FLOOD RISK AND SURFACE WATER DRAINAGE ASSESSMENT

OF

TREETOPS HOLIDAY PARK,
WEEK ST MARY, CORNWALL, EX22 4UH

FOR

COUNTRYWIDE PARK HOMES LTD

09 February 2022

Job No. 17310/R1

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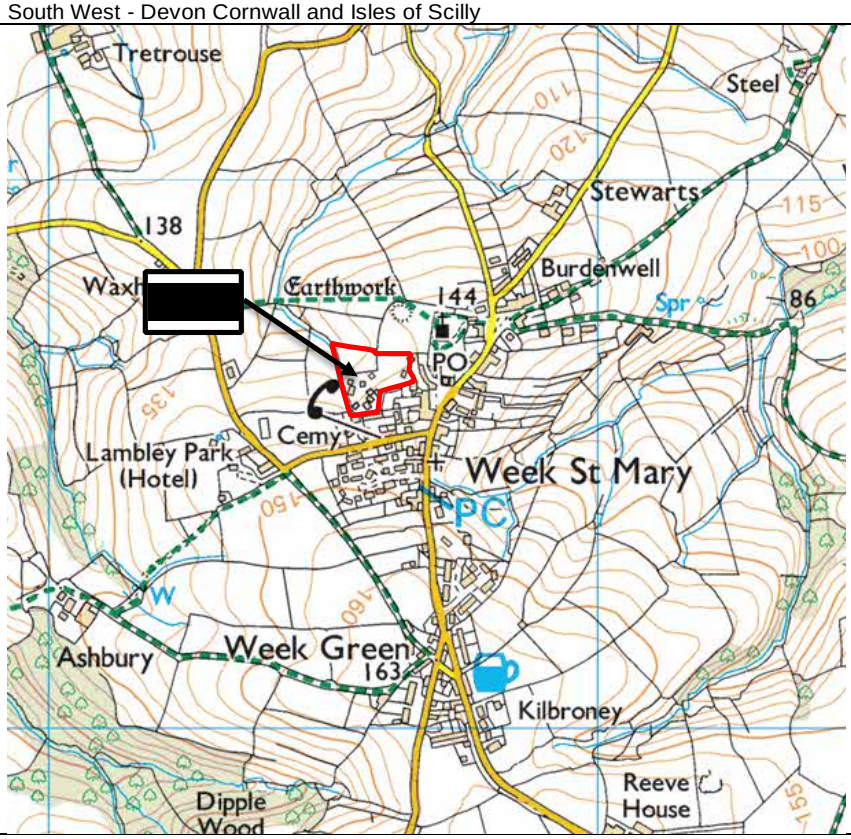
Report Status:	**R1**		
Report Reference:	**17310**		
	Engineer	**Signature**	**Date**
Report by:	**R. Leevers**	[redacted]	**09.02.2022**
Reviewed by:	**T. White**		**09.02.2022**
This report is issued to Countrywide Park Homes Ltd and does not confer or purport to confer on any Third Party, any benefit or any right pursuant to the Contracts (Rights of Third Parties) Act 1999.			

C O N TEN TS

APPENDICES

1.0 INTRODUCTION	
1.1 Terms of Reference	Acting on instructions received from Clare Anscombe, on behalf of Countrywide Park Homes Ltd, John Grimes Partnership Ltd has carried out a Flood Risk and Surface Water Drainage Assessment of land at Treetops, Week St Mary, EX22 6UH.
1.2 Scope of Work	The site currently comprises a disused holiday chalet compl of Week St Mary. It is proposed to construct 22 new park homes for residential purposes with ancillary infrastructure. The purpose of this report is to: - identify potential sources of flooding, - identify probability of flooding, - identify location and extent of flooding within the vicinity of the site, - provide a surface water drainage assessment of the site,
1.3 Third Party Rights and Other limitations	This report is issued to Countrywide Park Homes Ltd and does not confer or purpo to confer on any third party any benefit or any right pursuant to the Contracts (Rights of Third Parties) Act 1999. The assessment provided within this report is based partly on data acquired from the Environment Agency, where relevant, which in turn is supplied by third parties. Data has been interpreted in accordance with guidance notes and limitations provided by these third parties.
1.4 Limitations	1. This report has been produced in compliance with the between John Grimes Partnership Ltd. (JGP) and Countrywide Park Homes Ltd. 2. This report has been prepared for the benefit of Countrywide Park Homes Ltd and their associated advisors in relation to the proposed housing estate. The report shall not be relied upon for any other situation; neither shall it be transferred to any other party without the written agreement of JGP. JGP accepts no responsibility or liability for the use of this report for any purpose or any project except for that for which it was specifically prepared. 3. The conclusions and advice provided in this report are based on: Current best practice and legislation [JGP accepts no responsibility or liability for any change in best practice advice or statute. In the event of additional information becoming available, improved p changes in legislation, amendment or re-interpretation of the assessment or report (in whole or in part) may be necessary]; Sound engineering judgement and assessment of observations undertaken in accordance with the agreed scope of works. It does not take into account the perceptions of other involved and interested parties. 4. Any information and data supplied by third parties has been interpreted in accordance with guidance notes and limitations provided by these third parties. Although this information has been reviewed and is considered relevant, no guarantee can be given to its accuracy and JGP can accept no responsibility for inaccuracies within the data supplied by other parties. In addition, interpretation of historic data should only be c indicative. 5. JGP believes that providing information about limitations is essential to help the client identify and thereby manage risks.

