

MAX-E CHANNEL TO CONVEY SWALE AND SURFACE WATER RUNOFF FROM THE SURROUNDING ACCESS ROAD

ACO CHANNEL TO SWALE

UNDER-DRAINED BIO-RETENTION AREA WITH ENHANCED PLANTING TO TREAT INFILTRATE AND CONVEY SURFACE WATER RUNOFF

SIPHONIC ROOF DRAINAGE CARRIER PIPE TO DISCHARGE TO ATTENUATION BASIN

Surface Water Conveyance Swale to Basin

- 400mm deep landscaped swale, varying in width due to levels constraints
- Swale to convey all road and car park surface water runoff where possible.
- Swales provide water quality improvements, amenity benefits and biodiversity improvements
- All swale side slopes are 1:3 or flatter

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Foul Water Discharge Point

- Connection to existing DCWW combined sewer within existing footway
- Connection will require a Section 104 Adoption Agreement with DCWW

PROPOSED EMERGENCY EXIT NEEDS TO BE RELOCATED AS 'SOUTHERN BUND' NEEDED TO REDUCE FLOOD RISK

'SOUTHERN BUND' TO LIFT LEVELS TO 50.60m AOD TO REDUCE FLOOD RISK TO THE INDUSTRIAL UNITS TO THE SOUTH

SETTLEMENT FOREBAY TO REDUCE SILT AND DEBRIS

NO NEW CONNECTIONS TO EXISTING DRAINAGE PROPOSED

MAINTENANCE ACCESS PATH

SURVEY ABANDONED, ASSUMED TO CONTINUE SOUTH.

NEW FLOW CONTROL CHAMBER TO RESTRICT DISCHARGE RATE TO GREEN FIELD RUNOFF RATE MINUS 30% DURING A Q100 + 30% STORM EVENT RESULTING IN A DISCHARGE RATE OF 9.5l/s

Surface Water Discharge Point

- Discharge point into existing surface water off-site culvert
- Culvert discharges to existing off-site watercourse

EXISTING OFF-SITE CULVERT EXTENDS ACROSS THE ADJACENT PARK TO THE RIVER

Surface Water Storage

- Top of Bank Level = 50.00m
- Invert Level = 48.20m
- 1:3 side slopes
- Two level detention basin
- Lower level 1.8m deep, sized to store surface water from Q30 storm event and hold a 300mm deep permanent body of water
- Upper level 0.72m deep to accommodate additional surface water from Q100 + 30% storm event
- Controlled outlet to existing off-site culvert
- Basin shall be landscaped as required and be designed to contain a smaller permanent body of water for ecology benefits
- Low flow swale in upper detention basin
- Basin provides water quality improvements, amenity benefits and biodiversity improvements

FREE FLOWING EXISTING SEWER EXTENDS OFF-SITE, NO PROPOSED CONNECTION TO BE MADE FROM DEVELOPMENT

LOW FLOW CONVEYANCE SWALE THROUGH DETENTION BASIN TO OUTLET HEADWALL

SURVEY ABANDONED, ASSUMED ABANDONED SEWER

END OF SURVEY

Drainage Strategy Overview

The principle of the proposed drainage strategy is to discharge the surface water to the existing surface water culvert at the QBAR greenfield runoff rate during all storms up to the 1 in 100 year storm event (Q100) plus 30% climate change. The drainage strategy principle is to convey the surface water runoff from the yard, car parking and footways via lined landscaped swales, filter trenches and permeable paving (QUALITY) to a lined landscaped detention basin (BIODIVERSITY, QUALITY). The roof water runoff will be conveyed to the detention basin via a carrier pipe. All surface water runoff from the site will be attenuated in the basin before a controlled discharge to the existing surface water culvert at the site boundary (QUANTITY, QUALITY, BIODIVERSITY).

