

Below Ground Drainage

**Initial design Concept
To support
Planning Application
For
Plot 3
At
Dunsbury Park.
Havant.
Hampshire.**

May 2018.

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BAM Design Technical Report.

SUBJECT

Below Ground Drainage, Initial Design Concept.

CLIENT: BAM Construction South East.

PROJECT: Plot 3, Dunsbury Park.

Contract no: TBA
Prepared by: S Bliss.

Job no: 4330.
Checked by: SGB.

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Status of drawings / specifications: For Information / Approval.

AMENDMENTS				
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Below ground drainage Initial Concept Design.

1.0 Introduction.

The Dunsbury Park site is located to the West of Leigh Park in the North-West of Havant and to the East of Waterlooville. It is immediately east of the A3(M) at Junction 3. The motorway forming the western boundary of the site. The previous greenfield site has had a spine road constructed, this links the A3(M) motorway Junction 3 slip road to Callshot Road on the Leigh Park residential area. This road has been constructed to adoptable standards and is called Fitzwygram Way. To date, this road has not been adopted. Various private roads off the spine road provide access to the various plots for future development of Dunsbury Hill.

The total site has an area of 33 hectares, 20.2 hectares of which has been allocated for development. The ground slopes in a southerly direction from a maximum elevation of approximately 55m above ordnance datum (AOD) to a minimum elevation of 15m AOD at the Hermitage Stream.

A Flood Risk Assessment was produced by Atkins Limited in March 2012 for an outline planning submission covering for the whole development at that time.

Plot 2 was the first plot to be developed with the construction of a warehouse / distribution centre. The below ground drainage design consisted separate foul and storm water systems. Storm water included a SUDS drainage system with porous car park surfaces, and on-site below ground storm water attenuation tanks.

During the development of plot 2, it was considered that site wide storm water attenuation would be a preferable option in comparison to provided storm attenuation on an individual plot basis. Large ponds would provide a valuable asset for local residents whilst also increasing the areas bio diversity. Both wet and slightly "marshy" storm water attenuation lakes were constructed 2017 to both attenuate and improve water quality prior to discharge into the Hermitage Stream.

2.0 Plot 3.

Plot 3 is the second plot to be developed, this is being split into 2 separate buildings referred to as 3A & 3B.

Plot 3A is proposed as a vehicle showroom and repair shop whilst Building 3B is speculative warehouse and associated office.

There is an existing 600mm high pressure gas main located under the plot. This runs South to North with a 6 metre "no works" zone. This makes the design of below ground services particularly challenging whilst the presence of overhead power cables restricts working practices even further. Any services that need to cross the gas main must have a minimum 600mm clearance and be hand dug.

Plot 3A has an impermeable area of 3500m² and Plot B an impermeable area of 7000m². The access road adds another 1800m².

3.0 Drainage General.

The new below ground drainage installation will comprise completely separate foul and storm water drainage systems.

The systems will be designed in accordance with BS EN 752, The Building Regulations section H and Environment agency Planning Policy Statement PPS25. Foul water flows will be calculated in accordance with BS EN 12056 part 3.

In accordance with Environment Agency requirements the storm water drainage system from the new works will be designed to prevent flooding from a 1 in 30 year storm event.

The previously constructed attenuation ponds were designed to store storm water run-off from Plots 1 – 5 of the Dunsbury Park development. These have been calculated to store water for a 1 in 100 year storm event + 30% for future climate change.

Each new building is proposed to have parking which exceeds 50 spaces, therefore under Environment Agency pollution control document PPG3, petrol / oil interceptors have been proposed on this project.

All drainage calculations will be produced using the industry accepted Micro Drainage software suite.

Once the drainage design has been completed, Section 106 applications will be made to Southern Water the new foul water discharges. The storm water discharges from the attenuation ponds into the Hermitage stream have been previously agreed.

4.0 Storm Water Drainage.

The Requirement H3 of the Building Regulations 2000 has been considered for this project. This establishes a preferred hierarchy for surface water disposal. Consideration should firstly be given to discharge to a soakaway infiltration system and secondly, to a watercourse, then thirdly to a public sewer, in that priority order.

Soil infiltration tests have previously been performed for this proposed development. The clay soils preclude the use of conventional soakaways.

Discharge to a water course is the second preferred storm water discharge method within the drainage hierarchy, this method has been adopted with a storm water connection into the Hermitage stream.

Rainwater from building A will be a gravity system, whilst the larger building, 3B, will be provided with a siphonic rainwater installation. This was selected to reduce the extent of below ground drainage close to the existing high pressure gas main.