2.0 EXISTING SITE INFORMATION

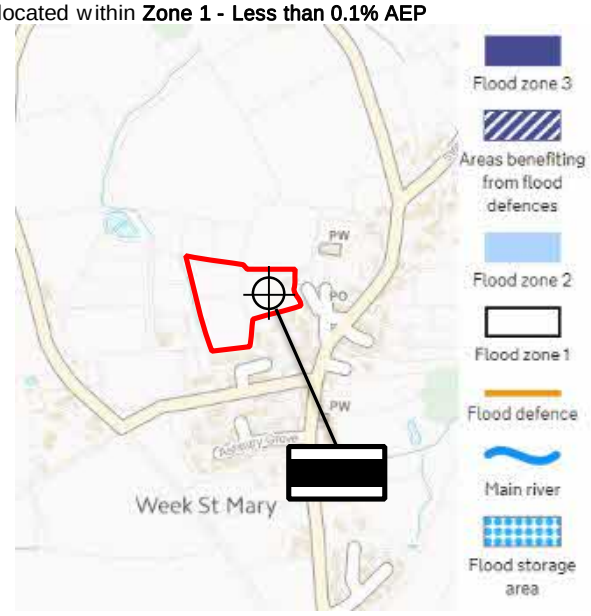
2.1 Site Details	
Name	Treetops Holiday Park
Address (including postcode)	Treetops, Week St Mary, EX22 6UH
NGR	SX 236 976 **Total Site Area** 1.400 **ha**
Development Type	Residential
Local Planning Authority	Cornwall Council
Lead Local Flood Authority	Cornwall Council
Environment Agency Area	South West - Devon Cornwall and Isles of Scilly
2.2 Location Plan	 Reproduced behalf of The Controller of Her Majesty's Stationery Office. © from Ordnance Survey map with the permission of Ordnance Survey® on Crown copyright. All rights reserved. Licence No.AL 100002364
2.3 Site Elevation (mAOD) and Grade (1:X m)	**Highest** 144.75 **Lowest** 127.97 **Length** 147.60 **General Grade** 1in9 **Notes:** General grade based on highest and lowest elevations between them.
2.4 Type of Site	Greenfield ☐ Brownfield ☐ Mixed ☒ Agricultural ☐
2.5 Existing Surfacing	*If not greenfield, indicate the types of surfacing present on the site:* Impermeable - Drained ☐; Undrained ☒ Engineered permeable surfaces, i.e. permeable paving ☐ Granular/gravel surfacing ☒ **Notes:** The existing site to be developed comprises several concrete slabs (former chalet foundations) present in the east part of the site along with a gravel car park. The car park is accessed by a gravel track which passes through the southern part of the site. Bare earth and evidence of recent vegetation / tree clearance was noted across the western part of the site. The remainder of the site is typically grass covered with hedgerows and occasional mature trees present boundaries.

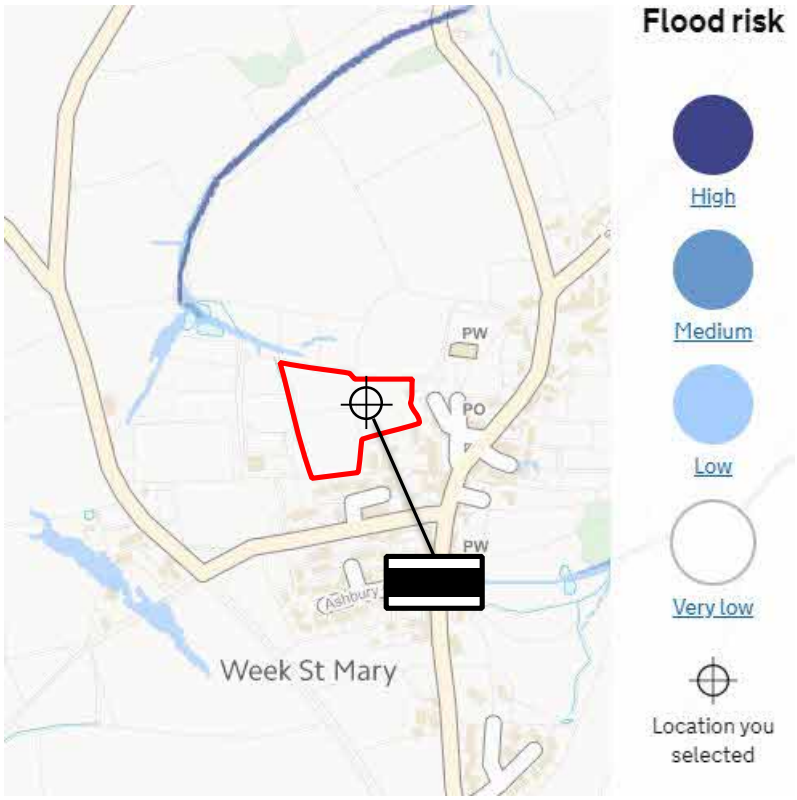
2.6 Existing Drainage Present on or Local to Site

