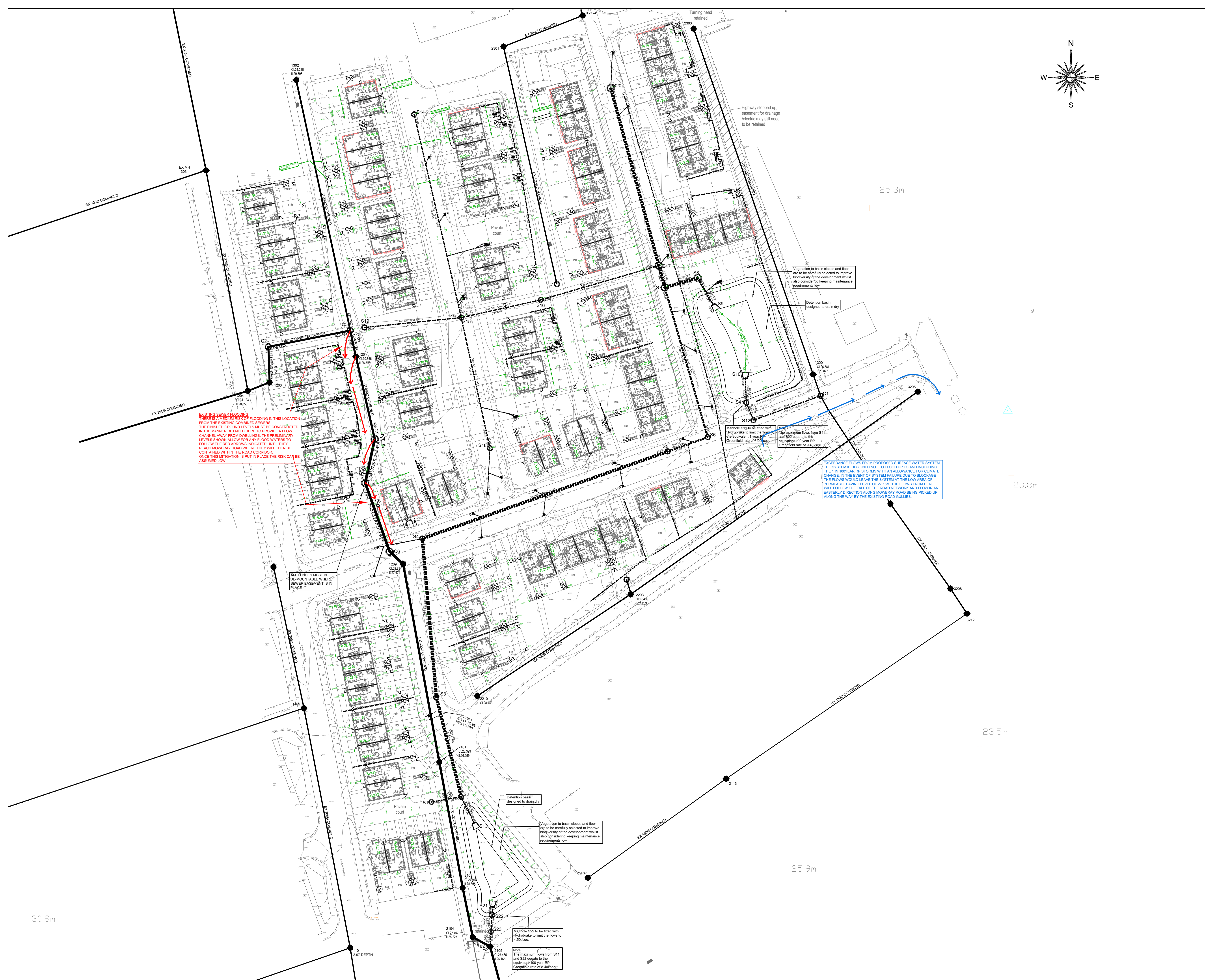
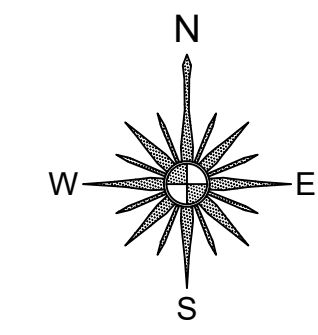


Appendix K
Flood Route Layout

NOTE
FINISHED FLOOR LEVELS ARE PRELIMINARY
AND ARE SUBJECT TO CHANGE AT
DETAILED DESIGN STAGE



Revised to suit the latest architects layout	MT	SH	LBR	29/04/22
Initial issue	MT	SH	LBR	25/03/22
Rev. Description	By	Chk	App	Date

