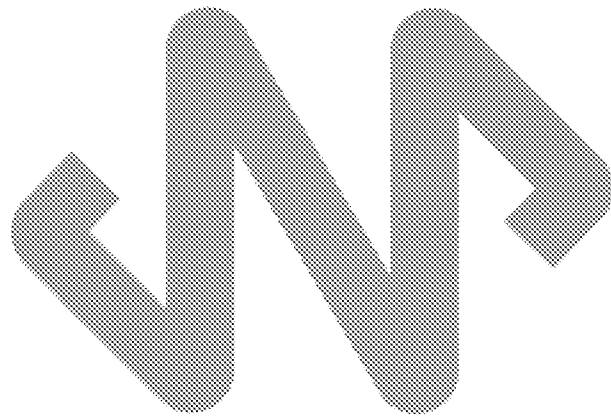




J N P G R O U P

CONSULTING ENGINEERS

Drainage Statement

Project: Land West of Arundel Road,
Angmering – 7 Units

Client: Redrow Homes

Reference: C86473-JNP-66-XX-RP-C-2002

Date: July 2022

DOCUMENT CONTROL SHEET

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FOR AND ON BEHALF OF JNP GROUP

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1 INTRODUCTION

1.1 Terms of Reference

- 1.1.1 JNP Group have been commissioned by Redrow Homes to prepare a drainage statement for the proposed 7-unit residential development that forms part of the overall residential scheme, located to the west of Arundel Road in Angmering, West Sussex.
- 1.1.2 The design of the surface water drainage system has been prepared taking into consideration Arun District Councils Local Plan 2011 – 2031 Policy DM3.
- 1.1.3 This drainage strategy follows the approved principles in line with FRA report 'Flood Risk Assessment & Outline Surface Water Drainage Strategy, 881292-R3(00)-FRA (2019)', which served the basis for outline planning on the wider scheme.
- 1.1.4 This drainage statement is to support a separate reserved matters application for the first 7 plots.

1.2 Policy Framework and Key Stakeholders

- 1.2.1 The *National Planning Policy Framework* (NPPF) (February 2019) sets strict tests to protect people and property from flooding which all local planning authorities are expected to follow. Where these tests are not met, national policy is clear that new development should not be allowed.
- 1.2.2 In areas at risk of flooding or for sites of one hectare (ha) or more, developers must undertake a site-specific flood risk assessment to accompany applications for planning permission (or prior approval for certain types of permitted development). An approved FRA has already been submitted to support outline planning approval, which covers this development site.
- 1.2.3 In decision-taking, local planning authorities must ensure a sequential approach to site selection and master planning is followed so that development is, as far as reasonably possible, located where the risk of flooding (from all sources) is lowest, taking account of climate change and the vulnerability of future uses to flood risk.
- 1.2.4 Lead local flood authorities (unitary authorities or county councils) are responsible for managing local flood risk from ordinary watercourses, surface water or groundwater, and for preparing local flood risk management strategies. Local planning authorities work with lead local flood authorities to ensure local planning policies are compatible with the local flood risk management strategy.
- 1.2.5 West Sussex County Council (WSCC) is the lead local flood authority (LLFA) and its strategy for managing local flood risk is set out in Local Flood Risk Management Strategy (2013) and 'Water. People. Places. A guide for master planning sustainable drainage into developments' (2013).
- 1.2.6 Arun District Council (ADC) is the local planning authority (LPA) and its policies on flood risk management are set out In Local Plan Local Plan 2011 – 2031.
- 1.2.7 Where relevant, local planning authorities and developers must also take advice from:

- Internal drainage boards; to identify the scope of their interests.
- Sewerage undertakers; to ensure they can assess the impact of new development on their assets and plan any required improvements. Southern Water (SW) is the local sewerage undertaker.
- Reservoir undertakers; to avoid an intensification of development within areas at risk from reservoir failure and ensure they can assess the cost implications of any reservoir safety improvements required due to change in land use downstream of their assets.
- Navigation authorities; in relation to developments adjacent to, or which discharge into, canals (especially where these are impounded above natural ground level).

1.3 Sources of Information

1.3.1 This drainage statement report has been based on the following sources of information:

- Bespoke topographic survey undertaken by SubVision Surveys Ltd (Ref. SS-RED-001, February 2021);
- British Geological Survey's *Geoindex Tool*;
(<http://maps.bgs.ac.uk/geoindex/home.html>)
- DEFRA / EA's aquifer and source protection data
(<https://magic.defra.gov.uk/MagicMap.aspx>)
- WSCC's Preliminary Flood Risk Assessment Volume II, Technical Report (2011)
- WSCC's Strategic Flood Risk Assessment Volume II, Technical Report (2010);
- Water. People. Places. A guide for master planning sustainable drainage into developments – LLFAs of the South East of England and AECOM, (2013);
- ADC's Strategic Flood Risk Assessment (2016);
- Land off Arundel Road, Angmering - Flood Risk Assessment & Outline Surface Water Drainage Strategy, 881292-R3(00)-FRA (2019).

2 DEVELOPMENT SITE

2.1 Location

- 2.1.1 The 7-unit site forms part of the overall residential scheme at Arundel Road, in Angmering , West Sussex, and it is located along the northern extents of the overall development as shown below (Figure 2.1, Table 2.1).

Table 2.1: Site Location

OS X	OS Y	Area (ha)	Nearest Postcode
506492	105336	1.4	BN16 4DN



Figure 2.1: Site Location

- 2.1.2 The site is located to the north of Angmering, to the west of Arundel Road and approximately 200m south of the A27. The overall site comprises of agricultural land and an existing small industrial park and caravan storage facility. The proposed 7-unit site development comprises of a small area at the northern extents of the overall development.

- 2.1.3 The surrounding land uses are summarised in the following table.

Table 2.2: Surrounding Land Use

Direction	Land Use
North	Steyne Woods
East	Nine new houses, Arundel Road, woods and arable land beyond.
South	Arundel Road proposed development –To be a constructed in the future.
West	Arable farmland

2.2 Topography

- 2.2.1 The available topographic information (Appendix A) shows that ground levels within the 7-unit development site range between 22.5 m above Ordnance Datum (aOD) adjacent to Arundel Road in the northeast and 11.0m aOD in the north west within the 7-unit development site region.

2.3 Hydrology

- 2.3.1 An unnamed watercourse is located c. 70m to the north of the site, flowing north east to west. From the Ordnance Survey map, this appears to rise from a spring just to the north of the A27, but the alignment is also an overland flow route to the northeast of the spring.
- 2.3.2 The watercourse discharges into ponds (named Decoy ponds) to the north west of the site, which in turn flow into the Black Ditch and ultimately the River Arun.
- 2.3.3 A ditch is located along the western site boundary. The northern part of this falls towards the unnamed watercourse. The part of the ditch near the south western corner of the site is understood to connect to a ditch to the west via a culvert, with this ultimately discharging to downstream watercourses.