The storm water drainage will connect to the previously installed storm drainage network which discharges to the site wide attenuation ponds.

5.0 Foul Water Drainage.

A Section 106 consent for the new foul water discharge to the Southern Water sewer will be made once the design has been completed.

The new buildings will be provided with a completely separate gravity foul water drainage system.

Dual flush 6 / 4.5 litre W.C' cisterns and flow limiters on showers and wash basin taps will be specified to reduce foul water discharges. Wash basin taps will be push button operation to further reduce water usage.

Access Chambers and rodding points will be provided to allow future maintenance of the system. Adequate ventilation pipes and trapped gullies will be provided to prevent the build-up of foul smells in or around the building.

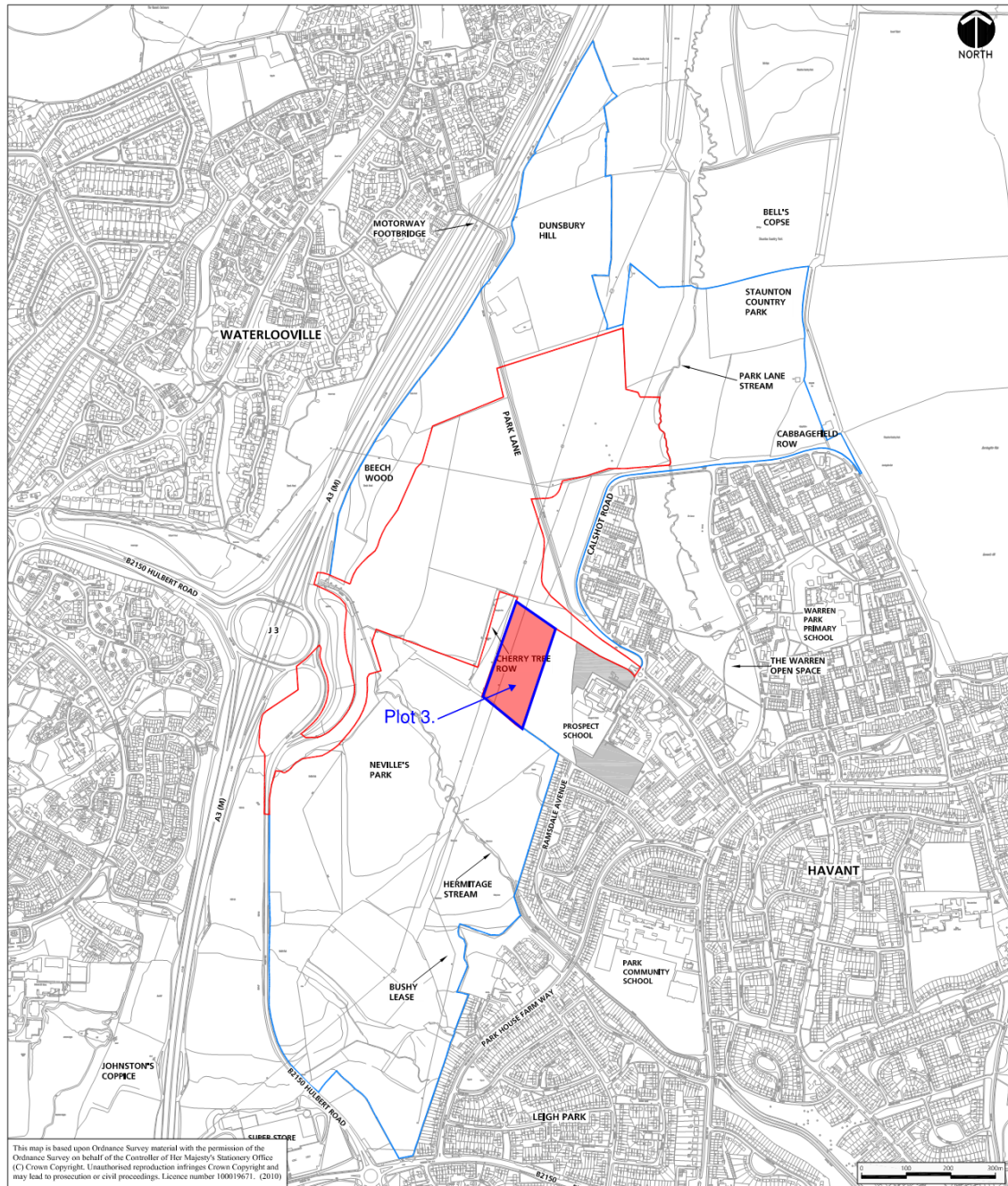
6.0 Conclusion.