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Client: **Thirteen**

Project: **Amberly & Harrogate Street
Sunderland**

Drawing Title: **Flood Route Layout**

Scale	1:500	Sheet Size	A1
Drawn By	MT	Checked By	SH
Approved By	LBR	Date	24/03/22

Project No.	2020060	Drawing No.	013-02	Revision	A
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Appendix L
Maintenance Schedules

Section1

General Maintenance & Inspection Requirements For Below Ground Gravity Drainage. (Including Drainage Channels)

This maintenance schedule should be read in conjunction with Portland Consulting drawing number 000-01 Drainage Strategy Layout

1. No work shall be carried out on the drainage system without permission from a nominated person, who has access to information/a working knowledge of the system.
2. Maintenance/inspection work shall be carried out in a safe/planned manner.
3. All work is to be carried out by competent persons suitably trained and equipped in accordance with current statutory safe working policies.
4. Entry into confined spaces shall be kept to a minimum and be restricted to suitably qualified/equipped persons working in accordance with current statutory safe working policies.
5. High levels of hygiene shall be maintained at all times, with adequate welfare facilities being provided for the personnel.
6. Drainage systems shall be inspected on a regular basis or should any problems be suspected. Any debris/ defects discovered shall be recorded and a programme of cleaning/ repair initiated. Urgent repairs/ cleaning shall be actioned as soon as practicable.
7. The following operations should be carried out annually.
 - a) Covers of inspection chambers and manholes shall be removed and the sides, benchings and channels cleared.
 - b) Accumulated deposits of silt in soakaways, catchpit manholes, drainage channels, gullies etc. shall be removed. Any traps shall then be plunged and thoroughly flushed out with clean water.
 - c) Main and branch drains shall be cleared as required and afterwards be flushed with clean water. Any obstructions found shall be removed and not flushed down the system.
 - d) Covers of inspection chambers, manholes, gullies etc. shall be replaced, bedded in suitable grease or other sealing material as required and bolted/locked down as appropriate. Missing bolts and broken items shall be replaced in accordance with the manufacturer's details.
8. Trapped gullies shall be checked and replenished as necessary in order to maintain the seal preventing the escape of odours.
9. Clearing of the drainage system can be achieved by a number of methods depending on the nature of the work
 - a) Rodding – Manual/Mechanical with flexible rods.
 - b) Jetting – High pressure water jetting.
 - c) Plunging.

All adopted drainage to be maintained by Northumbrian Water Limited

All non-adopted drainage to be maintained by Thirteen Group or a management company appointed by them.

Drainage installation to be carried out by a suitably qualified Contractor appointed by and under the supervision of Karbon Homes.

Section2

Specific Items

Permeable paved parking bays

The permeable drive must not be removed or covered with another material.
A copy of this page must be included within the home owners user manual.

Regular Maintenance		
Element	Maintenance/Action required	Frequency
Permeable Paving	Regular cleaning will be required, brushing should suffice to remove surface dirt and silt build up between blocks. Following the routine maintenance it may be necessary to redress the surface with 2-4mm gritstone as per manufacturer's recommendations	Bi-Annual – In the spring Autumn after leaf fall
Regular Monitoring		
Permeable Paving: Initial Inspections	1- Inspect for poor operation 2- Inspect for evidence of poor operation and or weed growth. Take remedial action if required.	1- Monthly for 3 months after installation 2- Every 3 months, 48hours after large storms
Permeable Paving	Check surface is draining adequately during storms.	Annually – during storm conditions
Remedial Actions		
Rutting of paving /broken blocks	Repair areas as necessary	As required
Surface and upper substructure if poor operation is encountered and cannot be rectified by cleaning of surface etc		

Maintenance schedule for SUDS basin

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season) or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually
	Occasional Maintenance	Reseed areas of poor vegetation growth
Prune and trim any trees and remove cuttings		Every 2 years, or as required
Remove sediment from inlets, outlets, forebay and main basin when required		Every 5 years, or as required
Remedial Actions	Repair erosion or other damage by reseedling or re-turfing	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

Maintenance schedule for Hydrobrake Manhole

Regular Maintenance		
Element	Maintenance/Action required	Frequency
Manhole	1-Clear out sump 2-Check pivoting bypass door is operational	1- Bi annual – after leaf fall and after first large storm 2-Annually in dry weather
Regular Monitoring		
Manhole and swale	Check manhole/swale to ensure emptying is occurring satisfactorily	Annually – during heavy storm conditions and If water builds up in swales
Outlet pipe	Check for blockages or pipe damage	Annually
Remedial Actions		
Manhole/swale not emptying/flooding	Activate pivoting bypass door to release the water. Once system is empty check and remove blockages and silt deposits	As required
Outlet pipe: Damaged or blocked	Repair pipe/unblock pipe Clear out all silt from catch pit	As required