KEY

- PROPOSED PRIVATE FOUL WATER SEWER
- EXISTING PRIVATE SURFACE WATER SEWER
- EXISTING DWV CYMRU WELSH WATER SEWER
- EXISTING DWV CYMRU WELSH WATER FOUL WATER SEWER
- EXISTING PRIVATE SURFACE WATER SEWER
- FILTER TRENCH
- LINEAR DRAINAGE - 'MAX-E CHANNEL'
- LINEAR DRAINAGE CHANNEL - ACO CHANNEL
- POTENTIAL ROOF WATER DOWN PIPE SPUR
- SURFACE WATER FLOW DIRECTION
- CONVEYANCE SWALE AND DETENTION BASIN - BOTH LINED DUE TO CONTAMINATED SOILS BELOW THE SITE
- BIORETENTION AREA WITH UNDERDRAIN
- TANKED PERMEABLE PAVING
- PERMEABLE PAVING OUTFLOW FIN DRAIN
- EXTENT OF PERMEABLE PAVING SUB-BASE
- PROPOSED LEVEL
- SITE BOUNDARY

PROPOSED DEVELOPMENT DRAINAGE CATCHMENTS AND DESTINATIONS

- DEVELOPMENT BOUNDARY = 28231m² OR 2.82 Ha
- EXTENT OF NEW IMPERMEABLE TARMAC SURFACING (7236m²) DRAINS TO THE SURROUNDING CONVEYANCE SWALES, FILTER TRENCHES AND PERMEABLE PAVING. WATER QUALITY, BIODIVERSITY AND RATE/VOLUME REDUCTION BENEFITS ARE ACHIEVED.
- THIS AREA IS CURRENTLY EQUIVALENT TO A GREEN FIELD, SITE DRAINED AT AN UNRESTRICTED RATE, WITHOUT WATER QUALITY CONTROLS.
- PEDESTRIAN PAVED AREA TO DRAIN TO CONVEYANCE SWALES VIA LINEAR DRAINAGE TO IMPROVE WATER QUALITY
- PROPOSED ROOF AREA, 9692m² TO BE DRAINED TO CARRIER DRAIN, THROUGH TO BASIN
- PROPOSED PERMEABLE PAVING, 2039m² TO INTERCEPT A PORTION OF THE FIRST 5mm OF RAINFALL AND IMPROVE WATER QUALITY

DRAINED AREA COMPARISON

FOR AREAS WITHIN THE RED LINE:

PRE DEVELOPMENT AREA AND RURAL RUNOFF FLOWS

- AREA = 28231m²
- QBAR = 13.60l/s (BASED ON GREEN FIELD USING FEH99 DATA)

POST DEVELOPMENT AREAS AND FLOWS

- ROOF = 9692m²
- YARD, CAR PARKING AND FOOTWAY = 10681m²
- LANDSCAPING = 7858m²
- TOTAL = 28231m²
- Controlled outflow rate of 13.60l/s

INFILTRATION POTENTIAL

The Combined Desk Study and Contaminated Land Risk Assessment Report by TPS (March 2017) summarised that the soils below the site are contaminated with VOCs, which are not suitable for infiltration drainage features. All SUDS features shall be fully lined.

DRAWING NOTES:

No internal building drainage is shown at this stage. All foul drainage is run towards the west side of the building. Due to level constraints foul drainage is restricted to the west side of the building only.

Rainwater pipe locations are shown purely indicatively at this stage.

- Notes:**
- This drawing has been compiled based on the following sources of information:
 - Topographical survey, November '14, dwg no. G_L(00)01 Rev C by TPS
 - CCTV Survey, October '19 by Redwood Environmental Services Ltd
 - OS background file
 - Existing drainage information is shown indicatively using DCWW mapping.
 - Based on latest architectural layout received

REVISIONS

Rev	Date	Description	By	Ckd	App
P03	13/05/20	Updated to SAB Pre-Application Comments	SP	RB	RB
P02	15/04/20	Updated to SAB Pre-Application Comments and updated architects layout	SP	RB	RB
P01	14/11/19	First Issue.	SP	RB	RB

