
S3.000	S11	0.58			34.0	SURCHARGED	
S1.003	S5	1.12			144.8	SURCHARGED	
S4.000	S12	0.40			41.4	OK	
S1.004	S6	1.24			215.8	SURCHARGED	
S1.005	S7	0.68			218.4	OK	
S1.006	S8	0.64			224.7	OK	
S1.007	S9	0.50			237.4	OK	
S1.008	S10	1.37			244.1	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 1

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Pipe		Status	Level Exceeded
				Time (mins)	Flow (l/s)		
S1.009	SHW1	0.55			310.8		OK
S1.010	SSW11	0.04			6.1		SURCHARGED
S1.011	SHW2	0.01			3.2		SURCHARGED

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S2	15 Winter	100	+40%	100/15 Summer				13.784	0.565	0.000
S2.000	S2A	15 Winter	100	+40%	100/15 Summer				13.824	0.736	0.000
S1.001	S3	15 Winter	100	+40%	100/15 Summer				13.646	0.625	0.000
S1.002	S4	15 Winter	100	+40%	100/15 Summer				13.288	0.524	0.000
S3.000	S11	15 Winter	100	+40%	30/15 Summer				12.625	0.696	0.000
S1.003	S5	15 Winter	100	+40%	30/15 Summer				12.521	0.699	0.000
S4.000	S12	15 Winter	100	+40%					12.769	-0.016	0.000
S1.004	S6	15 Winter	100	+40%	30/15 Summer				12.352	0.582	0.000
S1.005	S7	15 Winter	100	+40%	100/15 Summer				11.875	0.219	0.000
S1.006	S8	15 Winter	100	+40%	100/15 Summer				11.492	0.157	0.000
S1.007	S9	15 Winter	100	+40%	100/15 Summer				11.084	0.131	0.000
S1.008	S10	15 Winter	100	+40%	30/15 Summer				10.623	0.373	0.000
S1.009	SHW1	960 Winter	100	+40%	100/360 Winter				10.224	0.074	0.000
S1.010	SSW11	960 Winter	100	+40%	1/60 Winter				10.222	1.172	0.000
S1.011	SHW2	960 Winter	100	+40%	1/30 Winter				10.241	1.221	0.000

Half Drain Pipe

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
S1.000	S2	0.51			57.3	SURCHARGED	
S2.000	S2A	1.82			27.4	SURCHARGED	
S1.001	S3	1.11			149.5	SURCHARGED	
S1.002	S4	0.90			167.7	SURCHARGED	
S3.000	S11	1.01			59.8	SURCHARGED	
S1.003	S5	1.81			233.8	SURCHARGED	
S4.000	S12	0.72			75.6	OK	
S1.004	S6	2.06			358.9	SURCHARGED	
S1.005	S7	1.12			357.5	SURCHARGED	
S1.006	S8	1.04			360.8	SURCHARGED	
S1.007	S9	0.81			380.5	SURCHARGED	
S1.008	S10	2.19			390.6	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 1

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Pipe		Status	Level Exceeded
				Time (mins)	Flow (l/s)		
S1.009	SHW1	0.07			38.9	FLOOD RISK	
S1.010	SSW11	0.05			6.2	FLOOD RISK	
S1.011	SHW2	0.01			3.8	FLOOD RISK	

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm 2

Pipe Sizes FH-PIPE Manhole Sizes FH-MH

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	26.250	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm 2

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.169	4-8	0.275	8-12	0.000

Total Area Contributing (ha) = 0.445

Total Pipe Volume (m³) = 15.488

Network Design Table for Storm 2

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	24.482	0.109	224.6	0.061	5.00	0.0	0.600	o	300	Pipe/Conduit	☺
S2.000	18.659	0.537	34.7	0.062	5.00	0.0	0.600	o	225	Pipe/Conduit	☺
S1.001	33.745	0.279	120.9	0.081	0.00	0.0	0.600	o	300	Pipe/Conduit	☺
S1.002	21.836	0.829	26.3	0.060	0.00	0.0	0.600	o	300	Pipe/Conduit	☺
S1.003	13.013	0.304	42.8	0.068	0.00	0.0	0.600	o	300	Pipe/Conduit	☺
S1.004	10.698	0.040	267.5	0.113	0.00	0.0	0.600	o	300	Pipe/Conduit	☺
S1.005	9.235	0.011	839.5	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	☺
S1.006	46.746	0.036	1298.5	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	☺
S1.007	7.723	1.500	5.1	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	☺

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.39	11.968	0.061	0.0	0.0	0.0	1.04	73.9	8.3
S2.000	50.00	5.14	12.471	0.062	0.0	0.0	0.0	2.23	88.5	8.4
S1.001	50.00	5.78	11.859	0.204	0.0	0.0	0.0	1.43	101.0	27.6
S1.002	50.00	5.90	11.580	0.263	0.0	0.0	0.0	3.08	217.4	35.7
S1.003	50.00	5.99	10.751	0.332	0.0	0.0	0.0	2.41	170.3	44.9
S1.004	50.00	6.18	10.447	0.445	0.0	0.0	0.0	0.96	67.6	60.3
S1.005	50.00	6.43	10.332	0.445	0.0	0.0	0.0	0.62	68.2	60.3
S1.006	50.00	8.00	10.336	0.445	0.0	0.0	0.0	0.49	54.6«	60.3
S1.007	50.00	8.02	10.300	0.445	0.0	0.0	0.0	9.00	1432.1	60.3