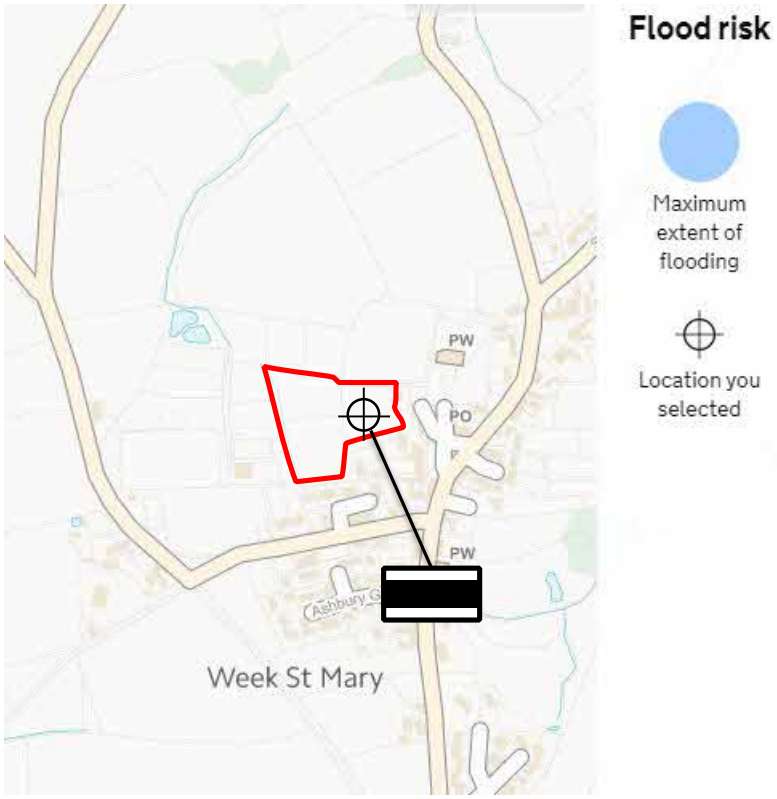
	Present	Private	Public	Unknown
Surface Water	☒	☒	☐	☐
Foul	☒	☒	☐	☐
Combined	☐	☐	☒	☒
Land drainage	☒	☒	☐	☐
Highways	☐	☐	☐	☒
Soakaways	☐	☐	☐	☒
Attenuation Tanks	☐	☐	☐	☒
Watercourse	☒	☒	☐	☐
Swales	☐	☐	☐	☒
Ponds	☐	☐	☐	☒

	Notes: The site is understood to have been a holiday static caravan site access via a gravel track. The existing house drains surface and foul water southward off the site. The eastern region of the site comprises several concrete slabs, where upstands of land drains, foul water and surface water runs can be located. The surface water network from here runs north-west to an outfall in the northern watercourse. The foul drainage continues to the north-west region into a suspected drainage field. The western region of the site comprises surface water drainage that outfalls north to the bottom of a bank, which also conveys spring water west watercourse. Foul networks are unknown in the western region.
2.7 Surface Water Drainage Discharge from Existing Site	Surface water sewers ☒; Combined sewers ☐; Watercourse ☒; Sea ☐; Unknown ☒; No existing drainage ☐ Other ☒ As exceedance flow to low ground

3.0 PROPOSED DEVELOPMENT	
3.1 Description of Proposed Development	It is proposed to construct 22 new park homes for residential purposes with ancillar infrastructure.
3.2 Flood Risk Vulnerability Classification	According to Table 2: Flood Risk vulnerability classification in the PPG-FRCC the proposed development is classed as **Highly Vulnerable**.