Hydrock

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ARCHTECH PARTNERSHIP LLP

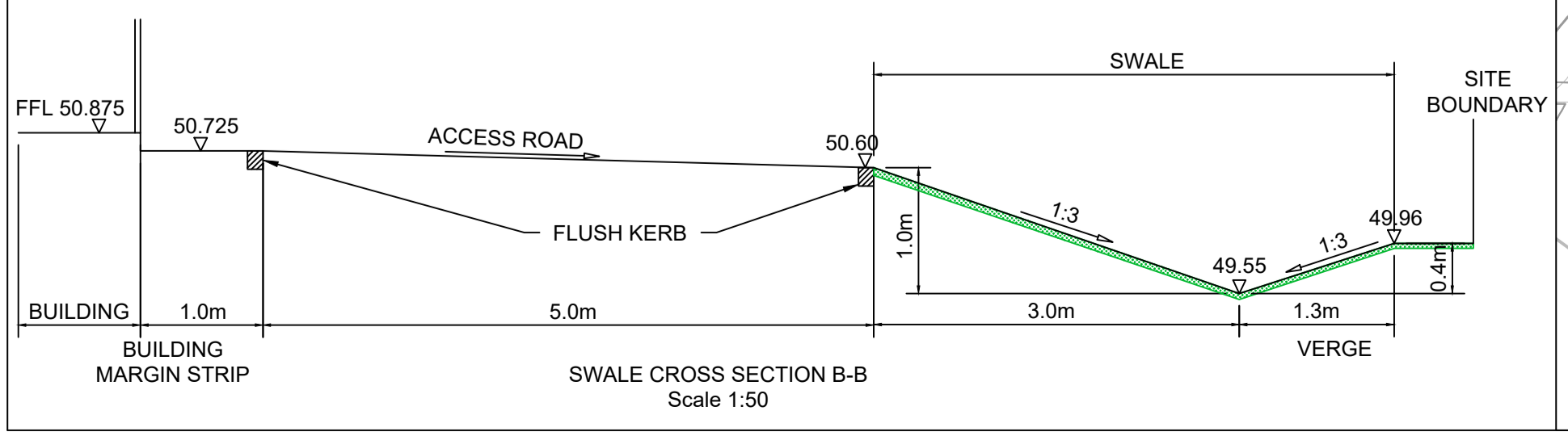
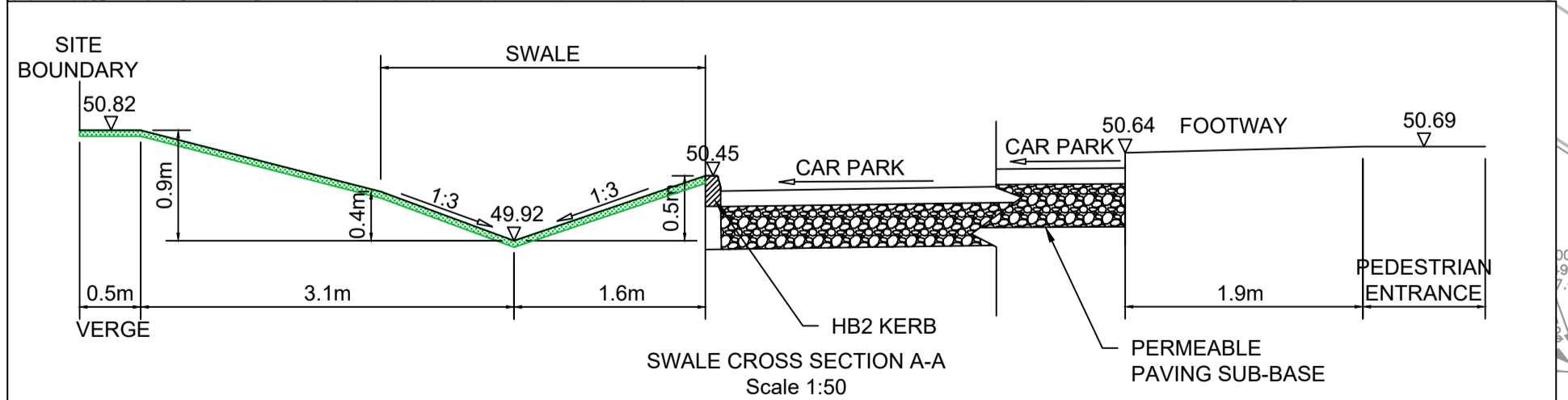
PROJECT
GRANGE ROAD, CWMBRAN

TITLE
DRAINAGE STRATEGY

Existing Site Area Description	Area m ²	Means of Discharge	Pre-Development QBAR l/s	Pre-Development Q30 l/s	Pre-Development Q100 l/s
Whole Site	28231	Green Field Runoff	13.60	23.68	28.67

HYDROCK PROJECT NO. C-13083
SCALE @ A1 1:500

Proposed Site Area Description	Area m ²	Means of Attenuation and Control (Water Quantity)	Pre-Development QBAR l/s	Post-Development Q30 l/s	Post-Development Q100 l/s	Post-Development Q100+30% l/s
Whole Site	28231	Basin and Hydraulic Flow Control	13.60	13.60	15.60	15.60
		Reduction	0%	-33%	-54%	-65%



Notes:
All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications. This drawing is copyright.