2.4 Geology

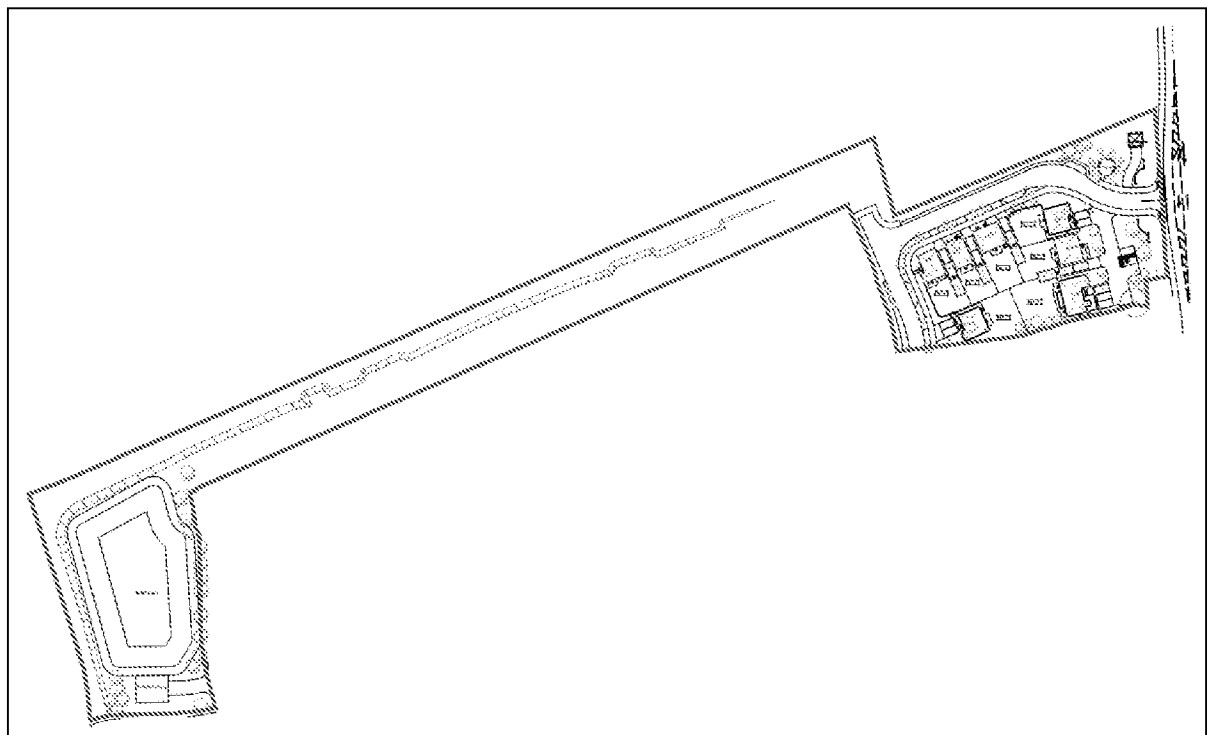
- 2.4.1 The geology of the 7-unit site has been determined by reference to the 1:50,000 scale British Geological Survey (BGS) online Geoindex Tool
<http://mapapps2.bgs.ac.uk/geoindex/home.html>
- 2.4.2 No artificial or Made Ground is indicated to be present underlying the 7-unit site. The superficial geology of the site to be is indicated to be Head deposits, which underlie all but the north east of the site and are described by the BGS as *“poorly sorted and poorly stratified, angular rock debris and/or clayey hillwash and soil creep”*.
- 2.4.3 The underlying geology is indicated to be the London Clay Formation, which is part of a syncline orientated north west to south east with the axis just to the north of the site. The outcrop of the underlying clays, silts and sands of the Lambeth Group is just off-site to the north.
- 2.4.4 There are no faults denoted within 500 m of the 7-unit site.
- 2.4.5 JNP Group have consulted online borehole records held by the BGS. There are borehole records c. 500m to the west, albeit on the outcrop of the Lambeth group so slightly lower in the geological sequence. These boreholes are used for groundwater abstraction from the Chalk which underlies the Lambeth group. The borehole logs indicate 30m of Lambeth group above the Chalk indicating that there be at least this thickness beneath the site.
- 2.4.6 The RSK report includes the results of infiltration testing. This was undertaken in four trial pits excavated to between 1.8m and 2.5m bgl. The strata encountered was clays classified as head deposits or London Clay. The pits were dry. Infiltration did not occur in three pits and a very low rate of 6.7×10^{-7} m/s was determined from the testing the fourth pit.

- 2.4.7 EA Aquifer Maps indicate that the Head deposits are classified as a Secondary (Undifferentiated) Aquifer, the London Clay is not classified and the Lambeth group as a secondary A Aquifer.
- 2.4.8 The Environment Agency define a Principal Aquifer as:
- “These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.”*
- 2.4.9 The Environment Agency define a Secondary-A Aquifer as:
- “Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.”*
- 2.4.10 The site’s proximity to groundwater Source Protection Zones (SPZs) was determined by reference to the EA’s website. The site is not located within or close to a SPZ. Based on the available geological and hydrogeological information, infiltration drainage is deemed unfeasible at the development site.

3 PROPOSED DEVELOPMENT

- 3.1.1 The proposed development (Figure 3.1 and Appendix B) comprises of approximately 7 residential properties with associated impermeable/permeable surfaces (e.g. roofs, roads, driveways, parking areas, etc.) and a SUDS basin. The impermeable area totals approximately 0.295ha.
- 3.1.2 Under Table 2 of the *Flood Risk and Coastal Change Guidance* (March 2014), the proposed residential development is classified as more vulnerable.

Figure 3.1: Proposed Development



4 SURFACE WATER DRAINAGE STRATEGY

4.1 Existing Drainage (Greenfield Runoff)

- 4.1.1 Runoff generated within the existing developed part of the 7-unit site is understood to be conveyed towards the ditch along the western boundary.
- 4.1.2 Greenfield runoff rates of 1.1l/s (1.0% AEP) have been established for the development site using the *IH124* methodology with *ICP SuDS* correction for small catchments (Appendix C).

4.2 Hierarchy for Surface Water Disposal

- 4.2.1 The National Standards for Sustainable Drainage Systems (Defra, 2011) state that the following options must be considered in accordance with the hierarchy for surface water disposal:

Discharge to Ground (Infiltration)

- 4.2.2 Based on the available geologic and hydrogeological information (Section 3 of this report), infiltration drainage is deemed unfeasible at the development site.

Discharge to Surface Water Body

- 4.2.3 There are appropriate surface water bodies to the west of the site, into which it is proposed to discharge surface water as detailed further in the following sections.

Discharge to Sewer

- 4.2.4 As discharge to surface water body is proposed, discharge to sewer is not considered further.

4.3 Proposed Drainage Strategy

- 4.3.1 The proposed surface water drainage strategy has been designed in accordance *Sewers for Adoption* and / or *Building Regulations Part H* and in compliance with the *NPPF*, local requirements and current best practices¹, to collect, convey and attenuate runoff from all impermeable areas (0.295 ha + 10% UC for plots = 0.301 ha) before discharging into the ditch to the west of the site.
- 4.3.2 Given the unfeasibility of infiltration drainage, the volume of runoff leaving the proposed development cannot be reduced to greenfield / existing values and the excess volume must be discharge at a low rate that will not pose a flood risk downstream of the 7-unit site. The proposed drainage strategy has been designed to limit discharge to the Q_{BAR} greenfield runoff rate of 1.1 l/s.
- 4.3.3 The proposed drainage strategy highlights the 7-unit residential development, whereby the flows simply drain through the basin into the existing ditch located west of the site (Appendix D).

- 4.3.4 Surface water run-off from the residential catchment will be collected via a series of rainwater pipes and permeable paving before discharging into a below ground drainage network. This conveys run-off in a similar direction to the current drainage, through SW pipes to a SuDS basin in the north west of the site. The basin incorporates a low flow channel across the base. A new outfall from the basin to the watercourse, along the western boundary is proposed to cater for the wider site and as such provides storage in excess of what is required to attenuate for the 7-units. The discharge rate is limited to the Qbar rate of 1.1 l/s. The SuDS basin has been future proofed, in terms of providing the storage volume for the entire development prior to it been constructed. The 7-unit residential development requires a storage volume of 373m³, however due to the basin been future proofed it currently has a volume of 2242m³, as shown within drainage strategy (Appendix D)
- 4.3.5 The proposed drainage strategy (Appendix D) has been designed so that:
- flooding does not occur on any part of the site for all events up to 3.3% AEP (1 in 30 years);
 - flooding does not occur in any part of a building or utility plant susceptible to water for all events up to 1.0% AEP (1 in 100 years) + 45% climate change allowance.
 - The basin is future proofed, in order to cater for additional units when they are to be constructed.
- 4.3.6 The performance of the proposed surface water drainage strategy has been tested for storm events with 100.0% AEP, 3.3% AEP and 1.0% AEP + 45% climate change and durations of 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640 and 10080 minutes.
- 4.3.7 The results of the simulations are included in Appendix E and demonstrate how the proposed surface water drainage strategy can manage surface water flood risk at the development site without increasing flood risk elsewhere for storm events up to the 1.0% AEP + 45% climate change allowance.
- 4.4 Sustainable Drainage Systems (SuDS)
- 4.4.1 In accordance with the *NPPF*, (major) developments should incorporate sustainable drainage systems (SuDS) unless there is clear evidence that this would be inappropriate. In addition to water quantity control, SuDS should consider opportunities to provide water quality and amenity / biodiversity benefits (i.e. multifunctionality approach).
- 4.4.2 While the proposed drainage strategy is largely reliant on permeable paving in driveways and the roads that will remain private and a detention basin to manage runoff quantity, Table 5.1 shortlists other SuDS deemed compatible with the site's characteristics and which inclusion in the proposed development must be continuously assessed as the design progresses.
- 4.4.3 It is important to note the need to remove silt from runoff prior to discharge into SUDS features.