4.0 DESK-BASED FLOODING INFORMATION	
4.1 Environment Agency Flood Map for Planning Based on flood risk information accessed on gov.uk on 04/02/2022. *Indicates Annual Exceedance Probability for flooding from rivers and the sea. Flood zone maps do not make allowance for the effects of climate change, but do include the benefit from any flood defences in the area.* *In Zone 1 AEP < 0.1%* *In Zone 2 0.1% < AEP < 1.0%* *In Zone 3 1.0% < AEP.*	The site is located within **Zone 1 - Less than 0.1% AEP**  Reproduced behalf of The Controller of Her Majesty's Stationery Office. © from Ordnance Survey map with the permission of Ordnance Survey® on Crown copyright. All rights reserved. Licence No.AL 0100024198 Is further analysis of fluvial and or tidal flooding required? Yes ☐ No ☒ Does the proposed development alter a watercourse? Yes ☐ No ☒ If yes, describe the effect on the watercourse. N/A Does the proposed development reduce storage in low-lying areas that might become flooded in extreme events? Yes ☐ No ☒ If yes, describe the effect on the storage. N/A

4.2 Risk of Flooding From Coastal Sources Is further analysis of coastal processes required to address flood risk at this site?	Does the site currently discharge surface water to the sea? Yes ☐ No ☒ Does the site elevation place it at risk of coastal flooding? Yes ☐ No ☒ Yes ☐ No ☒ Not at this time ☐ Further analysis is provided on wave setup ☐; overtopping ☐; wave run-up ☐; Other: ☐
4.3 Risk of Pluvial Flooding (Rainfall/Surface Water) Based on flood risk information accessed on gov.uk on 22/08/2019. High AEP greater than 3.3% Medium AEP between 1%-3.3% Low AEP between 0.1%-1% Very Low AEP less than 0.1% Does the proposed development have the potential to alter surface flow routes?	Are there surface water flow routes on site? Yes ☐ No ☒ If yes, flood risk is High ☐; Medium ☐; Low ☐ (tick all that apply) at High Risk peak depths are estimated at 0.0m and peak velocities at 0m/s. at Medium Risk peak depths are estimated 0.0m and peak velocities at 0.0m/s. at Low Risk peak depths are estimated at 0.0m and peak velocities at 0.0m/s.  Reproduced behalf of The Controller of Her Majesty's Stationery Office. © from Ordnance Survey map with the permission of Ordnance Survey® on Crown copyright. All rights reserved. Licence No.AL 100024198 Yes ☐ No ☒ If yes, describe how the development could alter surface water flow routes

4.4 Flood Risk from Sewers? **Notes:** *A Critical Drainage Area (CDA) is an area that has critical drainage problems, normally related to the capacity of the local drainage system, and which has been notified to the local planning authority as such by the Environment Agency. Specific design requirements are usually required within CDA these can include reducing the allowable greenfield discharge rate below the standard 1 in 100-year (1%AEP) level, as well as other design requirements including improvements in water quality.*	Historic flood data indicates a risk of flooding from sewers? Yes ☐ No ☒ Is the site in a Critical Drainage Area?. Yes ☐ No ☒ If in a CDA, Allowable greenfield rate is to be based on 1 in 100 year (1% AEP). Specific requirements on control of water quality required? Yes ☐ No ☒. **CDA information** **Catchment Drainage / Flooding Issues** - N/A **Minimum Drainage Standards Required** - N/A
4.5 Flood Risk From Reservoirs Based on flood risk information accessed on gov.uk on 22/08/2019. Reproduced behalf of The Controller of Her Majesty's Stationery Office. © from Ordnance Survey map with the permission of Ordnance Survey® on Crown copyright. All rights reserved. Licence No.AL 100002364	Is the site at risk of flooding from reservoirs? Yes ☐ No ☒ 
4.6 Risk of flooding From Canals?	Is the site at risk of flooding from canals Yes ☐ No ☒
4.7 Site Susceptibility to Groundwater Flooding?	Is the site susceptible to groundwater flooding Yes ☒ No ☐, based on desk-based data ☐ site-based observations ☒. If desk-based, describe source: Site elevated above nearby watercourse located 2m west of the site. The British Geological Survey (1:50,000 scale) map indicates that the site is underlain by the Crackington Formation which typically comprises mudstone and siltstone. If susceptible, what is the reason for the susceptibility? Permeable bedrock and/or superficial geology ☐, *together with* Low-lying elevation ☐ and/or proximity; to watercourse ☐. and/or springs ☒ Other ☐ Other reason: N/A
4.8 Further Information If necessary to describe flood risk to this site.	Site reconnaissance indicated localised ditches and channels conveying sp water to the watercourse on the west side of the site.

4.9 Site Flood Risk Summary

This table indicates if the proposed development is at risk of flooding or influences flooding elsewhere for the sources indicated.