Storm water discharges to the Hermitage Stream. The run-off rates have been restricted to green field rates. The site wide drainage system including plot 3 therefore reflects the pre development scenario.

The previous installation of attenuation ponds has increased the developments bio diversity.

Dual flush 6 / 4.5 litre W.C' cisterns and flow limiters on showers and wash basin taps will be specified to reduce foul water discharges as low as practical.

Appendix A. Dunsbury Park, Site Boundary Red Line.



KEY

	PLANNING APPLICATION BOUNDARY
	ADDITIONAL LAND WITHIN PCC OWNERSHIP
	RESIDENTIAL DEVELOPMENT UNDER CONSTRUCTION

Dunsbury Park, Plot 3, Location Plan.

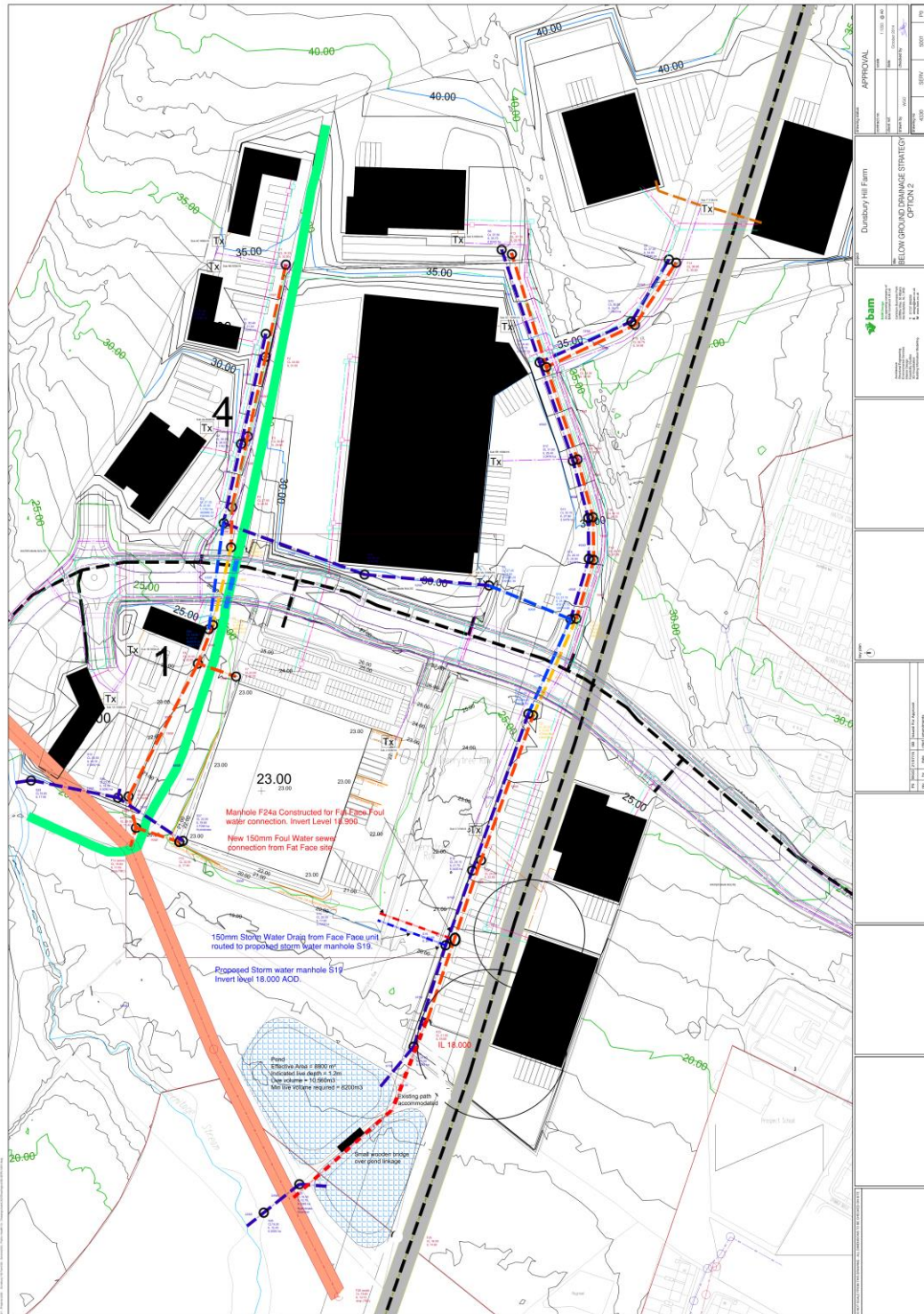
Dunsbury Hill Farm
Planning Application Site Boundary
Figure 1.2

