



**INSET A**  
SCALE-1:500

**DRAINAGE STRATEGY**

- ALL SURFACE WATER RUNOFF FROM PLOTS TO BE SERVED BY PERMEABLE DRIVEWAYS AND RAINGARDENS, WITH SURFACE LEVEL TREATMENT PROVIDED. WATER BUTTS TO BE PROVIDED PER PLOT TO THE REAR OF THE PROPERTY.
  - SURFACE WATER RUNOFF FROM PLOTS ITS TO BE COLLECTED WITHIN PERFORATED PIPEWORK AND CONVEYED TOWARDS A PROPOSED DETENTION BASIN WITHIN THE SITE. DUE TO SPATIAL CONSTRAINTS CELLULAR STORAGE TANKING IS ALSO PROPOSED UNDERNEATH THE BASIN, IN ORDER TO SUITABLE STORAGE CAPACITY TO ATTENUATE FLOWS ON SITE.
  - SURFACE WATER FLOWS FROM WITHIN THE WESTERN PORTION OF THE SITE ARE TO BE COLLECTED VIA PERMEABLE HIGHWAY SURFACES, WITH FLOWS CONVEYED WITHIN PERFORATED PIPEWORK TOWARDS THE PROPOSED DETENTION BASIN.
  - DUE TO TOPOGRAPHICAL CONSTRAINTS NOT ALL SURFACE WATER FLOWS FROM THE HIGHWAY CAN BE COLLECTED WITHIN THE PROPOSED BASIN AND INSTEAD IT IS PROPOSED TO ATTENUATE FLOWS FROM THE EASTERN PORTION OF ACCESS ROAD WITHIN THE SUBBASE OF A LENGTH OF PERMEABLE HIGHWAY, WITH AN OVERSIZED LENGTH OF PERFORATED PIPEWORK PROVIDED IN ORDER TO PROVIDE ADDITIONAL STORAGE CAPACITY WITHIN THE SYSTEM.
  - ALL FLOWS FROM SITE ARE TO BE DISCHARGED AT A RATE BASED UPON THE GREENFIELD RUNOFF RATE FOR THE DEVELOPMENT, 5.2L/s/ha, WITH PROPOSED HARD PAVED AREA OF 0.375ha, RESULTING IN A PROPOSED DISCHARGE RATE OF 1.9L/s.
  - IT IS PROPOSED TO DISCHARGE ALL SURFACE WATER FLOWS FROM SITE TO A LOCAL WATERCOURSE LOCATED OPPOSITE THE PROPOSED DEVELOPMENT SITE, WITH A HEADWALL CONNECTION PROVIDED.
  - FROM DESKTOP STUDIES THERE APPEARS TO BE A SMALL WATERCOURSE PASSING THROUGH THE EXISTING SITE WITH EXTENTS OF THIS SEEMINGLY ALREADY CULVERTED. AS PART OF THE PROPOSED WORKS A DIVERSION OF THE CULVERTED WATERCOURSE IS PROPOSED, WITH FURTHER CCTV INVESTIGATIONS REQUIRED TO DETERMINE THE EXISTING OUTFALL LOCATION
- S1**
- REUSE – SURFACE WATER RUNOFF TO BE COLLECTED WITHIN RAINGARDENS AND REUSED THROUGH THE HYDRATION OF PLANTING. EACH INDIVIDUAL RESIDENTIAL PROPERTY TO BE PROVIDED WITH WATER BUTTS.
  - INFILTRATION – SOAKAWAY TESTING HAS RECENTLY BEEN CONDUCTED ON SITE WITH INFILTRATION RATES RECORDED THAT ARE TOO LOW TO CONSIDER INFILTRATION AS A PRIMARY SOURCE OF DISCHARGE.
  - WATER BODY – A DIRECT CONNECTION HAS BEEN PROPOSED TO AN EXISTING WATERCOURSE LOCATED DIRECTLY OPPOSITE THE PROPOSED DEVELOPMENT AT AN ATTENUATED RATE.
  - SURFACE WATER SEWER – NOT REQUIRED FOR THIS DEVELOPMENT
  - COMBINED SEWER – NOT REQUIRED FOR THIS DEVELOPMENT
- S2**
- THE FIRST 5mm OF RAINFALL WILL BE CATERED FOR IN THE INITIAL ABSORPTION OF PERMEABLE SURFACING SUB-BASES AND RAINGARDENS
  - THE PROPOSED SURFACE WATER SYSTEM IS DESIGNED FOR A RETURN PERIOD OF 100 YEARS + 30% CLIMATE CHANGE
- S3**
- THIS STANDARD REQUIRES TREATMENT OF SURFACE WATER RUNOFF TO PREVENT NEGATIVE IMPACTS ON THE RECEIVING WATER QUALITY AND/OR PROTECT DOWNSTREAM DRAINAGE SYSTEMS INCLUDING SEWERS.
  - THE AIM OF THE SURFACE WATER MANAGEMENT STRATEGY WITH REGARDS TO WATER QUALITY IS TO USE NATURAL PROCESSES THAT PROMOTE BIODIVERSITY AND LONG-TERM SUSTAINABILITY. AS SUCH, IT EMPLOYS A SUDS MANAGEMENT TRAIN APPROACH, PROVIDING DRAINAGE COMPONENTS IN SERIES INCLUDING: RAINGARDENS, PERMEABLE PAVING & A DETENTION BASIN.
- S4**
- THE PRIMARY AMENITY FOCUS OF THE SUDS SCHEME SHOULD BE TO IMPROVE THE HEALTH AND WELL-BEING OF THE USERS. THE SCHEME WILL NEED TO BE BASED ON NATURAL FORMS SUCH AS RAINGARDENS & DETENTION BASINS THAT MIMIC NATURAL LANDSCAPES FOUND WITHIN THE REGION. OTHER KEY AMENITY BENEFITS SHOULD INCLUDE IMPROVING AIR QUALITY AROUND THE DEVELOPMENT, INCREASING CARBON SEQUESTRATION, AND IMPROVING WATER QUALITY THROUGH REMOVAL OF POLLUTANTS.
- S5**
- THE SUDS SCHEME BIODIVERSITY STRATEGY SHOULD REVOLVE AROUND THE CREATION OF SIGNIFICANT AND VARIED HABITAT TO INCREASE THE OVERALL BIODIVERSITY OF THE SITE AND ECOLOGICAL VALUE. THE INCLUSION OF PLANT SPECIES THAT WILL ENHANCE THE GENERAL ECO SYSTEM AND SIMULTANEOUSLY ACT AS A WATER FILTRATION SYSTEM TO CLEAN POLLUTANTS AND CONTAMINANTS SHOULD BE USED AND WHERE POSSIBLE PROVIDE MEANDERING SWALES AND A LARGE DETENTION BASIN TO MAXIMISE THE VARIETY OF HABITATS AVAILABLE
- S6**
- ALL ELEMENTS OF THE SURFACE WATER DRAINAGE SYSTEM SHOULD BE DESIGNED SO THAT THEY CAN BE CONSTRUCTED, AS WELL AS MAINTAINED AND OPERATED EASILY, SAFELY AND COST-EFFECTIVELY.
  - INFORMATION WITH REGARDS TO THE CONSTRUCTION METHODOLOGY AND REQUIREMENTS OF THE PROPOSED SYSTEM WILL BE DEVELOPED AS PART OF THE DETAILED DESIGN STAGE OF THE PROJECT, LIKEWISE THE MAINTENANCE REQUIREMENTS AND REGIME OF THE PROPOSED SYSTEM WILL BE DEVELOPED INTO THE FULL MAINTENANCE STRATEGY FOR THE SITE DURING THE NEXT PHASE OF DESIGN DEVELOPMENT.
- FOUL DRAINAGE**
- S104 & S106 WILL BE REQUIRED
  - FURTHER SURVEY OF THE EXISTING FOUL DRAINAGE NETWORK WITHIN THE IMMEDIATE VICINITY OF THE DEVELOPMENT REQUIRED TO CONFIRM LEVELS AND CONDITION. A POTENTIAL GRAVITY CONNECTION HAS BEEN PROPOSED TO THE EXISTING DCWW PUBLIC SEWERAGE NETWORK IDENTIFIED AT THE SITE ENTRANCE (CHAMBER SN32186202). A PRE-PLANNING APPLICATION WITH DCWW WAS CONDUCTED IN 2017 (PPA001822) WHICH CONFIRMED CAPACITY WAS AVAILABLE FOR FOUL CONNECTION INTO THE EXISTING NETWORK. CAPACITIES WILL NEED TO BE RECONFIRMED FOR THE LATEST PROPOSALS.