Source	On-site Flood Risk to/from development		Further analysis required		Section	Comment/ Additional Analysis Provided
	Yes	No	Yes	No		
Fluvial	☐	☒	☐	☒	4.1	
Tidal/Sea	☐	☒	☐	☒	4.2	
Pluvial	☐	☒	☐	☒	4.3	
Sewers	☒	☐	☒	☐	4.4	
Reservoirs	☐	☒	☐	☒	4.5	
Canals	☐	☒	☐	☒	4.6	
Groundwater	☒	☐	☒	☐	4.7	Retain existing flow paths

5.0 FLOOD RISK MITIGATION

5.1 Introduction	The purpose of this section is to provide guidance on mea mitigate the identified sources of flood risk to and from the proposed development. It is organised on the basis of sources of flooding.
5.2 Fluvial	Mitigation required? Yes ☐ No ☒ If yes, provide further details below.
5.3 Tidal/Sea	Mitigation required? Yes ☐ No ☒ If yes, provide further details below.
5.4 Pluvial	Mitigation required? Yes ☐ No ☒ If yes, provide further details below.
5.5 Sewer	Mitigation required? Yes ☒ No ☐. If yes, provide further details below. See Section 7.0
5.6 Reservoirs	Mitigation required? Yes ☐ No ☒ If yes, provide further details below.
5.7 Canals	Mitigation required? Yes ☐ No ☒ If yes, provide further details below.
5.8 Groundwater	Mitigation required? Yes ☒ No ☐ If yes, provide further details below. Retain existing flow paths
5.9 Residual Uncertainty and Freeboard	It is recommended that the finished floor level of the new buildings have a **minimum freeboard of 0.15m** above external finished ground levels to provide protection from minor flooding events / surface water ponding and exceedance events. Park homes are generally elevated above the founding pad and therefore finished floor levels are likely to be considerably more than 0.15m.
5.10 Access / Egress	N/A
5.11 Operational Measures	A maintenance scheme should be put in place to ensure tha resilient measures installed remain effective. It is also important th drainage features are maintained in good working condition and free of blockages

6.0 PLANNING POLICY TESTS	
6.1 Sequential Test Planning Policy Guidance on Flood Risk and Coastal Change (PPG-FRCC)	Since the site is in **Flood Zone 1**; according to guidance in the PPG-FRCC on the Sequential test, the proposed **development is appropriate and does not need to pass the Sequential Test.** Is further analysis of the Sequential Test required? Yes ☐ No ☒
6.2 Exception Test (Note: this is usually carried out by the Local Authority).	Since the site is in **Flood Zone 1**; according to Table 3 of the Flooc Vulnerability Classification in the PPG-FRCC, the proposed **development is appropriate and does not need to pass the Exception Test** **Exception Test Notes:** In accordance with paragraph 160 of NF application of the Exception Test should be informed by a strategic or site-specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. For the Exception Test to be passed it should be demonstrated that: **a)** the development would provide wider sustainability be community that outweigh flood risk; and **b)** the development will be safe for its lifetime taking ac vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall. If required, Section 5.0 of this Flood Risk Assessment addresses Part B of the Exception Test. Is further analysis required for the Exception Test? Yes ☐ No ☒
7.0 DRAINAGE STRATEGY	
7.1 Rationale of Drainage Choice	Has a Phase II site investigation been carried out? Yes ☐ No ☒ Have soakaway tests been carried out on the site? Yes ☒ No ☐ Soakaway tests to BRE 365 have been undertaken and the infiltration rates did not meet the required rates for soakaways to be an option. A tertiary river is located 2m west of the site, therefore it is proposed to drain all private hardstandings and roofs to the stream via attenuati controls.