Table 5.1: Sustainable Drainage Systems (SuDS)

SuDS Component	Description and Opportunities
Green / Blue Roofs	Green roofs are areas of living vegetation installed on the top of buildings for a range of reasons including visual benefit, ecological value, enhanced building performance and reduction of surface water runoff. A blue roof is a roof designed explicitly to store water for use within the building (rainwater harvesting) or controlled discharge. Green roofs that include reservoir storage zones beneath the growing medium could also be considered blue roofs. Green roofs can improve the thermal performance of buildings, help combat the urban heat island effect and contribute to improved air quality. Through evapotranspiration, green roofs can reduce peak flow rates to a site drainage system (principally for small and medium-sized events) but are unlikely to have a significant impact on downstream attenuation storage requirements. Blue roofs can be designed to provide significant attenuation (and evapotranspiration). Pitched roofs are not conducive to the use of blue / green roof, therefore are not proposed.
Filter Drains/Strips	Filter drains are trenches filled with stone/gravel that create temporary subsurface storage for the filtration, attenuation and conveyance of surface water runoff. Ideally, filter drains receive lateral inflow from adjacent impermeable surfaces pre-treated over a filter strip. Filter drains can help manage peak flows by naturally limiting rates of conveyance through the filter medium and by providing attenuation storage when the rate of flow at the outlet is controlled. Filter drains can be effectively incorporated into the landscape and public open spaces and can have minimal land-take requirements. The use of filter drains is typically restricted to flat sites (unless placed parallel to contours). Filter drains are best located adjacent to (small) impermeable surfaces such as car parks and roads / highways. Due to the layout, filter drains/strips are not proposed.
Swales	Swales are shallow, flat bottomed, vegetated open channels designed to treat, convey and often attenuate surface water runoff. Swales can also provide aesthetic and biodiversity benefits. Swales can help reduce flow rates by facilitating infiltration and / or providing attenuation storage when flow at the outlet is controlled. Coarse to medium sediments and associated pollutants can be removed by filtration through surface vegetation and ground cover. Swales are well suited for managing runoff from linear features such as main roads / highways. Swales are generally difficult to incorporate into dense urban developments, where space is limited, which is the case for this site and therefore they have not been proposed.

Subs Component	Description and Opportunities
Bioretention Systems	Bioretention systems (including rain gardens) are shallow landscaped depressions that can reduce runoff rates and volumes and treat pollution. They also provide attractive landscape features and biodiversity. Bioretention systems can help reduce flow rates from a site by promoting infiltration / evapotranspiration and providing some attenuation storage. Bioretention systems can also provide very effective treatment functionality. Bioretention systems are a very flexible surface water management component that can be integrated into a wide variety of developments / densities using different shapes, materials, planting and dimensions. Since permeable paving is proposed instead, bioretention areas have not been proposed.
Permeable Paving	Permeable paving provide a pavement suitable for pedestrian and / or vehicular traffic, while allowing rainwater to infiltrate through the surface and into the underlying structural layers. The water is temporarily stored beneath the overlying surface before use, infiltration to the ground or controlled discharge downstream. Permeable paving help reduce flow rates from a site by providing attenuation storage. A flow control structure is required to constrain the rate of water discharged from the sub-base via an outlet pipe. Pervious pavement drainage has been shown to have decreased concentrations of a range of surface water pollutants, including heavy metals, oil and grease, sediment and some nutrients. Permeable paving are typically built as an alternative to impermeable surfaces and therefore require no extra development space for their construction. Permeable paving is proposed for the private and shared driveways.
Detention Basins	Detention basins are landscaped depressions that are normally dry expect during and immediately following storm events. They can be on-line components where surface runoff from regular events is routed through the basin or off-line components into which runoff is diverted once flows reach a specific threshold. Detention basins can be vegetated depressions (providing treatment in on-line components) or hard landscaped storage areas. Off-line basins will normally have an alternative principal use (e.g. amenity or recreational facility or urban (hard) landscaping). A large detention basin is proposed to the west of the site.

4.5 Exceedance Events

- 4.5.1 Plot levels are set 150 mm above external ground levels and external ground levels have been designed to safely route overland flows away from buildings and towards the watercourse to the west of the site, using the less vulnerable parts of the proposed development such as public open spaces, parking areas and roads to convey and store overland flows.
- 4.5.2 Overland flows resulting from exceedance events are expected to leave the developed site to the west as currently occurs (i.e. pre-development conditions), without posing any increased flood risk on site or elsewhere.

4.6 Water Quality Management

- 4.6.1 The suitability of the proposed drainage strategy to manage the development's pollution risk has been assessed using the simple index approach in *The SuDS Manual* (2015), as summarized in Table 4.1.

Table 4.1: Surface Water Quality Management (Simple Index Approach)

Runoff Route / Treatment Train 1 – Residential Area				
Land Use / SuDS	Hazard Level	TSS	Metals	Hydrocarbons
Pollution Hazard Indices				
Residential Roofs	Very Low	0.20	0.20	0.05
Driveways, residential car parks and low traffic roads	Low	0.50	0.40	0.40
SuDS Mitigation Indices				
Permeable paving	-	0.70	0.60	0.70
Detention Basin	-	0.50	0.50	0.60
Total SuDS Mitigation Index = Permeable paving Index + 0.5 (Detention Basin Index)				
Detention Basin	-	0.95	0.85	1.0
Total SuDS Mitigation Index ≥ Pollution Hazard Index (for each contaminant type)				

4.7 Drainage During Construction

- 4.7.1 Drainage is typically an early activity in the construction of a development, taking form during the earthworks phase. However, the connection of piped drainage system to SuDS components should not take place until the end of construction works, unless a robust strategy for silt removal prior to occupation of the site is implemented.
- 4.7.2 Silt-laden runoff from construction sites represents a common form of waterborne pollution and cannot enter SuDS components not specifically designed to manage this, as it can overwhelm the system and pollute receiving water features. Any gullies and piped systems should be capped off during construction and fully jetted and cleaned prior to connection to SuDS components.
- 4.7.3 The three principal aspects of drainage during construction are conveying runoff, controlling runoff and trapping sediments:
- Conveyance of runoff can be achieved through small ditches / swales, channels and drains. Runoff control measures should be implemented to ensure that runoff does not overwhelm the temporary drainage system causing flooding on site or elsewhere.
 - Control of runoff can be achieved through perimeter ditches or appropriate grading to ensure that any runoff from the construction site stays on site. Runoff rates leaving the site should be managed so they do not exceed pre-development conditions.

- Construction runoff should be directed to dedicated infiltration basins with adequate upstream sediment and pollution control such as sediment basins, silt fences and straw bales prior to infiltration or off-site discharge.
- 4.7.4 Additional conveyance, control and treatment measures should be installed as needed during grading. Slope stability needs to be considered when using open water features to convey, control and treat runoff across the site. Any necessary surface stabilisation measures should be applied immediately on all disturbed areas where construction work is either delayed or incomplete.
- 4.7.5 Maintenance inspections should be performed weekly, and maintenance repairs should be made immediately after periods of rainfall.
- 4.7.6 All drainage infrastructure (namely underground features) must be protected from damage by construction traffic and heavy machinery through the implementation of measures such as protective barriers and storing construction materials away from the drainage infrastructure.

5 FOUL WATER DRAINAGE STRATEGY

- 5.1.1 Sewerage undertakers have a legal obligation under the Water Industries Act 1991 to provide developers with the right to connect to public (foul) networks. The Water Industries Act 1991 also contains safeguards to ensure that flows resulting from new developments do not cause detriment to the existing public sewerage networks by imposing a duty on sewerage undertakers to carry out works required to accommodate additional flows into their networks.
- 5.1.2 It is understood from the RSK FRA that foul sewage from the existing development is conveyed through a network of underground drains towards a septic tank in the southwest of the site. The stormwater overflow pipe is thought to connect to the west ditch.
- 5.1.3 Foul water for the 7-units is proposed to be conveyed via a gravity system into the new southern water foul sewer network (EX F19 MH) along Arundel Road. The proposed discharge point is a newly constructed S.104 foul sewer serving the adjacent development.
- 5.1.4 The proposed foul drainage design will need to be confirmed with Southern Water. Correspondence from Southern Water dated 10.02.01 (Appendix F) confirmed Southern Water have capacity for 135 units.

6 CONCLUSIONS AND RECOMMENDATIONS

- 6.1.1 JNP Group has been commissioned by Redrow Homes to prepare a drainage statement for the proposed 7 residential unit development to the west of Arundel Road in Angmering, West Sussex.
- 6.1.2 The site comprises agricultural land and an existing small industrial park and caravan storage facility.
- 6.1.3 The 7-unit site slopes from c. 23m aOD in the east to 11m aOD in the west.
- 6.1.4 The 7-unit site is underlain by Head deposits underlain by the London Clay Formation.
- 6.1.5 The underlying strata are classified as a Secondary (Undifferentiated) Aquifer (Head deposits). The London Clay is not classified as an aquifer. The site is not in a groundwater source protection zone.
- 6.1.6 Based on the available geologic and hydrogeologic information, and the previous use of the site, infiltration drainage is deemed unfeasible at the 7-unit development site.
- 6.1.7 An unnamed watercourse is located c. 70m to the north of the site, flowing north east to west. A ditch is located along the western site boundary. The northern part of this falls towards the unnamed watercourse. The part of the ditch near the south western corner of the site is understood to connect to a ditch to the west via a culvert, with this ultimately discharging to downstream watercourses.
- 6.1.8 Due to its proximity, it is proposed to discharge surface water to the ditch at a restricted rate of 1.1 l/s to the west of the site.
- 6.1.9 In areas at risk of flooding or for sites of one hectare (ha) or more, developers must undertake a site-specific flood risk assessment to accompany applications for planning permission (or prior approval for certain types of permitted development). An approved FRA has already been submitted to support outline planning approval, which covers this development site.
- 6.1.10 Surface water run-off from the residential catchment will be collected via a series of rainwater pipes and permeable paving before discharging into a below ground drainage network. This conveys run-off in a similar direction to the current drainage, through SW pipes to a SuDS basin in the north west of the site. The basin incorporates a low flow channel across the base. A new outfall from the basin to the watercourse, along the western boundary is proposed to cater for the wider site and as such provides storage in excess of what is required to attenuate for the 7-units. The discharge rate is limited to the Qbar rate of 1.1 l/s. The SuDS basin has been future proofed, in terms of providing the storage volume for the entire development prior to it been constructed. The 7-unit residential development requires a storage volume of 373m³, however due to the basin been future proofed it currently has a volume of 2242m³, as shown within drainage strategy (Appendix D)
- 6.1.11 Overland flows resulting from exceedance events are expected to leave the developed 7-unit site to the west, as currently occurs.
- 6.1.12 Water quality management is to be achieved through the treatment potential of the permeable paving and detention basin.