Not to Scale
March 2012

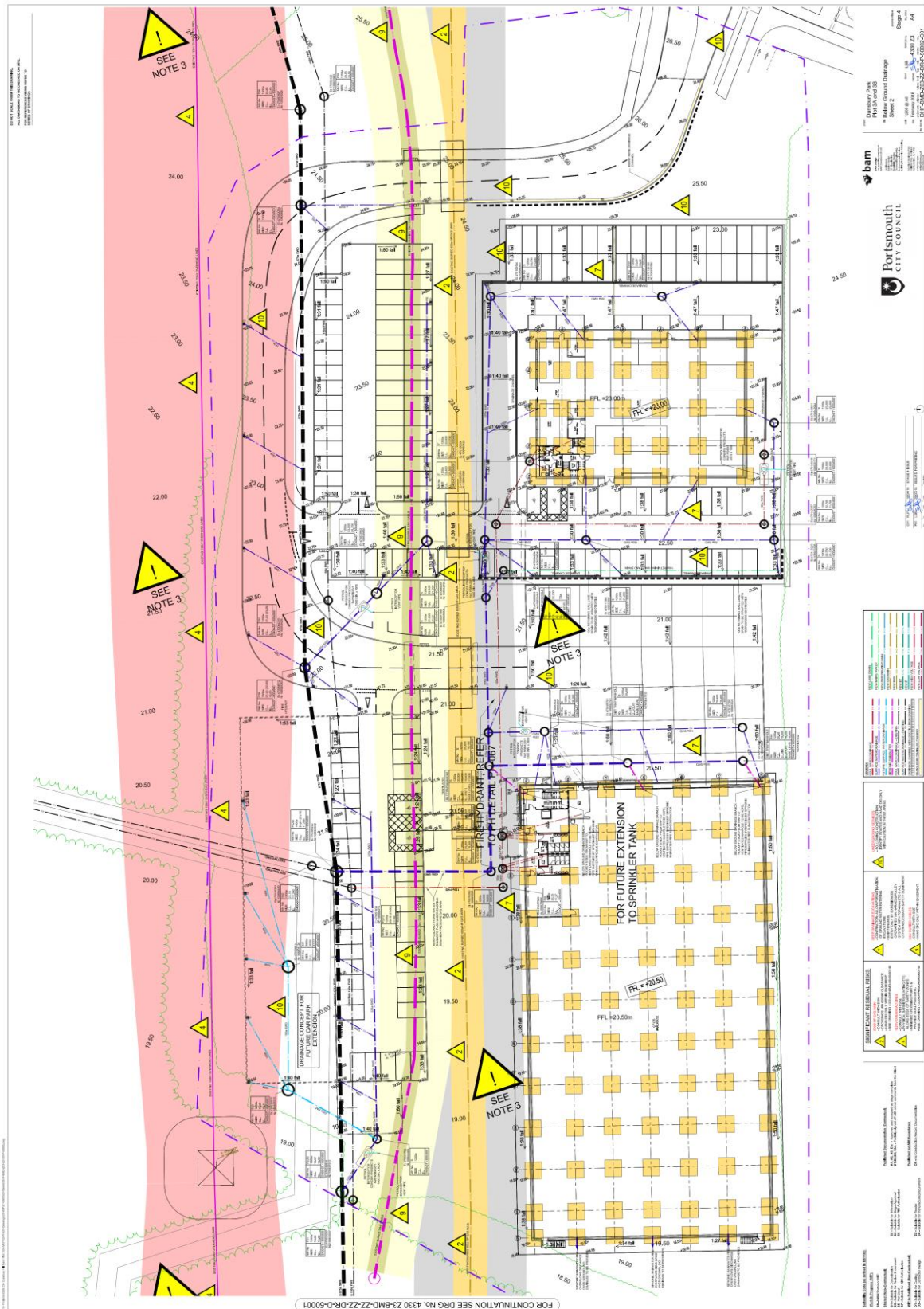
Appendix B. Aerial Photograph. Plot B shaded.



Appendix C. Site Wide Drainage indicating attenuation ponds.



Appendix D. Plot 3 Drainage Proposal.



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