7.2 Summary of Surface Water Drainage Strategy	Separate systems will be provided for surface and foul water drainage. The surface water drainage design has considered the recommended 40% precautionary sensitivity from Table 5 in The Technical Guida National Planning Policy Framework for climate change. Existing greenfield runoff rate: Greenfield Method ReFH2 Positively Drained Area 0.680 ha (hatched areas in Appendix C) SAAR 1075 mm BFIHost 0.403 Region 8 1 in 2 years 5.5 l/s (control for morphology) 1 in 100 years 18.6 l/s (control for extreme events) Discharge Rates Hydro-brakes at node S1.19: CTL-SHE-0107-4100-0200-4100 Invert Level 132.000 m Design Flow 4.1 l/s Design Depth 0.20 m CTL-SHE-0121-6000-0600-6000 Invert Level 132.200 m Design Flow 6.0 l/s Design Depth 0.6 m Hydro-brakes at node S1.5: CTL-SHE-0067-1400-0200-1400 Invert Level 136.955 m Design Flow 1.4 l/s Design Depth 0.20 m CTL-SHE-0073-2000-0600-2000 Invert Level 137.155 m Design Flow 2.0 l/s Design Depth 0.6 m Initial analysis indicates that approximately 260 m^3 (240-350 m^3) of storage is required. This is proposed to be primarily attenuation tanks complemented with a bioretention rainwater garden (of dimensions 1.2x3.43x0.8 m) for each roof to meet interception requirements. The configuration and type of storage structure will need to be confirmed as part of the final design. The surface water infrastructure will be designed with silt traps and means of access to implement the drainage maintenance schedule. The surface water infrastructure should be inspected regularly to ensure that it is maintained in good condition and free of blockages. The silt traps upstream of soakaway/storage should be inspected and cleared out at regular intervals. Initial frequent inspections will be required as the system settles. Typically, this will reduce to annual inspections with additional inspections following major storm events as required.
7.3 Exceedance	An exceedance flow plan is provided, consideration of the exceedance flow also indicates the arrangements for the redirection of existing flows around the buildings in the developed state. **Finished floor levels should be at least 150mm above final external ground levels.**
7.4 Summary of Foul Water Drainage Strategy	Foul water is to fall to a pumping station. Adopt a package pumping station with at least 13,200 litres capacity such as the Klargester Vertical Pumping Station with a Tank Size of 2600 Diameter (Appendix 2). The package pumping station discharges up an 80mm HPPE (PE100) SDR 17 rising main to a SWW connection east of the site (see Appendix 3).

8.0 CONCLUSIONS & RECOMMENDATIONS

1. The report describes the site and presents information on flood risk and surface w
   development.
2. The site is in Flood Zone 1 and the Flood Risk Assessment concludes that the site is not at risk from flooding from Fluvial, Tidal, Groundwater, Sewers, Pluvial, or Reservoirs, Canals, and other Artificial Sources.
3. The site passes the Sequential Test and does not need to pass the Exception Test before planning permission can be granted.
4. Discharge into the receiving watercourse may be subject to obtaining permission from Cornwall Council.
5. Exceedance pathways and maintenance regime are addressed.

APPENDICES

APPENDIX 1

APPENDIX 2

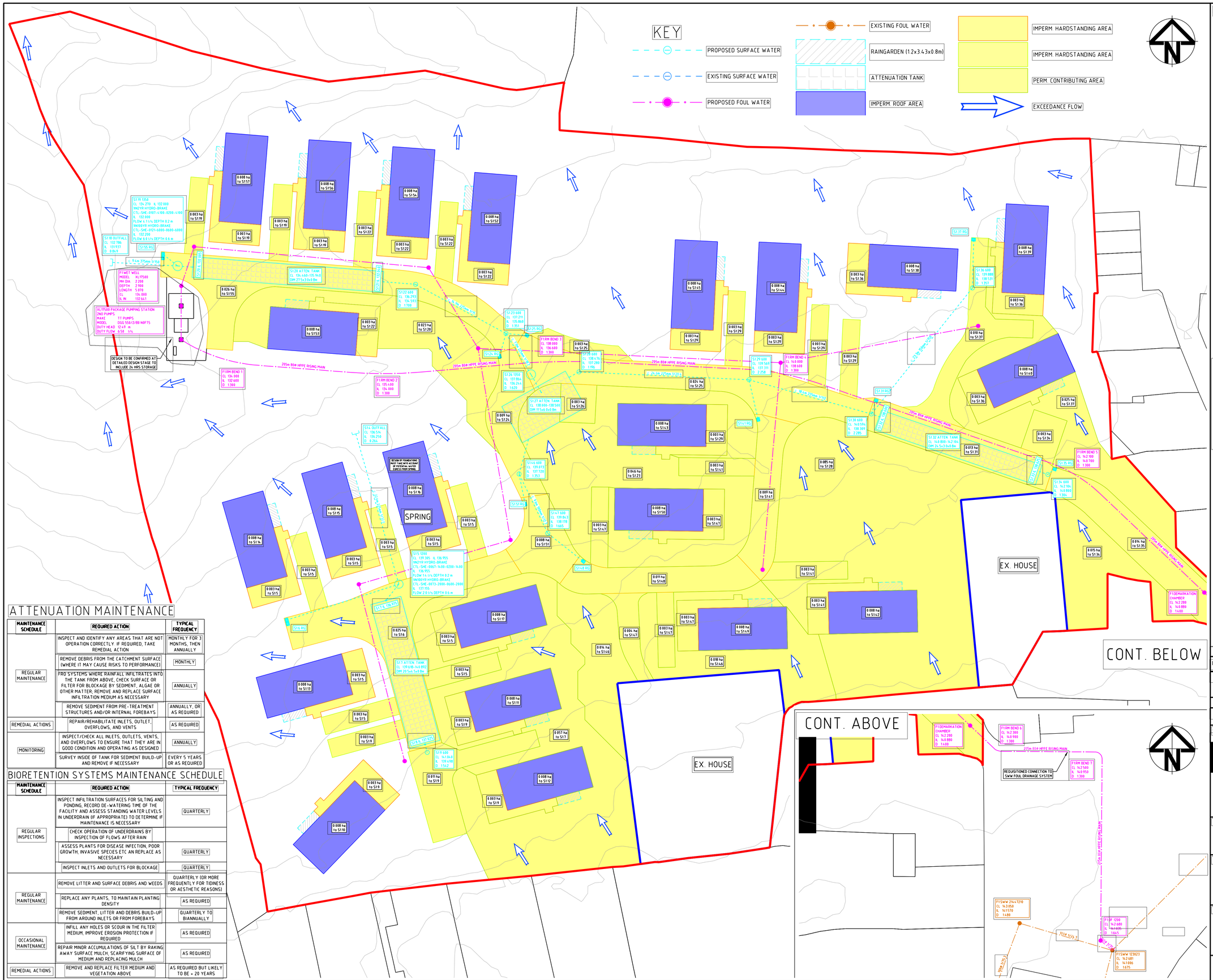
Ref: 17310; Date: 04th Febuary 2022; Site : Treetops Holiday Park; Client: Countrywide Park Homes Ltd; Author: RL; Checker: TW; Company: JGP					
Scenario 1	**No. (P)**	**Flow (L)**	**BOD (g)**	**NH_3 (g)**	**Comments**
Mobile home type caravans with full services	88	13200	5280	704	*22 caravans 4 people each*
Total (per day) for Scenario 1	**88**	**13200**	**5280**	**704**	
Worst Case Totals (per day)	**88**	**13200**	**5280**	**704**	