- 6.1.13 This report is intended for the use of the developer of the site in support of their planning application for the site only.

7 LIMITATIONS

- 7.1.1 The information, conclusions and recommendations presented within this report are deemed to be current at the time of issue. No guarantee can be given to the status of this information other than at the time of issuing. Where necessary, the user shall confirm the status of any applicable assessments and consents.
- 7.1.2 This report has been commissioned by Redrow Homes. No third party may receive a copy of this report without first obtaining our permission in writing.
- 7.1.3 This report is confidential and has been prepared solely for the benefit of Redrow Homes and those parties with whom a warranty agreement has been executed or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of this report, written approval must be sought from JNP Group and a charge may be levied against such approval. JNP Group accepts no responsibility or liability for the consequences of this document being used for any purpose or project other than for which it was commissioned, or this document being used by any third party with whom an agreement has not been executed.
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APPENDIX A: TOPOGRAPHICAL INFORMATION



THIS SURVEY IS ORIENTATED TO ORDNANCE SURVEY GRID NORTH. THE SURVEY TO A PLANE GRID. HORIZONTAL MEASUREMENTS TAKEN FROM THIS SURVEY WILL BE GROUND DISTANCES.

LOCAL SCALE FACTOR: 0.9997406

ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM GENERATED BY ACTIVE GP NETWORK.

NO ALLOWANCE HAS BEEN MADE FOR SUB SURFACE ACCESS TO MANHOLES OR

DISCLAIMER: ANY FLOW MEASUREMENTS OF THE GROUNDWATER DRAINAGE ARE TAKEN FROM THE SURFACE AND THUS WILL ONLY BE APPROXIMATE. ANY FLOW TYPE (FOUL WATER, SURFACE WATER OR COMBINED) ARE ASSUMED AND THEREFORE REQUIRE VERIFICATION.

ROAD MARKINGS:-

LEGEND



ABBREVIATIONS

[illegible]

STATION CO-ORDINATES

STATION	EASTING	NORTHING	LEVEL	DESCRIPTION
STN1	509759.99	152626.18	18.81	Survey Nail
STN2	509762.99	152636.44	18.11	Survey Nail
STN3	509746.03	152635.24	20.37	Survey Nail
STN4	509732.58	152643.92	22.85	Survey Nail
STN6	509726.16	152666.13	17.13	Survey Nail
STN50	509688.45	152624.28	17.92	Survey Nail
STN51	509697.78	152629.31	18.96	Survey Nail
STN56	509625.22	152621.80	16.42	Survey Nail

TREE SCHEDULE

No.	DIAM.	SPREAD @	HEIGHT
TE1	0.50	10	8
TE2	1.00	8	20
TE3	0.60	8	20
TE4	0.80	12	12
TE5	0.70	8	20
TE6	0.90	8	20
TE7	0.90	8	20
TE8	1.40	20	20
TE9	0.50	12	12
TE10	0.60	12	10
TE11	0.15	8	8
TE12	0.80	12	12
TE13	0.30	6	6
TE14	0.30	6	6
TE15	0.20	10	10
TE16	0.30	6	8
TE17	0.40	8	8
TE18	0.40	2	3
TE19	0.20	8	8

REE DIAMETER MEASURED APPROXIMATELY 1.5M ABOVE GROUND LEVEL. TREE
READS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE GENERALISED
CANOPY SIZE. TREE BOLE MAY NOT SIT CENTRALLY TO THE CANOPY. TREE HEIGHT
ESTIMATED FROM GROUND LEVEL.

PLOT LOCATIONS

*	*	
Date	Revision notes	B

DO NOT SCALE

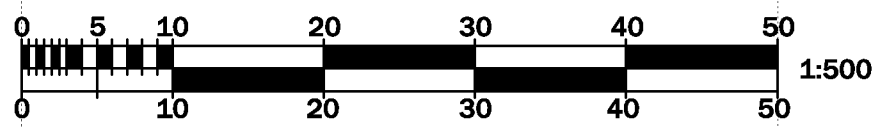
INFORMATION

Arundel Road,
Angmering.

TOPOGRAPHICAL SURVEY
AS OF 13.09.17
SHEET 1 OF 2



Drawn By	Publish Date	Scale(s)	Sheet Size
JH/JW	20.09.17	1:500	A0
Project no.	Drawing no.	Revision	
2017-084	Topic 01 2D		





THIS SURVEY IS ORIENTATED TO ORDMANCE SURVEY GRID NORTH. THE SURVEY TO A PLANE GRID. HORIZONTAL MEASUREMENTS TAKEN FROM THIS SURVEY WILL BE GROUND DISTANCES.

SITE CENTRE: E 509527.7405, N 105338.6065

LOCAL SCALE FACTOR: 0.9997406

ALL LEVELS RELATE TO ORDMANCE SURVEY DATUM GENERATED BY ACTIVE OF

NO ALLOWANCE HAS BEEN MADE FOR SUB SURFACE ACCESS TO MANHOLES OR CHAMBERS. ANY PIPE SIZES, DEPTHS OR BELOW GROUND DIMENSIONS ARE TAKEN FROM THE SURFACE AND THIS WILL ONLY BE APPROXIMATE. ANY FLOW TYPE (FOUL WATER, SURFACE WATER OR COMBINED) ARE ASSUMED AND THEREFORE REQUIRE VERIFICATION.

ROAD MARKINGS DISPLAYED ARE SYMBOLIC. LENGTH, SPACING AND THICKNESS ETC. ARE INDICATIVE ONLY.

LEGEND



ABBREVIATIONS

[illegible]

STATION CO-ORDINATES

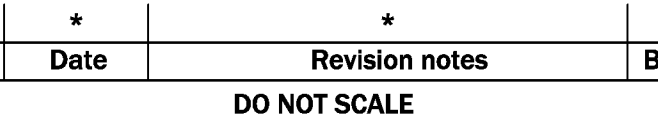
STATION	EASTING	NORTHING	LEVEL	DESCRIPTION
STN1	509759.99	105265.18	18.81	Survey Nail
STN2	509752.88	105306.44	18.11	Survey Nail
STN3	509746.03	105355.24	20.37	Survey Nail
STN4	509732.58	105443.92	22.85	Survey Nail
STN6	509726.16	105665.13	17.13	Survey Nail
STN50	509888.45	106294.28	17.92	Survey Nail
STN51	509957.78	106289.31	18.16	Survey Nail
STN36	509825.22	106271.80	16.42	Survey Nail

TREE SCHEDULE

No.	DIAM.	SPREAD @	HEIGHT
TE1	0.50	10	5
TE2	1.00	8	20
TE3	0.60	8	20
TE4	0.60	12	12
TE5	0.70	8	20
TE6	0.90	8	20
TE7	0.90	8	20
TE8	1.40	20	20
TE9	0.60	12	12
TE10	0.60	12	10
TE11	1.15	8	8
TE12	0.80	12	12
TE13	1.30	6	6
TE14	0.30	6	6
TE15	0.60	10	10
TE16	0.30	6	8
TE17	0.40	6	8
TE18	0.40	2	3
TE19	0.80	8	8

REE DIAMETER MEASURED APPROXIMATELY 1.5M ABOVE GROUND LEVEL. TREE
READS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE GENERALISED
CANOPY SIZE. TREE BOLE MAY NOT SIT CENTRALLY TO THE CANOPY. TREE HEIGHT
ESTIMATED FROM GROUND LEVEL.