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Manhole Schedules for Storm 2

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S13	13.768	1.800	Open Manhole	1200	S1.000	11.968	300				
S18	14.196	1.725	Open Manhole	1200	S2.000	12.471	225				
S14	13.943	2.084	Open Manhole	1200	S1.001	11.859	300	S1.000	11.859	300	
								S2.000	11.934	225	
S15	13.097	1.517	Open Manhole	1200	S1.002	11.580	300	S1.001	11.580	300	
S16	12.551	1.800	Open Manhole	1200	S1.003	10.751	300	S1.002	10.751	300	
S17	12.247	1.800	Open Manhole	1200	S1.004	10.447	300	S1.003	10.447	300	
SHW2	12.225	1.893	Open Manhole	1500	S1.005	10.332	375	S1.004	10.407	300	
SSW14	11.400	1.079	Open Manhole	1500	S1.006	10.336	375	S1.005	10.321	375	
SHW3	11.400	1.100	Open Manhole	1500	S1.007	10.300	450	S1.006	10.300	375	
S26	10.600	1.800	Open Manhole	0		OUTFALL		S1.007	8.800	450	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S13	617140.012	166732.189	617140.012	166732.189	Required	
S18	617150.297	166774.081	617150.297	166774.081	Required	
S14	617145.546	166756.038	617145.546	166756.038	Required	
S15	617178.780	166750.192	617178.780	166750.192	Required	
S16	617200.246	166746.186	617200.246	166746.186	Required	
S17	617212.865	166749.363	617212.865	166749.363	Required	
SHW2	617222.402	166754.211	617222.402	166754.211	Required	
SSW14	617230.682	166750.122	617230.682	166750.122	Required	
SHW3	617230.185	166703.379	617230.185	166703.379	Required	
S26	617229.665	166695.673			No Entry	

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PIPELINE SCHEDULES for Storm 2

Upstream Manhole

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	S13	13.768	11.968	1.500	Open Manhole	1200
S2.000	o	225	S18	14.196	12.471	1.500	Open Manhole	1200
S1.001	o	300	S14	13.943	11.859	1.784	Open Manhole	1200
S1.002	o	300	S15	13.097	11.580	1.217	Open Manhole	1200
S1.003	o	300	S16	12.551	10.751	1.500	Open Manhole	1200
S1.004	o	300	S17	12.247	10.447	1.500	Open Manhole	1200
S1.005	o	375	SHW2	12.225	10.332	1.518	Open Manhole	1500
S1.006	o	375	SSW14	11.400	10.336	0.689	Open Manhole	1500
S1.007	o	450	SHW3	11.400	10.300	0.650	Open Manhole	1500

Downstream Manhole

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	24.482	224.6	S14	13.943	11.859	1.784	Open Manhole	1200
S2.000	18.659	34.7	S14	13.943	11.934	1.784	Open Manhole	1200
S1.001	33.745	120.9	S15	13.097	11.580	1.217	Open Manhole	1200
S1.002	21.836	26.3	S16	12.551	10.751	1.500	Open Manhole	1200
S1.003	13.013	42.8	S17	12.247	10.447	1.500	Open Manhole	1200
S1.004	10.698	267.5	SHW2	12.225	10.407	1.518	Open Manhole	1500
S1.005	9.235	839.5	SSW14	11.400	10.321	0.704	Open Manhole	1500
S1.006	46.746	1298.5	SHW3	11.400	10.300	0.725	Open Manhole	1500
S1.007	7.723	5.1	S26	10.600	8.800	1.350	Open Manhole	0

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Area Summary for Storm 2

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.061	0.061	0.061
2.000	-	-	100	0.062	0.062	0.062
1.001	User	-	100	0.009	0.009	0.009
	User	-	100	0.014	0.014	0.023
	User	-	100	0.003	0.003	0.025
	User	-	100	0.007	0.007	0.033
	User	-	100	0.003	0.003	0.036
	User	-	100	0.030	0.030	0.066
	User	-	100	0.015	0.015	0.081
1.002	User	-	100	0.015	0.015	0.015
	User	-	100	0.014	0.014	0.029
	User	-	100	0.031	0.031	0.060
1.003	User	-	100	0.037	0.037	0.037
	User	-	100	0.011	0.011	0.048
	User	-	100	0.005	0.005	0.053
	User	-	100	0.015	0.015	0.068
1.004	User	-	100	0.015	0.015	0.015
	User	-	100	0.014	0.014	0.029
	User	-	100	0.014	0.014	0.043
	User	-	100	0.013	0.013	0.056
	User	-	100	0.020	0.020	0.076
	User	-	100	0.037	0.037	0.113
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.445	0.445	0.445

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Network Classifications for Storm 2

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S13	300	1.500	1.784	Unclassified	1200	0	1.500	Unclassified
S2.000	S18	225	1.500	1.784	Unclassified	1200	0	1.500	Unclassified
S1.001	S14	300	1.217	1.784	Unclassified	1200	0	1.784	Unclassified
S1.002	S15	300	1.217	1.500	Unclassified	1200	0	1.217	Unclassified
S1.003	S16	300	1.500	1.526	Unclassified	1200	0	1.500	Unclassified
S1.004	S17	300	1.438	1.518	Unclassified	1200	0	1.500	Unclassified
S1.005	SHW2	375	0.704	1.518	Unclassified	1500	0	1.518	Unclassified
S1.006	SSW14	375	0.689	0.725	Unclassified	1500	0	0.689	Unclassified
S1.007	SHW3	450	0.650	1.350	Unclassified	1500	0	0.650	Unclassified