**GENERAL NOTES**

1. DO NOT SCALE THIS DRAWING.
2. CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ENGINEER.
3. ANY DISCREPANCY TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
4. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.

**KEY**

- DCWW ADOPTABLE FOUL DRAINAGE SYSTEM
- LA ADOPTABLE STORM DRAINAGE SYSTEM
- LA ADOPTABLE PERFORATED STORM DRAINAGE SYSTEM
- HIGHWAYS ADOPTABLE SURFACE WATER GULLIES AND CONNECTING PIPEWORK
- PROPOSED DIVERSION TO EXISTING CULVERTED WATERCOURSE
- PRIVATELY MAINTAINABLE POROUS DRIVEWAY SURFACE WITH PERFORATED PIPE UNDERDRAIN
- LA ADOPTABLE POROUS ROAD SURFACE WITH PERFORATED PIPE UNDERDRAIN
- LA ADOPTABLE DETENTION BASIN
- LA ADOPTABLE CELLULAR STORAGE ATTENUATION TANK
- PRIVATELY MAINTAINABLE RAINGARDENS

Rev.	Detail	By	Date
Revisions			
Reinforcement schedules nos.			

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Project  
**RESIDENTIAL DEVELOPEMNT  
AT LAND REAR OF  
GER Y NANT, BANCYFELIN,  
CARMARTHEN**

Drawing Title  
**DRAINAGE  
STRATEGY**

**PRELIMINARY**

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