PLOT LOCATIONS



INFORMATION

**Arundel Road
Angmering.**

TOPOGRAPHICAL SURVEY
AS OF 13.09.17
SHEET 2 OF 2

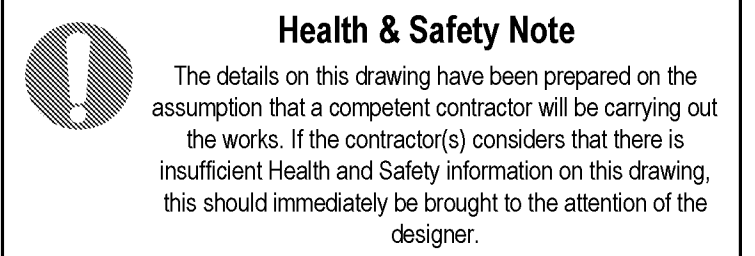


Drawn By	Publish Date	Scale(s)	Sheet Size
JH/JW	20.09.17	1:500	A0
Project no.	Drawing no.		Revision
2017-084	Topo_02_2D		0



APPENDIX B: PROPOSED DEVELOPMENT

1. There should be no 'grooming' hassein, -NPP Group does not take any responsibility for inaccuracies or omissions in drawings. All dimensions should be checked against the paper (or P) drawing issue. Any apparent discrepancies should be immediately reported to the NPP Group. The drawing issue should not be assumed to be complete and should not be used for 'overlaid', setting out or checking of any dimensions. All dimensions should be taken from the P (or P) version of the drawing. Electronic drawings may contain third party information. -NPP Group takes no responsibility for the information which should be checked against the original paper drawing(s).
2. All dimensions are millimetres (mm), and levels are in metres (m) unless noted otherwise and should be checked on site prior to construction/Installation.
3. Do not scale from this drawing. Only figured dimensions are to be relied upon. Assistance to get in touch with -NPP Group if additional information is required.
4. Any discrepancies between drawings of different scales and between drawings and specifications, where appropriate, to be reported to -NPP Group for decision.
5. Copyright reserved. This drawing may only be used for the Client and location specified in the title block. It may not be copied or disclosed to any third party without the prior written consent of -NPP Group.
6. This drawing should only be used for construction of the drawing status is "Construction". -NPP Group takes no responsibility for construction works undertaken to drawings that are not marked with this status.



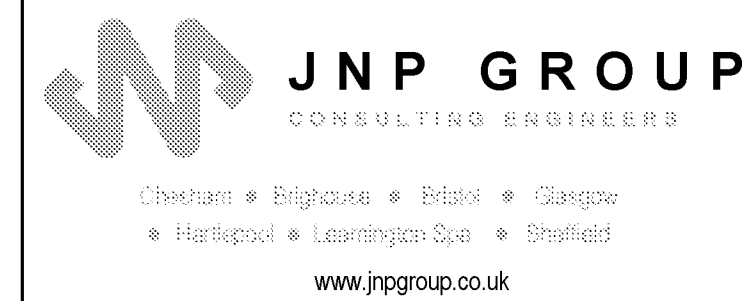
HAZARD IDENTIFICATION BOX

This table is provided to assist the Principal Contractor to fulfil their obligations under the CDM Regulations 2015

Hazard Rating	Hazard Type (Groundwater Monitoring Cleaning/Remediation/Regulation)	Hazard Description	Mitigation Measures/ Residual Risk
			

P01	07/07/2022	Issued for information.	07/07/2022

S2 - Suitable for Information



Client	Redrow
Job	Arundel Road, Angmering
Title	Site Layout

Classification: FI_60_20 Scale @ A0: 1:500	   
	Accredited Constructor Full Service Issued No. 001

Project : <u>Original drawing system - units, scales - rgs - drawing - number</u> C86473 - JNP-XX-90- DR-SK-7500 <u>Document/Working number</u>	Revision : P01
--	--------------------------

APPENDIX C: GREENFIELD RUN-OFF RATES

JNP Group		Page 1
The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG		
Date 06/07/2022 14:19 File	Designed by Zaffar.Sultan Checked by	
Innovyze		Source Control 2020.1
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 1 Soil 0.400 Area (ha) 0.301 Urban 0.000 SAAR (mm) 747 Region Number Region 7 Results l/s QBAR Rural 1.1 QBAR Urban 1.1 Q1 year 0.9 Q1 year 0.9 Q30 years 2.5 Q100 years 3.5		
©1982-2020 Innovyze		

APPENDIX D: DRAINAGE STRATEGY

Drainage & Road Layout Standard Drawing Notes

1. The contractor is to check and verify all buildings and site dimensions and levels, including sewer invert levels, before works start on site.
2. The contractor is to comply in all aspects with the current building legislation, British Standards, building regulations etc.
3. The contractor is to check the levels of existing sewers which are to be used as an out-fall prior to commencement of any onsite drainage works. Any discrepancies are to be reported to the Engineer.
4. This drawing is to be read in conjunction with and checked against all other drawings, Engineering Details, specification and any structural, geotechnical or other specialist document provided.
5. Any anomaly or contradiction between any of the above or difference between actual and drawn details is to be reported to Taylor Wimpey South Midlands.
6. Drainage works to be adopted under Section 104 of the Water Industries Act 1991 shall comply with DCG published by Water UK and the combined addendum.
7. Roads, footpaths and parking areas which form part of the highway to be adopted under Section 38 of the Highways Act 1980 shall comply with the West Sussex Highway Specification.
8. All subgrade structures and unconsolidated material within the road construction width to be removed.
9. Formation preparation to be in accordance with Highways Agency Specification for Highway Works (SHW) cl. 616. No prepared formation to be continuously exposed to rain causing degradation below design CBR or to be left uncovered overnight.
10. Any soft, damaged or weak spots including peat contaminated material are to be excavated and replaced with SHW Type 1 in accordance with SHW cl. 803 laid and compacted to cl. 802, Table 8/4.
11. Where ground conditions are deemed to be frost susceptible, refer to Ground Investigation report, track thickness shall be 450mm minimum thickness. All material within 450mm of road construction to be non-frost susceptible.
12. Positions of existing services/statutory undertaker's apparatus adjacent to or crossing proposed sewers are to be checked by the contractor prior to starting work.

Contractor shall refer to the services information available from the Developer to identify all existing services. It is the Contractor's responsibility to liaise with all relevant services companies to ensure that all existing services are accurately located prior to commencement of works, and adequately protected during construction.

It is the Contractor's responsibility to liaise with the Developer and all relevant services companies to ensure that all new and diverted services are accurately located and adequately protected during construction.

Legend

- S 104 Agreement Boundary
- Foul Drainage Legend**
(Dimensions are approx. Internal sizes)
- New Foul Water Sewer
 - New Foul Water Lateral
 - New Foul Water Manhole (1200 PCC chamber)
 - New Foul Water Manhole (4500 PCC chamber)
 - Existing Foul Water Sewer Network
- CL 19.227' Cover Level subject to change during detailed design stage.

Surface Water Drainage Legend
(Dimensions are approx. Internal sizes)

- New Surface Water Sewer
- New Surface Water Manhole (size and construction may vary)

Health & Safety Note

The details on this drawing have been prepared on the assumption that a competent contractor will be carrying out the works. If the contractor(s) considers that there is insufficient Health and Safety information on this drawing, this should immediately be brought to the attention of the designer.

HAZARD IDENTIFICATION BOX

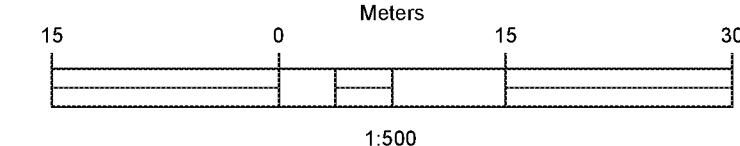
Hazard	Hazard Type	Hazard Description	Mitigation Measures/Residual Risk
!	Health & Safety	Construction work	Standard risk

IMPORTANT

The scheme is subject to the following Statutory Approvals:

- Section 38
- Section 104
- Building Regulations

All construction works prior to approvals above will be undertaken at the contractor's risk.