Free Flowing Outfall Details for Storm 2

Outfall Pipe Number	Outfall C. Name	Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
------------------------	-----------------	--------------	-----------------	------------------------	-------------	-----------

S1.007 S26 10.600 8.800 0.000 0 0

Simulation Criteria for Storm 2

Volumetric Runoff Coeff 0.750 Additional Flow - % of Total Flow 0.000
 Areal Reduction Factor 1.000 MADD Factor * 10m³/ha Storage 2.000
 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Profile Type Summer
 Return Period (years) 30 Cv (Summer) 0.750
 Region England and Wales Cv (Winter) 0.840
 M5-60 (mm) 26.250 Storm Duration (mins) 30
 Ratio R 0.400

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 2

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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S13	15 Winter	1	+0%	100/15 Summer	100/15 Summer			12.052	-0.216	0.000
S2.000	S18	15 Winter	1	+0%	100/15 Summer				12.528	-0.168	0.000
S1.001	S14	15 Winter	1	+0%	30/15 Winter				11.988	-0.171	0.000
S1.002	S15	15 Winter	1	+0%	30/15 Summer	100/15 Summer			11.678	-0.202	0.000
S1.003	S16	15 Winter	1	+0%	30/15 Summer	100/15 Summer			10.882	-0.169	0.000
S1.004	S17	15 Winter	1	+0%	1/15 Summer				10.796	0.049	0.000
S1.005	SHW2	15 Summer	1	+0%	1/15 Summer				10.716	0.009	0.000
S1.006	SSW14	480 Winter	1	+0%	30/120 Winter				10.565	-0.146	0.000
S1.007	SHW3	480 Winter	1	+0%	30/120 Winter	100/240 Winter			10.564	-0.186	0.000

PN	US/MH Name	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S13	0.17		11.1	OK	2
S2.000	S18	0.14		11.5	OK	
S1.001	S14	0.38		35.2	OK	
S1.002	S15	0.23		44.4	OK	3
S1.003	S16	0.40		54.9	OK	3
S1.004	S17	1.35		72.5	SURCHARGED	
S1.005	SHW2	1.26		68.0	SURCHARGED	
S1.006	SSW14	0.05		2.6	OK	
S1.007	SHW3	0.00		1.7	OK	1

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 2

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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	S13	15 Winter	30	+0%	100/15 Summer	100/15 Summer			12.224	-0.044	0.000
S2.000	S18	15 Winter	30	+0%	100/15 Summer				12.564	-0.132	0.000
S1.001	S14	15 Winter	30	+0%	30/15 Winter				12.171	0.012	0.000
S1.002	S15	15 Winter	30	+0%	30/15 Summer	100/15 Summer			11.945	0.065	0.000
S1.003	S16	15 Winter	30	+0%	30/15 Summer	100/15 Summer			11.687	0.636	0.000
S1.004	S17	15 Winter	30	+0%	1/15 Summer				11.415	0.668	0.000
S1.005	SHW2	15 Winter	30	+0%	1/15 Summer				10.890	0.183	0.000
S1.006	SSW14	960 Winter	30	+0%	30/120 Winter				10.841	0.130	0.000
S1.007	SHW3	960 Winter	30	+0%	30/120 Winter	100/240 Winter			10.958	0.208	0.000

PN	US/MH Name	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S13	0.40		26.3	OK	2
S2.000	S18	0.35		28.2	OK	
S1.001	S14	0.94		87.4	SURCHARGED	
S1.002	S15	0.59		111.9	SURCHARGED	3
S1.003	S16	0.98		134.7	SURCHARGED	3
S1.004	S17	3.34		179.2	SURCHARGED	
S1.005	SHW2	3.33		179.2	SURCHARGED	
S1.006	SSW14	0.22		12.1	SURCHARGED	
S1.007	SHW3	0.00		1.7	SURCHARGED	1

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 2

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 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 Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S13	15 Winter	100	+40%	100/15 Summer	100/15 Summer			13.770	1.502
S2.000	S18	15 Winter	100	+40%	100/15 Summer				13.952	1.256
S1.001	S14	15 Winter	100	+40%	30/15 Winter				13.753	1.594
S1.002	S15	15 Winter	100	+40%	30/15 Summer	100/15 Summer			13.100	1.220
S1.003	S16	15 Winter	100	+40%	30/15 Summer	100/15 Summer			12.557	1.506
S1.004	S17	15 Summer	100	+40%	1/15 Summer				12.179	1.432
S1.005	SHW2	1440 Winter	100	+40%	1/15 Summer				11.212	0.505
S1.006	SSW14	1440 Winter	100	+40%	30/120 Winter				11.212	0.501
S1.007	SHW3	240 Winter	100	+40%	30/120 Winter	100/240 Winter			11.400	0.650

PN	US/MH Name	Flooded Volume (m ³)	Flow / Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S13	1.668	0.68		44.5	FLOOD	2
S2.000	S18	0.000	0.61		48.3	FLOOD RISK	
S1.001	S14	0.000	1.46		135.6	FLOOD RISK	
S1.002	S15	3.091	0.81		154.7	FLOOD	3
S1.003	S16	6.349	1.50		207.3	FLOOD	3
S1.004	S17	0.000	4.71		252.4	FLOOD RISK	
S1.005	SHW2	0.000	0.30		15.9	SURCHARGED	
S1.006	SSW14	0.000	0.31		17.4	FLOOD RISK	
S1.007	SHW3	0.136	0.00		1.7	FLOOD	1