Adopt suggested type of plant (or similar): Klargester Vertical Pumping Station Tank Size 2600 Diameter. Capacity (Ltrs) Up to 22,000.
Surface water: all to be excluded from foul sewer.
Consent to dischage: to be obtained from the Regulator.
Waste Disposal Units: assumed that none are fitted.

Flows and Loads taken from British Water Flows and Loads 4

Scenario 1: 22 caravans

APPENDIX 3



ATTENUATION MAINTENANCE

MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
REGULAR MAINTENANCE	INSPECT AND IDENTIFY ANY AREAS THAT ARE NOT OPERATION CORRECTLY. IF REQUIRED, TAKE REMEDIAL ACTION	MONTHLY FOR 3 MONTHS, THEN ANNUALLY
	REMOVE DEBRIS FROM THE CATCHMENT SURFACE (WHERE IT MAY CAUSE RISKS TO PERFORMANCE)	MONTHLY
	FRO SYSTEMS WHERE RAINFALL INFILTRATES INTO THE TANK FROM ABOVE, CHECK SURFACE OR FILTER FOR BLOCKAGE BY SEDIMENT, ALGAE OR OTHER MATTER; REMOVE AND REPLACE SURFACE INFILTRATION MEDIUM AS NECESSARY	ANNUALLY
	REMOVE SEDIMENT FROM PRE-TREATMENT STRUCTURES AND/OR INTERNAL FOREBAYS	ANNUALLY, OR AS REQUIRED
REMEDIAL ACTIONS	REPAIR/REHABILITATE INLETS, OUTLET, OVERFLOWS, AND VENTS	AS REQUIRED
MONITORING	INSPECT/CHECK ALL INLETS, OUTLETS, VENTS, AND OVERFLOWS TO ENSURE THAT THEY ARE IN GOOD CONDITION AND OPERATING AS DESIGNED	ANNUALLY
	SURVEY INSIDE OF TANK FOR SEDIMENT BUILD-UP AND REMOVE IF NECESSARY	EVERY 5 YEARS OR AS REQUIRED

BIORETENTION SYSTEMS MAINTENANCE SCHEDULE

MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
REGULAR INSPECTIONS	INSPECT INFILTRATION SURFACES FOR SILTING AND PONDING, RECORD DE-WATERING TIME OF THE FACILITY AND ASSESS STANDING WATER LEVELS IN UNDERDRAIN (IF APPROPRIATE) TO DETERMINE IF MAINTENANCE IS NECESSARY	QUARTERLY
	CHECK OPERATION OF UNDERDRAINS BY INSPECTION OF FLOWS AFTER RAIN	
	ASSESS PLANTS FOR DISEASE INFECTION, POOR GROWTH, INVASIVE SPECIES ETC AN REPLACE AS NECESSARY	QUARTERLY
	INSPECT INLETS AND OUTLETS FOR BLOCKAGE	QUARTERLY
REGULAR MAINTENANCE	REMOVE LITTER AND SURFACE DEBRIS AND WEEDS	QUARTERLY (OR MORE FREQUENTLY FOR TIDINESS OR AESTHETIC REASONS)
	REPLACE ANY PLANTS, TO MAINTAIN PLANTING DENSITY	AS REQUIRED
	REMOVE SEDIMENT, LITTER AND DEBRIS BUILD-UP FROM AROUND INLETS OR FROM FOREBAYS	QUARTERLY TO BIANNUALLY
OCCASIONAL MAINTENANCE	INFILL ANY HOLES OR SCOUR IN THE FILTER MEDIUM, IMPROVE EROSION PROTECTION IF REQUIRED	AS REQUIRED
	REPAIR MINOR ACCUMULATIONS OF SILT BY RAKING AWAY SURFACE MULCH, SCARIFYING SURFACE OF MEDIUM AND REPLACING MULCH	AS REQUIRED
REMEDIAL ACTIONS	REMOVE AND REPLACE FILTER MEDIUM AND VEGETATION ABOVE	AS REQUIRED BUT LIKELY TO BE > 20 YEARS