Rev	Date	Description	By	Check
P03	06/02/2022	Updated to suit comments received by Redrow Homes (01/11/22)		02/05/20
P02	07/02/2022	Updated to suit comments received by Redrow Homes (01/11/22)		25/01/20
P01	01/02/2022	Issued for Information		25/05/20

S2 - Suitable for Information



Client	Redrow
Address	Arundel Road Angmering
Project	Drainage Strategy 7 units
Drawn by	FL 80_20
Scale	1:500
Project Number	C86473 - JNP - 92-XX- DR-C- 7300
Revision	P03

APPENDIX E: DRAINAGE CALCULATIONS

JNP Group		Page 1
The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG	P01 Drainage Strategy - 7 Units Angmering	
Date 06/07/2022 14:58	Designed by ZS	
File SW Drainage Calcs -P01 - 7	Checked by BID	
Innovyze	Network 2020.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for P01 Storm - Main

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model	
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 506538 105326 TQ 06538 05326
Data Type	Point
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for P01 Storm - Main

« - 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	12.301	0.473	26.0	0.022	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	20.793	1.209	17.2	0.102	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.002	52.148	1.649	31.6	0.054	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.003	13.300	0.649	20.5	0.123	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.004	8.696	0.424	20.5	0.001	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.005	49.771	2.437	20.4	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.006	49.868	0.939	53.1	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.007	50.804	0.267	190.3	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.008	49.185	0.259	189.9	0.000	0.00	0.0	1.000	o	375	Pipe/Conduit	
S1.009	45.374	0.239	189.8	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.010	23.820	0.166	143.5	0.000	0.00	0.0	0.600	o	375	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	5.10	20.462	0.022	0.0	0.0	0.0	1.98	35.0	3.0
S1.001	50.00	5.19	19.839	0.124	0.0	0.0	0.0	3.81	269.3	16.8
S1.002	50.00	5.50	18.630	0.178	0.0	0.0	0.0	2.81	198.3	24.1
S1.003	50.00	5.56	16.906	0.301	0.0	0.0	0.0	4.02	443.8	40.8
S1.004	50.00	5.60	16.257	0.302	0.0	0.0	0.0	4.02	443.6	40.9
S1.005	50.00	5.80	15.833	0.302	0.0	0.0	0.0	4.03	444.6	40.9
S1.006	50.00	6.14	13.396	0.302	0.0	0.0	0.0	2.49	275.1	40.9
S1.007	50.00	6.78	12.457	0.302	0.0	0.0	0.0	1.31	144.7	40.9
S1.008	50.00	7.45	12.190	0.302	0.0	0.0	0.0	1.23	135.8	40.9
S1.009	50.00	8.02	11.931	0.302	0.0	0.0	0.0	1.31	144.9	40.9
S1.010	50.00	8.29	11.692	0.302	0.0	0.0	0.0	1.51	166.8	40.9

JNP Group		Page 2
The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG	P01 Drainage Strategy - 7 Units Angmering	
Date 06/07/2022 14:58 File SW Drainage Calcs -P01 - 7	Designed by ZS Checked by BID	
Innovyze	Network 2020.1	

Network Design Table for P01 Storm - Main

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
S1.011	18.467	0.051	362.1	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	⚙
S1.012	8.423	0.026	324.0	0.000	0.00	0.0	0.600	o	1200	Pipe/Conduit	⚙
S1.013	10.934	0.249	43.9	0.000	0.00	0.0	0.600	o	150	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)
S1.011	50.00	8.44	11.526	0.302	0.0	0.0	0.0	1.96	2216.9	40.9
S1.012	50.00	8.51	11.475	0.302	0.0	0.0	0.0	2.07	2344.6	40.9
S1.013	50.00	8.63	11.449	0.302	0.0	0.0	0.0	1.52	26.94	40.9

JNP Group		Page 3
The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG	P01 Drainage Strategy - 7 Units Angmering	
Date 06/07/2022 14:58 File SW Drainage Calcs -P01 - 7	Designed by ZS Checked by BID	
Innovyze	Network 2020.1	

Manhole Schedules for P01 Storm - Main

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)
S1	21.781	1.319	Open Manhole	1200	S1.000	20.462	150				
S2	21.345	1.506	Open Manhole	1200	S1.001	19.839	300	S1.000	19.989	150	
S3	20.330	1.700	Open Manhole	1200	S1.002	18.630	300	S1.001	18.630	300	
S4	18.826	1.920	Open Manhole	1350	S1.003	16.906	375	S1.002	16.981	300	
S5	19.000	2.743	Open Manhole	1500	S1.004	16.257	375	S1.003	16.257	375	
S6	19.100	3.267	Open Manhole	1500	S1.005	15.833	375	S1.004	15.833	375	
S7	15.063	1.667	Open Manhole	1800	S1.006	13.396	375	S1.005	13.396	375	
S8	14.640	2.183	Open Manhole	1500	S1.007	12.457	375	S1.006	12.457	375	
S9	14.130	1.940	Open Manhole	1500	S1.008	12.190	375	S1.007	12.190	375	
S10	14.130	2.199	Open Manhole	1500	S1.009	11.931	375	S1.008	11.931	375	
S11	14.225	2.533	Open Manhole	1500	S1.010	11.692	375	S1.009	11.692	375	
SHW 1	14.000	2.474	Open Manhole	2100	S1.011	11.526	1200	S1.010	11.526	375	
SHW 2	14.000	2.525	Open Manhole	2100	S1.012	11.475	1200	S1.011	11.475	1200	
S12 - Orifice	14.250	2.801	Open Manhole	2100	S1.013	11.449	150	S1.012	11.449	1200	
S	14.100	2.900	Open Manhole	0		OUTFALL		S1.013	11.200	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	506719.002	105476.855	506719.002	105476.855	Required	
S2	506706.936	105479.248	506706.936	105479.248	Required	
S3	506687.458	105486.525	506687.458	105486.525	Required	
S4	506639.393	105466.297	506639.393	105466.297	Required	
S5	506629.800	105475.509	506629.800	105475.509	Required	
S6	506626.150	105483.402	506626.150	105483.402	Required	
S7	506580.276	105464.095	506580.276	105464.095	Required	
S8	506534.219	105444.974	506534.219	105444.974	Required	
S9	506487.360	105425.345	506487.360	105425.345	Required	
S10	506442.367	105405.475	506442.367	105405.475	Required	

JNP Group		Page 4
The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG	P01 Drainage Strategy - 7 Units Angmering	
Date 06/07/2022 14:58 File SW Drainage Calcs -P01 - 7	Designed by ZS Checked by BID	
Innovyze	Network 2020.1	

Manhole Schedules for P01 Storm - Main

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S11	506400.717	105387.474	506400.717	105387.474	Required	
SHW 1	506384.428	105370.094	506384.428	105370.094	Required	
SHW 2	506368.145	105361.382	506368.145	105361.382	Required	
S12 - Orifice	506360.188	105358.620	506360.188	105358.620	Required	
S	506349.522	105356.214			No Entry	

JNP Group		Page 5
The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG	P01 Drainage Strategy - 7 Units Angmering	
Date 06/07/2022 14:58 File SW Drainage Calcs -P01 - 7	Designed by ZS Checked by BID	
Innovyze	Network 2020.1	

PIPELINE SCHEDULES for P01 Storm - Main

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	S1	21.781	20.462	1.169	Open Manhole	1200
S1.001	o	300	S2	21.345	19.839	1.206	Open Manhole	1200
S1.002	o	300	S3	20.330	18.630	1.400	Open Manhole	1200
S1.003	o	375	S4	18.826	16.906	1.545	Open Manhole	1350
S1.004	o	375	S5	19.000	16.257	2.368	Open Manhole	1500
S1.005	o	375	S6	19.100	15.833	2.892	Open Manhole	1500
S1.006	o	375	S7	15.063	13.396	1.292	Open Manhole	1800
S1.007	o	375	S8	14.640	12.457	1.808	Open Manhole	1500
S1.008	o	375	S9	14.130	12.190	1.565	Open Manhole	1500
S1.009	o	375	S10	14.130	11.931	1.824	Open Manhole	1500
S1.010	o	375	S11	14.225	11.692	2.158	Open Manhole	1500
S1.011	o	1200	SHW 1	14.000	11.526	1.274	Open Manhole	2100
S1.012	o	1200	SHW 2	14.000	11.475	1.325	Open Manhole	2100
S1.013	o	150	S12 - Orifice	14.250	11.449	2.651	Open Manhole	2100

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	12.301	26.0	S2	21.345	19.989	1.206	Open Manhole	1200
S1.001	20.793	17.2	S3	20.330	18.630	1.400	Open Manhole	1200
S1.002	52.148	31.6	S4	18.826	16.981	1.545	Open Manhole	1350
S1.003	13.300	20.5	S5	19.000	16.257	2.368	Open Manhole	1500
S1.004	8.696	20.5	S6	19.100	15.833	2.892	Open Manhole	1500
S1.005	49.771	20.4	S7	15.063	13.396	1.292	Open Manhole	1800
S1.006	49.868	53.1	S8	14.640	12.457	1.808	Open Manhole	1500
S1.007	50.804	190.3	S9	14.130	12.190	1.565	Open Manhole	1500
S1.008	49.185	189.9	S10	14.130	11.931	1.824	Open Manhole	1500
S1.009	45.374	189.8	S11	14.225	11.692	2.158	Open Manhole	1500
S1.010	23.820	143.5	SHW 1	14.000	11.526	2.099	Open Manhole	2100
S1.011	18.467	362.1	SHW 2	14.000	11.475	1.325	Open Manhole	2100
S1.012	8.423	324.0	S12 - Orifice	14.250	11.449	1.601	Open Manhole	2100
S1.013	10.934	43.9	S	14.100	11.200	2.750	Open Manhole	0