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm 3

Pipe Sizes FH-PIPE Manhole Sizes FH-MH

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	26.250	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm 3

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.292	4-8	0.124

Total Area Contributing (ha) = 0.416

Total Pipe Volume (m³) = 14.518

Network Design Table for Storm 3

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	25.910	1.200	21.6	0.038	5.00	0.0	0.600	o	150	Pipe/Conduit	☺
S1.001	21.216	0.305	69.6	0.056	0.00	0.0	0.600	o	225	Pipe/Conduit	☹
S2.000	12.848	0.099	129.8	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit	☺
S1.002	21.765	0.539	40.4	0.057	0.00	0.0	0.600	o	225	Pipe/Conduit	☹
S1.003	16.083	0.879	18.3	0.048	0.00	0.0	0.600	o	300	Pipe/Conduit	☹
S3.000	25.671	0.166	154.6	0.030	5.00	0.0	0.600	o	225	Pipe/Conduit	☺
S1.004	29.393	0.912	32.2	0.050	0.00	0.0	0.600	o	300	Pipe/Conduit	☹
S1.005	20.460	0.058	352.8	0.128	0.00	0.0	0.600	o	450	Pipe/Conduit	☹

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.20	12.275	0.038	0.0	0.0	0.0	2.18	38.5	5.1
S1.001	50.00	5.42	11.000	0.094	0.0	0.0	0.0	1.57	62.4	12.7
S2.000	50.00	5.24	11.008	0.009	0.0	0.0	0.0	0.88	15.6	1.2
S1.002	50.00	5.60	10.695	0.160	0.0	0.0	0.0	2.06	82.1	21.7
S1.003	50.00	5.67	10.081	0.208	0.0	0.0	0.0	3.69	261.0	28.2
S3.000	50.00	5.41	9.518	0.030	0.0	0.0	0.0	1.05	41.7	4.1
S1.004	50.00	5.85	9.202	0.288	0.0	0.0	0.0	2.78	196.5	39.0
S1.005	50.00	6.16	8.140	0.416	0.0	0.0	0.0	1.08	171.2	56.3

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Network Design Table for Storm 3

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.006	6.802	0.019	358.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	⚙️
S1.007	18.850	0.053	355.7	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	⚙️
S1.008	3.493	0.010	349.3	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	⚙️

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.006	50.00	6.27	8.082	0.416	0.0	0.0	0.0	1.07	170.0	56.3
S1.007	50.00	6.56	8.063	0.416	0.0	0.0	0.0	1.07	170.5	56.3
S1.008	50.00	6.62	8.010	0.416	0.0	0.0	0.0	1.08	172.1	56.3

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Manhole Schedules for Storm 3

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., I*W (mm)	Pipe Out			Pipes In			Backdrop (mm)
					PN	Invert Level (m)	Diameter (mm)	PN	Invert Level (m)	Diameter (mm)	
S19	13.925	1.650	Open Manhole	1200	S1.000	12.275	150				
S20	13.176	2.176	Open Manhole	1200	S1.001	11.000	225	S1.000	11.075	150	
S31	12.658	1.650	Open Manhole	1200	S2.000	11.008	150				
S21	12.666	1.971	Open Manhole	1200	S1.002	10.695	225	S1.001	10.695	225	139
								S2.000	10.909	150	
S22	11.881	1.800	Open Manhole	1200	S1.003	10.081	300	S1.002	10.156	225	
S23A	10.668	1.150	Open Manhole	1200	S3.000	9.518	225				
S23	11.401	2.199	Open Manhole	1200	S1.004	9.202	300	S1.003	9.202	300	75
								S3.000	9.352	225	
S24	10.800	2.660	Open Manhole	1500	S1.005	8.140	450	S1.004	8.290	300	
S27	10.300	2.218	Open Manhole	1500	S1.006	8.082	450	S1.005	8.082	450	
S28	10.300	2.237	Open Manhole	1500	S1.007	8.063	450	S1.006	8.063	450	
S30	9.500	1.490	Open Manhole	1500	S1.008	8.010	450	S1.007	8.010	450	
SHW5	9.400	1.400	Open Manhole	0		OUTFALL		S1.008	8.000	450	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S19	617184.958	166796.765	617184.958	166796.765	Required	
S20	617210.526	166792.571	617210.526	166792.571	Required	
S31	617230.209	166779.404	617230.209	166779.404	Required	
S21	617231.738	166792.161	617231.738	166792.161	Required	
S22	617253.213	166795.698	617253.213	166795.698	Required	
S23A	617291.979	166811.183	617291.979	166811.183	Required	
S23	617268.305	166801.256	617268.305	166801.256	Required	
S24	617279.394	166774.036	617279.394	166774.036	Required	
S27	617287.225	166755.133	617287.225	166755.133	Required	
S28	617293.435	166752.357	617293.435	166752.357	Required	
S30	617310.813	166759.661	617310.813	166759.661	Required	

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Manhole Schedules for Storm 3

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SHW5	617313.895	166758.017			No Entry	

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PIPELINE SCHEDULES for Storm 3