Notes

1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM.
3. DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE PROCEEDING.

HEALTH AND SAFETY

a. THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 APPLY TO THIS WORK.
b. THE CLIENT, CONTRACTORS AND DESIGNERS HAVE LEGAL DUTIES UNDER CDM 2015. REFER TO THE HEALTH AND SAFETY EXECUTIVE WEBSITE (http://www.hse.gov.uk) AND THE CONSTRUCTION INDUSTRY TRAINING BOARD WEBSITE (www.citb.co.uk) FOR FURTHER DETAILS.
c. JOHN GRIMES PARTNERSHIP LTD ARE NOT THE PRINCIPAL DESIGNER.
d. THE PRINCIPAL CONTRACTOR AND ALL SUBCONTRACTORS MUST SATISFY THEMSELVES THAT THEY FULLY UNDERSTAND THE DESIGN AND SITE CONSTRAINTS/ACTIVITIES IN TERMS OF CDM 2015 AND THAT AN APPROPRIATE CONSTRUCTION PHASE PLAN IS IN PLACE PRIOR TO COMMENCING ANY WORKS ON SITE. THE CONSTRUCTION PHASE PLAN SHALL INCLUDE RISK ASSESSMENTS AND SAFE METHODS OF WORKING AS A MINIMUM.
e. POTENTIAL CONSTRUCTION RISKS ASSOCIATED WITH THIS SITE INCLUDE:
   i) STEEP AND UNEVEN GRADIENT
   ii) DEEP AND CONFINED EXCAVATIONS
   iii) INJURY FROM SEWER GASES TRAPPED IN EXISTING FOUL DRAINAGE, SUCH AS THE DRAINAGE FIELD LOCATED IN THE NORTH-WESTERN REGION OF THE SITE
f. THE PRINCIPAL CONTRACTOR AND SUBCONTRACTORS SHALL PROVIDE RELEVANT RECORDS AND INFORMATION TO THE PRINCIPAL DESIGNER FOR INCLUSION IN THE HEALTH AND SAFETY FILE. THIS MAY INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING INFORMATION; CERTIFICATES IN RESPECT TO SUITABILITY AND SPECIFICATION COMPLIANCE OF RELEVANT MATERIALS AND/OR MANUFACTURE PROCESSES, OPERATION AND MAINTENANCE MANUALS, AS CONSTRUCTED DRAWINGS.

NOTE

ALL ROOFS OUTLET TO A 1.2x3.43x0.8m BIORETENTION RAINGARDEN WITH A 0.1m HIGH OVERFLOW.

ALL COVER LEVELS AND INVERTS PROVIDED FOR THE PURPOSES OF OBTAINING PLANNING PERMISSION ONLY. FINAL CONSTRUCTION LEVELS TO BE DETERMINED FROM FINAL FFL/GROUND SLAB DESIGN AND FINAL ACCESS ROAD DESIGN LEVELS.

ALL RG LOCATIONS INDICATIVE TO BE CONFIRMED AT DETAILED DESIGN STAGE.

Issue	Description	Date	Drwn	Chkd
P1	PRELIMINARY ISSUE	03Feb22	RL	TW

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

First Issue Signatures

Scales: 1:250
Author: R LEEVERS
Original Size: A1
Checker: J BLYTH

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Client: COUNTRYWIDE PARK HOMES LTD

Project: TREETOPS HOLIDAY PARK WEEK ST MARY, CORNWALL EX22 4UH

Title: SURFACE WATER AND FOUL WATER DRAINAGE LAYOUT

Project No. 17310 — Drawing No. 200 — Rev. P1

100mm on Original

FILENAME: C:\Users\raleevers\OneDrive - John Grimes Partnership\00 Temporary Work Folder\17310 Treetops, Bude\01 local\03 drawing\17310__200__P1__DRAINAGE LAYOUT, PLOTTED BY: Raleevers, DATE: 04 February 2022 16:54:33