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The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG	P01 Drainage Strategy - 7 Units Angmering	
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Setting Out Information - True Coordinates (P01 Storm - Main)

PN	USMH Name	Dia/Len (mm)	Width (mm)	US Easting (m)	US Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Layout (North)
S1.000	S1	1200		506719.002	105476.855	506719.002	105476.855	
S1.001	S2	1200		506706.936	105479.248	506706.936	105479.248	
S1.002	S3	1200		506687.458	105486.525	506687.458	105486.525	
S1.003	S4	1350		506639.393	105466.297	506639.393	105466.297	
S1.004	S5	1500		506629.800	105475.509	506629.800	105475.509	
S1.005	S6	1500		506626.150	105483.402	506626.150	105483.402	
S1.006	S7	1800		506580.276	105464.095	506580.276	105464.095	
S1.007	S8	1500		506534.219	105444.974	506534.219	105444.974	
S1.008	S9	1500		506487.360	105425.345	506487.360	105425.345	
S1.009	S10	1500		506442.367	105405.475	506442.367	105405.475	
S1.010	S11	1500		506400.717	105387.474	506400.717	105387.474	
S1.011	SHW 1	2100		506384.428	105370.094	506384.428	105370.094	
S1.012	SHW 2	2100		506368.145	105361.382	506368.145	105361.382	
S1.013	S12 - Orifice	2100		506360.188	105358.620	506360.188	105358.620	

PN	DSMH Name	Dia/Len (mm)	Width (mm)	DS Easting (m)	DS Northing (m)	Layout (North)
S1.013	S	0		506349.522	105356.214	

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Area Summary for P01 Storm - Main

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.022	0.022	0.022
1.001	-	-	100	0.102	0.102	0.102
1.002	-	-	100	0.054	0.054	0.054
1.003	-	-	100	0.123	0.123	0.123
1.004	-	-	100	0.001	0.001	0.001
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
1.008	-	-	100	0.000	0.000	0.000
1.009	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
1.011	-	-	100	0.000	0.000	0.000
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.302	0.302	0.302

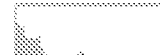
Surcharged Outfall Details for P01 Storm - Main

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

S1.013 S 14.100 11.200 0.000 0 0

Datum (m) 11.000 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1	0.600	28	0.600	55	0.600	82	0.600	109	0.600	136	0.600	163	0.600
2	0.600	29	0.600	56	0.600	83	0.600	110	0.600	137	0.600	164	0.600
3	0.600	30	0.600	57	0.600	84	0.600	111	0.600	138	0.600	165	0.600
4	0.600	31	0.600	58	0.600	85	0.600	112	0.600	139	0.600	166	0.600
5	0.600	32	0.600	59	0.600	86	0.600	113	0.600	140	0.600	167	0.600
6	0.600	33	0.600	60	0.600	87	0.600	114	0.600	141	0.600	168	0.600
7	0.600	34	0.600	61	0.600	88	0.600	115	0.600	142	0.600	169	0.600
8	0.600	35	0.600	62	0.600	89	0.600	116	0.600	143	0.600	170	0.600
9	0.600	36	0.600	63	0.600	90	0.600	117	0.600	144	0.600	171	0.600
10	0.600	37	0.600	64	0.600	91	0.600	118	0.600	145	0.600	172	0.600
11	0.600	38	0.600	65	0.600	92	0.600	119	0.600	146	0.600	173	0.600
12	0.600	39	0.600	66	0.600	93	0.600	120	0.600	147	0.600	174	0.600
13	0.600	40	0.600	67	0.600	94	0.600	121	0.600	148	0.600	175	0.600
14	0.600	41	0.600	68	0.600	95	0.600	122	0.600	149	0.600	176	0.600
15	0.600	42	0.600	69	0.600	96	0.600	123	0.600	150	0.600	177	0.600
16	0.600	43	0.600	70	0.600	97	0.600	124	0.600	151	0.600	178	0.600
17	0.600	44	0.600	71	0.600	98	0.600	125	0.600	152	0.600	179	0.600
18	0.600	45	0.600	72	0.600	99	0.600	126	0.600	153	0.600	180	0.600
19	0.600	46	0.600	73	0.600	100	0.600	127	0.600	154	0.600	181	0.600
20	0.600	47	0.600	74	0.600	101	0.600	128	0.600	155	0.600	182	0.600
21	0.600	48	0.600	75	0.600	102	0.600	129	0.600	156	0.600	183	0.600
22	0.600	49	0.600	76	0.600	103	0.600	130	0.600	157	0.600	184	0.600
23	0.600	50	0.600	77	0.600	104	0.600	131	0.600	158	0.600	185	0.600
24	0.600	51	0.600	78	0.600	105	0.600	132	0.600	159	0.600	186	0.600
25	0.600	52	0.600	79	0.600	106	0.600	133	0.600	160	0.600	187	0.600
26	0.600	53	0.600	80	0.600	107	0.600	134	0.600	161	0.600	188	0.600
27	0.600	54	0.600	81	0.600	108	0.600	135	0.600	162	0.600	189	0.600

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Surcharged Outfall Details for P01 Storm - Main

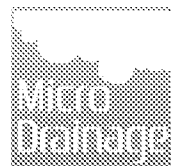
Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
217	0.600	235	0.600	253	0.600	271	0.600	289	0.600	307	0.600	325	0.600	343	0.600
218	0.600	236	0.600	254	0.600	272	0.600	290	0.600	308	0.600	326	0.600	344	0.600
219	0.600	237	0.600	255	0.600	273	0.600	291	0.600	309	0.600	327	0.600	345	0.600
220	0.600	238	0.600	256	0.600	274	0.600	292	0.600	310	0.600	328	0.600	346	0.600
221	0.600	239	0.600	257	0.600	275	0.600	293	0.600	311	0.600	329	0.600	347	0.600
222	0.600	240	0.600	258	0.600	276	0.600	294	0.600	312	0.600	330	0.600	348	0.600
223	0.600	241	0.600	259	0.600	277	0.600	295	0.600	313	0.600	331	0.600	349	0.600
224	0.600	242	0.600	260	0.600	278	0.600	296	0.600	314	0.600	332	0.600	350	0.600
225	0.600	243	0.600	261	0.600	279	0.600	297	0.600	315	0.600	333	0.600	351	0.600
226	0.600	244	0.600	262	0.600	280	0.600	298	0.600	316	0.600	334	0.600	352	0.600
227	0.600	245	0.600	263	0.600	281	0.600	299	0.600	317	0.600	335	0.600	353	0.600
228	0.600	246	0.600	264	0.600	282	0.600	300	0.600	318	0.600	336	0.600	354	0.600
229	0.600	247	0.600	265	0.600	283	0.600	301	0.600	319	0.600	337	0.600	355	0.600
230	0.600	248	0.600	266	0.600	284	0.600	302	0.600	320	0.600	338	0.600	356	0.600
231	0.600	249	0.600	267	0.600	285	0.600	303	0.600	321	0.600	339	0.600	357	0.600
232	0.600	250	0.600	268	0.600	286	0.600	304	0.600	322	0.600	340	0.600	358	0.600
233	0.600	251	0.600	269	0.600	287	0.600	305	0.600	323	0.600	341	0.600	359	0.600
234	0.600	252	0.600	270	0.600	288	0.600	306	0.600	324	0.600	342	0.600	360	0.600

Simulation Criteria for P01 Storm - Main

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

Synthetic Rainfall Details

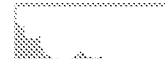
Rainfall Model	FEH	Summer Storms	Yes
Return Period (years)	2	Winter Storms	No
FEH Rainfall Version	2013	Cv (Summer)	0.750
Site Location GB 506538 105326 TQ 06538 05326		Cv (Winter)	0.840
Data Type	Point Storm Duration (mins)		30

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Online Controls for P01 Storm - Main

Orifice Manhole: S12 - Orifice, DS/PN: S1.013, Volume (m³): 16.9

Diameter (m) 0.018 Discharge Coefficient 0.600 Invert Level (m) 11.449

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Storage Structures for P01 Storm - Main

Tank or Pond Manhole: S12 - Orifice, DS/PN: S1.013

Invert Level (m) 12.128

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	759.9	1.840	1744.6

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for P01 Storm - Main

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 FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 506538 105326 TQ 06538 05326 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 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) 2, 30, 100
 Climate Change (%) 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	2	+0%					20.501
S1.001	S2	15 Summer	2	+0%					19.903
S1.002	S3	15 Summer	2	+0%					18.716
S1.003	S4	15 Summer	2	+0%	100/15 Summer				17.014
S1.004	S5	15 Summer	2	+0%	100/15 Summer				16.377
S1.005	S6	15 Summer	2	+0%					15.926
S1.006	S7	15 Summer	2	+0%	100/15 Summer				13.516
S1.007	S8	15 Summer	2	+0%	30/15 Summer				12.627
S1.008	S9	15 Summer	2	+0%	30/15 Summer				12.363
S1.009	S10	60 Summer	2	+0%	30/15 Summer				12.245
S1.010	S11	960 Winter	2	+0%	2/15 Summer				12.206
S1.011	SHW 1	960 Winter	2	+0%					12.206
S1.012	SHW 2	960 Winter	2	+0%					12.206
S1.013	S12 - Orifice	960 Winter	2	+0%	2/15 Summer				12.206