Upstream Manhole

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	150	S19	13.925	12.275	1.500	Open Manhole	1200
S1.001	o	225	S20	13.176	11.000	1.951	Open Manhole	1200
S2.000	o	150	S31	12.658	11.008	1.500	Open Manhole	1200
S1.002	o	225	S21	12.666	10.695	1.746	Open Manhole	1200
S1.003	o	300	S22	11.881	10.081	1.500	Open Manhole	1200
S3.000	o	225	S23A	10.668	9.518	0.925	Open Manhole	1200
S1.004	o	300	S23	11.401	9.202	1.899	Open Manhole	1200
S1.005	o	450	S24	10.800	8.140	2.210	Open Manhole	1500
S1.006	o	450	S27	10.300	8.082	1.768	Open Manhole	1500
S1.007	o	450	S28	10.300	8.063	1.787	Open Manhole	1500
S1.008	o	450	S30	9.500	8.010	1.040	Open Manhole	1500

Downstream Manhole

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	25.910	21.6	S20	13.176	11.075	1.951	Open Manhole	1200
S1.001	21.216	69.6	S21	12.666	10.695	1.746	Open Manhole	1200
S2.000	12.848	129.8	S21	12.666	10.909	1.607	Open Manhole	1200
S1.002	21.765	40.4	S22	11.881	10.156	1.500	Open Manhole	1200
S1.003	16.083	18.3	S23	11.401	9.202	1.899	Open Manhole	1200
S3.000	25.671	154.6	S23	11.401	9.352	1.824	Open Manhole	1200
S1.004	29.393	32.2	S24	10.800	8.290	2.210	Open Manhole	1500
S1.005	20.460	352.8	S27	10.300	8.082	1.768	Open Manhole	1500
S1.006	6.802	358.0	S28	10.300	8.063	1.787	Open Manhole	1500
S1.007	18.850	355.7	S30	9.500	8.010	1.040	Open Manhole	1500
S1.008	3.493	349.3	SHW5	9.400	8.000	0.950	Open Manhole	0

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Area Summary for Storm 3

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.038	0.038	0.038
1.001	-	-	100	0.056	0.056	0.056
2.000	-	-	100	0.009	0.009	0.009
1.002	-	-	100	0.057	0.057	0.057
1.003	-	-	100	0.048	0.048	0.048
3.000	-	-	100	0.030	0.030	0.030
1.004	-	-	100	0.050	0.050	0.050
1.005	-	-	100	0.128	0.128	0.128
1.006	-	-	100	0.000	0.000	0.000
1.007	-	-	100	0.000	0.000	0.000
1.008	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.416	0.416	0.416

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Network Classifications for Storm 3

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S19	150	1.500	1.951	Unclassified	1200	0	1.500	Unclassified
S1.001	S20	225	1.746	1.979	Unclassified	1200	0	1.951	Unclassified
S2.000	S31	150	1.440	1.607	Unclassified	1200	0	1.500	Unclassified
S1.002	S21	225	1.500	1.746	Unclassified	1200	0	1.746	Unclassified
S1.003	S22	300	1.500	1.899	Unclassified	1200	0	1.500	Unclassified
S3.000	S23A	225	0.925	1.824	Unclassified	1200	0	0.925	Unclassified
S1.004	S23	300	1.892	2.210	Unclassified	1200	0	1.899	Unclassified
S1.005	S24	450	1.768	2.210	Unclassified	1500	0	2.210	Unclassified
S1.006	S27	450	1.768	1.787	Unclassified	1500	0	1.768	Unclassified
S1.007	S28	450	1.040	1.787	Unclassified	1500	0	1.787	Unclassified
S1.008	S30	450	0.950	1.040	Unclassified	1500	0	1.040	Unclassified

Free Flowing Outfall Details for Storm 3

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.008	SHW5	9.400	8.000	0.000	0	0

Simulation Criteria for Storm 3

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	26.250	Storm Duration (mins)	30
Ratio R	0.400		

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 3

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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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.	Water	Surcharged	Flooded
									Level (m)	Depth (m)	Volume (m ³)
S1.000	S19	15 Winter	1	+0%	100/15	Summer		12.320	-0.105	0.000	
S1.001	S20	15 Winter	1	+0%	100/15	Summer		11.081	-0.144	0.000	
S2.000	S31	15 Winter	1	+0%	100/15	Summer		11.042	-0.116	0.000	
S1.002	S21	15 Winter	1	+0%	100/15	Summer		10.788	-0.132	0.000	
S1.003	S22	15 Winter	1	+0%	100/15	Summer		10.160	-0.221	0.000	
S3.000	S23A	15 Winter	1	+0%	100/15	Summer		9.575	-0.168	0.000	
S1.004	S23	15 Winter	1	+0%	100/15	Summer		9.308	-0.194	0.000	
S1.005	S24	15 Winter	1	+0%	30/15	Summer		8.391	-0.199	0.000	
S1.006	S27	15 Winter	1	+0%	30/15	Summer		8.348	-0.184	0.000	
S1.007	S28	15 Winter	1	+0%	30/15	Summer		8.297	-0.216	0.000	
S1.008	S30	15 Winter	1	+0%	30/15	Summer		8.248	-0.212	0.000	

Half Drain Pipe

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Pipe Flow (l/s)	Level Exceeded Status
S1.000	S19	0.19			7.1	OK
S1.001	S20	0.28			15.8	OK
S2.000	S31	0.12			1.7	OK
S1.002	S21	0.35			26.4	OK
S1.003	S22	0.15			34.0	OK
S3.000	S23A	0.14			5.5	OK
S1.004	S23	0.27			47.5	OK
S1.005	S24	0.48			66.9	OK
S1.006	S27	0.65			66.3	OK
S1.007	S28	0.48			66.0	OK
S1.008	S30	0.54			65.6	OK

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 3

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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded
									Level (m)	Depth (m)	Volume (m ³)
S1.000	S19	15 Winter	30	+0%	100/15 Summer				12.348	-0.077	0.000
S1.001	S20	15 Winter	30	+0%	100/15 Summer				11.151	-0.074	0.000
S2.000	S31	15 Winter	30	+0%	100/15 Summer				11.063	-0.095	0.000
S1.002	S21	15 Winter	30	+0%	100/15 Summer				10.906	-0.014	0.000
S1.003	S22	15 Winter	30	+0%	100/15 Summer				10.221	-0.160	0.000
S3.000	S23A	15 Winter	30	+0%	100/15 Summer				9.611	-0.132	0.000
S1.004	S23	15 Winter	30	+0%	100/15 Summer				9.400	-0.102	0.000
S1.005	S24	15 Winter	30	+0%	30/15 Summer				8.869	0.279	0.000
S1.006	S27	15 Winter	30	+0%	30/15 Summer				8.752	0.220	0.000
S1.007	S28	15 Winter	30	+0%	30/15 Summer				8.646	0.133	0.000
S1.008	S30	15 Winter	30	+0%	30/15 Summer				8.538	0.078	0.000

Half Drain Pipe

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
S1.000	S19	0.47			17.3	OK	
S1.001	S20	0.78			44.3	OK	
S2.000	S31	0.29			4.1	OK	
S1.002	S21	1.00			74.7	OK	
S1.003	S22	0.44			98.0	OK	
S3.000	S23A	0.35			13.4	OK	
S1.004	S23	0.76			135.0	OK	
S1.005	S24	1.35			187.1	SURCHARGED	
S1.006	S27	1.83			187.1	SURCHARGED	
S1.007	S28	1.35			183.8	SURCHARGED	
S1.008	S30	1.52			184.6	SURCHARGED	

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File 132592 PHASE 4.MDX

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm 3

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 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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

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) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged	Flooded
									Level (m)	Depth (m)	Volume (m ³)
S1.000	S19 15	Winter	100	+40%	100/15	Summer		12.947	0.522	0.000	
S1.001	S20 15	Winter	100	+40%	100/15	Summer		12.365	1.140	0.000	
S2.000	S31 15	Winter	100	+40%	100/15	Summer		12.010	0.852	0.000	
S1.002	S21 15	Winter	100	+40%	100/15	Summer		11.993	1.073	0.000	
S1.003	S22 15	Winter	100	+40%	100/15	Summer		10.897	0.516	0.000	
S3.000	S23A 15	Winter	100	+40%	100/15	Summer		10.608	0.865	0.000	
S1.004	S23 15	Winter	100	+40%	100/15	Summer		10.544	1.042	0.000	
S1.005	S24 15	Winter	100	+40%	30/15	Summer		9.450	0.860	0.000	
S1.006	S27 15	Winter	100	+40%	30/15	Summer		9.188	0.656	0.000	
S1.007	S28 15	Winter	100	+40%	30/15	Summer		8.931	0.418	0.000	
S1.008	S30 15	Winter	100	+40%	30/15	Summer		8.678	0.218	0.000	

Half Drain Pipe

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Status	Level Exceeded
S1.000	S19	0.76			27.9	SURCHARGED	
S1.001	S20	1.14			64.7	SURCHARGED	
S2.000	S31	0.83			11.8	SURCHARGED	
S1.002	S21	1.43			106.8	SURCHARGED	
S1.003	S22	0.63			139.5	SURCHARGED	
S3.000	S23A	0.60			23.1	FLOOD RISK	
S1.004	S23	1.09			193.4	SURCHARGED	
S1.005	S24	2.04			283.6	SURCHARGED	
S1.006	S27	2.75			281.2	SURCHARGED	
S1.007	S28	2.06			281.6	SURCHARGED	
S1.008	S30	2.33			282.0	SURCHARGED	

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FOUL SEWERAGE DESIGN

Design Criteria for Foul - Main 1

Pipe Sizes FH-PIPE Manhole Sizes FH-MH

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200
Flow Per Person (l/per/day)	222.00	Maximum Backdrop Height (m)	1.500
Persons per House	3.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Foul - Main 1

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.000	8.696	0.199	43.7	0.000	7	0.0	1.500	o	150	Pipe/Conduit	🔌
F1.001	14.859	0.256	58.0	0.000	13	0.0	1.500	o	150	Pipe/Conduit	🔌
F1.002	27.882	1.359	20.5	0.000	3	0.0	1.500	o	150	Pipe/Conduit	🔌
F2.000	31.512	1.185	26.6	0.000	6	0.0	1.500	o	150	Pipe/Conduit	🔌
F2.001	27.155	0.235	115.6	0.000	4	0.0	1.500	o	150	Pipe/Conduit	🔌
F1.003	20.949	0.209	100.2	0.000	8	0.0	1.500	o	150	Pipe/Conduit	🔌
F1.004	20.931	0.206	101.6	0.000	4	0.0	1.500	o	150	Pipe/Conduit	🔌

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Hse Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
F1.000	12.619	0.000	0.0	7	0.0	13	0.45	1.33	23.5	0.3
F1.001	12.420	0.000	0.0	20	0.0	22	0.57	1.15	20.3	0.9
F1.002	12.164	0.000	0.0	23	0.0	18	0.86	1.94	34.3	1.1
F2.000	12.225	0.000	0.0	6	0.0	11	0.51	1.70	30.1	0.3
F2.001	11.040	0.000	0.0	10	0.0	19	0.36	0.81	14.4	0.5
F1.003	10.805	0.000	0.0	41	0.0	36	0.59	0.87	15.5	1.9
F1.004	10.596	0.000	0.0	45	0.0	37	0.60	0.87	15.4	2.1