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.111	0.000	0.15		4.9	OK	
S1.001	S2	-0.236	0.000	0.10		23.9	OK	
S1.002	S3	-0.214	0.000	0.18		33.7	OK	
S1.003	S4	-0.267	0.000	0.18		56.5	OK	
S1.004	S5	-0.255	0.000	0.22		56.5	OK	
S1.005	S6	-0.282	0.000	0.14		56.8	OK	
S1.006	S7	-0.255	0.000	0.22		56.8	OK	
S1.007	S8	-0.205	0.000	0.41		55.5	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for P01 Storm - Main

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Half Drain Pipe		Status	Level Exceeded
		Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)		
S1.008	S9	-0.202	0.000	0.43			54.1	OK	
S1.009	S10	-0.061	0.000	0.28			37.0	OK	
S1.010	S11	0.139	0.000	0.03			5.0	SURCHARGED	
S1.011	SHW 1	-0.520	0.000	0.00			5.0	OK	
S1.012	SHW 2	-0.469	0.000	0.00			4.8	OK	
S1.013	S12 - Orifice	0.607	0.000	0.02			0.6	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for P01 Storm - Main

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 FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 506538 105326 TQ 06538 05326 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 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) 2, 30, 100
 Climate Change (%) 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	30	+0%					20.522
S1.001	S2	15 Summer	30	+0%					19.947
S1.002	S3	15 Summer	30	+0%					18.782
S1.003	S4	15 Summer	30	+0%	100/15 Summer				17.097
S1.004	S5	15 Summer	30	+0%	100/15 Summer				16.475
S1.005	S6	15 Summer	30	+0%					15.996
S1.006	S7	15 Summer	30	+0%	100/15 Summer				13.614
S1.007	S8	15 Summer	30	+0%	30/15 Summer				12.916
S1.008	S9	30 Summer	30	+0%	30/15 Summer				12.634
S1.009	S10	120 Summer	30	+0%	30/15 Summer				12.447
S1.010	S11	120 Summer	30	+0%	2/15 Summer				12.334
S1.011	SHW 1	1440 Winter	30	+0%					12.299
S1.012	SHW 2	1440 Winter	30	+0%					12.299
S1.013	S12 - Orifice	1440 Winter	30	+0%	2/15 Summer				12.299

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.090	0.000	0.33		10.6	OK	
S1.001	S2	-0.192	0.000	0.28		65.9	OK	
S1.002	S3	-0.148	0.000	0.51		94.8	OK	
S1.003	S4	-0.184	0.000	0.51		161.3	OK	
S1.004	S5	-0.157	0.000	0.63		161.2	OK	
S1.005	S6	-0.212	0.000	0.39		160.2	OK	
S1.006	S7	-0.157	0.000	0.63		159.6	OK	
S1.007	S8	-0.084	0.000	1.13		159.8	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for P01 Storm
- Main

PN	US/MH Name	Surcharged		Flooded		Flow / Cap.	Overflow (l/s)	Half Drain		Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow	Overflow			Time (mins)	Flow			
S1.008	S9	0.069	0.000	0.93					117.8		SURCHARGED	
S1.009	S10	0.141	0.000	0.48					64.0		SURCHARGED	
S1.010	S11	0.267	0.000	0.45					63.9		SURCHARGED	
S1.011	SHW 1	-0.427	0.000	0.00					6.1		OK	
S1.012	SHW 2	-0.376	0.000	0.01					6.0		OK	
S1.013	S12 - Orifice	0.700	0.000	0.03					0.6		SURCHARGED	

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Innovyze	Network 2020.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for P01 Storm - Main

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

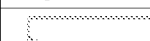
Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 506538 105326 TQ 06538 05326 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 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) 2, 30, 100
 Climate Change (%) 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S1	15 Summer	100	+45%					20.547
S1.001	S2	15 Summer	100	+45%					19.992
S1.002	S3	15 Summer	100	+45%					18.858
S1.003	S4	15 Summer	100	+45%	100/15 Summer				17.323
S1.004	S5	15 Summer	100	+45%	100/15 Summer				16.755
S1.005	S6	15 Summer	100	+45%					16.067
S1.006	S7	15 Summer	100	+45%	100/15 Summer				14.905
S1.007	S8	15 Summer	100	+45%	30/15 Summer				14.374
S1.008	S9	15 Summer	100	+45%	30/15 Summer				13.743
S1.009	S10	15 Summer	100	+45%	30/15 Summer				13.070
S1.010	S11	30 Summer	100	+45%	2/15 Summer				12.506
S1.011	SHW 1	1440 Winter	100	+45%					12.475
S1.012	SHW 2	1440 Winter	100	+45%					12.475
S1.013	S12 - Orifice	1440 Winter	100	+45%	2/15 Summer				12.475

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	-0.065	0.000	0.61		19.5	OK	
S1.001	S2	-0.147	0.000	0.51		120.8	OK	
S1.002	S3	-0.072	0.000	0.93		174.0	OK	
S1.003	S4	0.042	0.000	0.91		288.3	SURCHARGED	
S1.004	S5	0.123	0.000	1.14		290.5	SURCHARGED	
S1.005	S6	-0.141	0.000	0.71		291.6	OK	
S1.006	S7	1.134	0.000	1.00		255.1	FLOOD RISK	
S1.007	S8	1.542	0.000	1.70		228.0	FLOOD RISK	

JNP Group		Page 16
The Innovation Centre Queens Meadow Business Park Hartlepool, TS25 5TG	P01 Drainage Strategy - 7 Units Angmering	
Date 06/07/2022 14:58 File SW Drainage Calcs -P01 - 7	Designed by ZS Checked by BID	
Innovyze	Network 2020.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for P01 Storm
- Main

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Half Drain	Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)			Time (mins)	Flow (l/s)		
S1.008	S9	1.178	0.000	1.66			210.6	SURCHARGED	
S1.009	S10	0.764	0.000	1.53			203.5	SURCHARGED	
S1.010	S11	0.439	0.000	1.37			196.3	SURCHARGED	
S1.011	SHW 1	-0.251	0.000	0.01			11.0	OK	
S1.012	SHW 2	-0.200	0.000	0.01			10.8	OK	
S1.013	S12 - Orifice	0.876	0.000	0.03			0.7	SURCHARGED	

APPENDIX F: SOUTHERN WATER CORRESPONDENCE

From: Corke, Mimi [REDACTED]

Sent: 10 February 2021 10:42

To: Simon Jane [REDACTED]

Subject: RE: SWS-SUSXW-CC-005342 - DS_CC_PPE-121619 - Land Off Arundel Road, Angmering, Littlehampton, West Sussex, BN16 4ET

=====
THIS EMAIL ORIGINATED FROM AN EXTERNAL SOURCE.
CHECK THE EMAIL ADDRESS, AS IT MAY BE SPAM!
=====

Morning Simon,

It is Southern Waters responsibility to provide the required reinforcement for the development within 24 months of when planning was granted. As mentioned previously there is the capacity to connect 135 units to our network and we will work with your build programme to ensure we have the capacity for the remaining 25 units.

Kind Regards

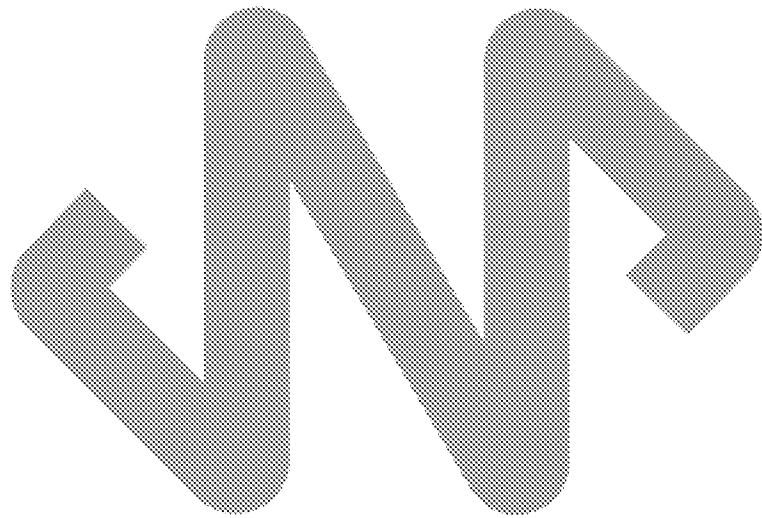
Mimi

Mimi Corke

Key Account Manager, Business Channels



from
Southern Water 



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