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Manhole Schedules for Foul - Main 1

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out			Pipes In			Backdrop (mm)
					PN	Invert Level (m)	Diameter (mm)	PN	Invert Level (m)	Diameter (mm)	
F2	14.630	2.011	Open Manhole	1200	F1.000	12.619	150				
F3	14.495	2.075	Open Manhole	1200	F1.001	12.420	150	F1.000	12.420	150	
F4	14.201	2.037	Open Manhole	1200	F1.002	12.164	150	F1.001	12.164	150	
F7	13.900	1.675	Open Manhole	1200	F2.000	12.225	150				
F8	14.251	3.211	Open Manhole	1200	F2.001	11.040	150	F2.000	11.040	150	
F5	13.765	2.960	Open Manhole	1200	F1.003	10.805	150	F1.002	10.805	150	
								F2.001	10.805	150	
F6	13.406	2.810	Open Manhole	1200	F1.004	10.596	150	F1.003	10.596	150	
FBRF21	13.299	2.909	Open Manhole	0		OUTFALL		F1.004	10.390	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
F2	617059.815	166695.934	617059.815	166695.934	Required	
F3	617068.438	166694.808	617068.438	166694.808	Required	
F4	617081.742	166688.458	617081.742	166688.458	Required	
F7	617138.354	166719.357	617138.354	166719.357	Required	
F8	617123.604	166691.510	617123.604	166691.510	Required	
F5	617104.443	166672.269	617104.443	166672.269	Required	
F6	617092.567	166655.011	617092.567	166655.011	Required	
FBRF21	617082.287	166636.779			No Entry	

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PIPELINE SCHEDULES for Foul - Main 1

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	o	150	F2	14.630	12.619	1.861	Open Manhole	1200
F1.001	o	150	F3	14.495	12.420	1.925	Open Manhole	1200
F1.002	o	150	F4	14.201	12.164	1.887	Open Manhole	1200
F2.000	o	150	F7	13.900	12.225	1.525	Open Manhole	1200
F2.001	o	150	F8	14.251	11.040	3.061	Open Manhole	1200
F1.003	o	150	F5	13.765	10.805	2.810	Open Manhole	1200
F1.004	o	150	F6	13.406	10.596	2.660	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
F1.000	8.696	43.7	F3	14.495	12.420	1.925	Open Manhole	1200
F1.001	14.859	58.0	F4	14.201	12.164	1.887	Open Manhole	1200
F1.002	27.882	20.5	F5	13.765	10.805	2.810	Open Manhole	1200
F2.000	31.512	26.6	F8	14.251	11.040	3.061	Open Manhole	1200
F2.001	27.155	115.6	F5	13.765	10.805	2.810	Open Manhole	1200
F1.003	20.949	100.2	F6	13.406	10.596	2.660	Open Manhole	1200
F1.004	20.931	101.6	FBRF21	13.299	10.390	2.759	Open Manhole	0

D. Southern Water Technical Approval Letter



Mr Thomas Hawes
Fairhurst
13 Park Street
London
SE1 9EA

Your ref

Our ref
DSA000000405

Date
10th May 2022

Contact

Tel 0330 303 0119

Dear Mr. Hawes,

Adoption of Sewers – Section 104, Water Industry Act 1991
Development: Herne Bay Phase 4, Land at Herne Bay Golf Course Development, Kent, CT6 7PG.

Thank you for your letter dated 03 May 2022 with enclosures.

I have now completed technical assessment of your submission. Based on an estimated cost of [REDACTED] for constructing the proposed sewerage offered for adoption, the fees for design checks, administration, and site supervision amount to [REDACTED] in accordance with the scale of charges set out in "Sewers for Adoption – 6th edition". I enclose a remittance advice sheet for that amount less any previous payment and I ask that this be returned with your client's payment to the address given at the bottom of the sheet. Legal fees will be separately invoiced by Southern Water's solicitor and must be paid before the agreement is engrossed. If there is a pumping station to be included within the S.104 Agreement we will request a further fee at a later date, but prior to handover for the signage, padlocks, monitoring and configuration of the telemetry unit.

In addition to the above fees a Bond is required and, based on the estimated cost of construction, the Agreement will incorporate a Bond in the sum of [REDACTED]

I am also pleased to confirm that the technical assessment of your proposals is satisfactory and I can now proceed towards drawing up the agreement, which will be based on the model form published in the Sixth edition of "Sewers for Adoption". This document is regarded favorably by the House Builders Federation and Water UK and is the standard against which sewers are adopted by agreement. As a consequence, Southern Water will not agree to departures from that model form and you are strongly advised to make your solicitor aware of this, which will pave the way for a swift production and completion of the agreement.

This letter is for the purpose of technical review of submitted proposals, which have been checked for compliance with Sewers for Adoption and published Technical addendum and/or corrigendum.

Southern Water, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX
southernwater.co.uk

Southern Water Services Ltd, Registered Office: Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX Registered in England No. 2366670

It is also an offer to enter into a Section 104 agreement. Please note that this offer letter does not necessarily confirm that capacity is available for the proposed development in the public sewer network. This is not an approval to connect to the public sewer, either directly or indirectly. Such connection will require S106 application and approval. 104 compliance does not necessarily infer that planning conditions can be discharged.

Please note that the Bond must be arranged before any work on site is undertaken and the fees paid not later than the time of the first inspection by our Assistant Project Managers. A minimum of 48 hours notice of your intention to commence the Works should be given to this office. Please be aware that commencing the Works prior to the signing of the Agreement will not absolve you of your responsibility to construct the Works in accordance with the requirements of "Sewers for Adoption" and the relevant drawings.

In order that an Agreement may be drawn up I should be obliged if you would please provide the drawings for the agreement in accordance with the attached specification sheet. Please ensure easements are shown for pipe work over 300mm or 3m deep and for the outfall. N.B. The drawings deemed to comply with "Sewers for Adoption" are numbered:

Drawing No	Revision	Drawing Name
132592- FH-ZZ-00-DR-D-0501,502,	C7	Main Drainage Layout Sheet 1,2 of 7
132592- FH-ZZ-00-DR-D-0503,504	C6	Main Drainage Layout Sheet 3,4 of 7
132592- FH-ZZ-00-DR-D-0209,211,212	C6	Main Drainage Layout Sheet 5,6,7 of 7
132592- FH-ZZ-00-DR-D-0513	C3	Main Drainage Construction Details
132592- FH-ZZ-00-DR-D-0520	C1	Headwall Construction Details
132592- FH-ZZ-00-DR-D-0519	C4	Foul Water Manhole Schedule
132592- FH-ZZ-00-DR-D-0518	C4	Surface Water Manhole Schedule
132592- FH-ZZ-00-DR-C-0113,0114,0115	C3	Longitudinal Section Sheet 1,2 & 3

Where applicable, copies of any consents issued by the Environment Agency and/or the Land Drainage Authority to discharge surface water and/or a pumping station emergency overflow into a local watercourse will be required.

I also ask that you complete sections 1 to 11 and 15 of the attached Instruction Sheet, so that Southern Water's solicitor can enter the correct information into the draft agreement. Instructions will not be issued to Southern Water's solicitor until the complete package of this Instruction Sheet and the drawings requested above has been received.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Ashley Marshman', written in a cursive style.

Ashley Marshman
Head of Business Channels
Business Channels

SECTION 104 DEVELOPMENT DETAILS

1 *	Owner's Name	
2 *	Owner's Address (If Company-Registered Office)	
3 *	Developer's Name	
4 *	Developer's Address (If Company-Registered Office)	
5 *	Surety's Name	
6 *	Surety's Address	
7 *	Solicitor's Name	
8 *	Solicitor's Email Address	
9 *	Solicitor's Address	
10 *	Site Address	
11 *	Site Layout Plan Number(s)	
12 *	Other Drawing Numbers	
13	Easements (yes/no)	Yes
14	Pumping Station (yes/no)	No
15	Southern Water Reference No.	DSA000000405
16 *	Construction Period	
17	Bond Value (£)	██████████
18	Supervision Fee (£)	██████████

* Indicates information required from Developer

SOUTHERN WATER SERVICES LIMITED

REMITTANCE ADVICE SHEET

SECTION 104 WATER INDUSTRY ACT 1991

Developer: Mr.Glenn Holliday

Development: Herne Bay Phase 4, Land at Herne Bay Golf Course Development, Kent, CT6 7PG

Applicant details:

Name: Mr Thomas Hawes

Address: Fairhurst
13 Park Street
London
SE1 9EA

Contact tel:

Payer details if different:

Name:

Address:

Contact tel:

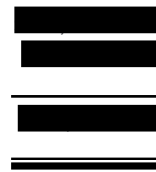
Signed.....Print name:

Company: Position:

Date:

Cheque to the value of £10,769.25 in payment of the following fees:

325050 A-DEVSERV-S104 Technical checks and supervision
Less Deposit previously paid



DSA000000405

Return to: Developer Services, Southern Water, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX.

In order for us to process payment this remittance advice sheet needs to be completed and returned with your payment. Should this not be provided this will cause delays in processing your payment.

SPECIFICATION SHEET FOR DRAWING REQUIREMENTS

WHERE NO EASEMENT IS REQUIRED

2 Copies of the drainage layout drawing to show: -

- Foul water sewers coloured brown with directional arrows (if applicable).
- Surface water sewers coloured blue with directional arrows (if applicable).
- Site boundary edged in green.
- Scale.
- North Point.

2 copies of the Long Section drawing(s).

2 copies of the Typical Detail drawing(s).

2 copies of a Separate Site Location plan (1:1250 extract from Ordnance Survey map with site boundary edged green).

WHERE AN EASEMENT IS REQUIRED

2 Copies of the drainage layout drawing to show: -

- Foul water sewers coloured brown with directional arrows (if applicable).
- Surface water sewers coloured blue with directional arrows (if applicable).
- Site boundary edged in green.
- Scale.
- North Point
- Easements coloured solid yellow with the easement width dimensioned.

2 copies of the Long Section drawing(s).

2 copies of the Typical Detail drawing(s).

2 copies of a Site Location plan (1:1250 extract from Ordnance Survey map with site boundary edged green).

CONVEYANCING PLANS (Where required)

2 Copies of drawings to show: -

- The extent of the pumping station land to be transferred to Southern Water edged in red.
- Any non-adopted highways over which rights of access are to be reserved coloured solid brown.
- These plans must be suitable for land registry purposes i.e. 1:1250 OS based with sufficient background to identify the land and a north point on the drawings. The scale must also be shown.

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