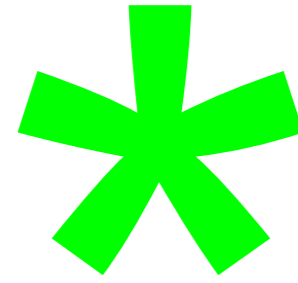


PROPOSED SUDS FEATURES

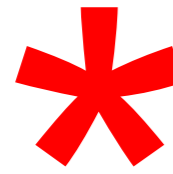
DRY POND INCORPORATING:

- LOW FLOW SWALE CHANNEL
- STONE PITCHING
- AQUATIC PLANTING



MINIMUM OF TWO TREATMENT TRAINS TO BE CONTAINED WITHIN PROPOSED POND

PROPOSED LINED PERMEABLE PAVING



GENERAL SITE INFORMATION

APPROXIMATE SITE AREA = 5.8 Ha,

IMPERMEABLE AREA = 2.728 Ha (ALLOWING FOR 10% URBAN CREEP).

136 HABITABLE DWELLINGS (SUBJECT TO RECEIPT OF A DETAILED LAYOUT & DETAILED ENGINEERING DESIGN).

THE FRA CONFIRMS THAT THE SITE IS WHOLLY LOCATED IN FLOOD ZONE 1 WITH A LESS THAN 1 IN 100 ANNUAL PROBABILITY OF FLUVIAL FLOODING.

THE DRAINAGE STRATEGY IS BASED ON THE ASSUMPTION THAT INFILTRATION IS NOT FEASIBLE. THE FRA INITIALLY CONFIRMS THAT BGS RECORDS INDICATE SILTY CLAYS OVERLYING MUDSTONE THEREFORE SOAKWAYS ARE UNLIKELY TO BE VIABLE, HOWEVER A DETAILED SITE INVESTIGATION REPORT AND WRITTEN CONFIRMATION FROM GROUND CONSULTANT IS REQUIRED TO CONFIRM THIS.

ALL DRAINAGE PROPOSALS SUBJECT TO RECEIPT OF AN UPDATED DEVELOPER ENQUIRY RESPONSE FROM SEVERN TRENT WATER AND CLARIFICATION THAT THE PROPOSED STORM OUTFALL LOCATION AND FOUL OUTFALL LOCATION (SUBJECT TO STW SEWER MODELLING EXERCISE) IS ACCEPTABLE (TO BE CONFIRMED BY STWA).

DETERMINE DISCHARGE FROM SITE

AN FRA HAS BEEN UNDERTAKEN FOR THE DEVELOPMENT; PREPARED BY RESIDENTIAL AND COMMERCIAL ENGINEERING REF. DWH/BRQ/FRA1

ACCORDING TO THE FRA THE SURFACE WATER WILL BE RESTRICTED TO 5 l/s. THIS FIGURE IS A REDUCTION IN THE GREENFIELD RUN-OFF ESTIMATION USING IH24 METHODS BY 70%. THIS IS DUE TO THE EXISTING STORM SEWER BEING 150mm WITH

REDUCED CAPACITY. THIS IS SUBJECT TO SEVERN TRENT WATER APPROVAL AND A POTENTIAL SEWER MODELLING EXERCISE.

ACCORDINGLY, THIS DRAINAGE PROPOSALS HAS BEEN BASED ON THE ABOVE DESIGN CRITERIA, WITH THE PROPOSED OUTFALL BEING ONTO THE EXISTING SEWER AS ILLUSTRATED.

DETERMINE STORAGE VOLUMES

1 IN 100 YR EVENT (+40% CLIMATE CHANGE)

QUICK WINDES CALCULATION BASED ON AN IMPERMEABLE AREA OF 2.728HA AND A LIMITED DISCHARGE RATE OF 5.0 L/S...

QUICK STORAGE ESTIMATE = 2136M³ - 2838M³ (INCLUSIVE OF 1 IN 30 YR VOLUME)

ABOVE CALCULATION INDICATES APPROX 2459M³ STORAGE REQUIRED TO BALANCED FLOWS RESULTING FROM A 1 IN 100 (+40% CC) YEAR EVENT.

THIS COULD BE ACCOMMODATED THROUGH THE INSTALLATION OF AN ONLINE BALANCING POND AS ILLUSTRATED. AS AN ONLINE FEATURE, AND IN ORDER TO ENSURE THAT SEVERN TRENT WATER WILL ADOPT THE SEWERAGE BOTH UPSTREAM AND DOWNSTREAM OF THE PONDS, BYPASS NETWORKS WILL BE REQUIRED.

THE ABOVE IS HOWEVER SUBJECT TO DETAILED DESIGN INC. MODELLING & AGREEMENT WITH STWA, LFA & EA.

IT SHOULD ALSO BE CONFIRMED BY THE DEVELOPER THAT ANY OFFSITE EASEMENT REQUIRED IN ORDER TO CONSTRUCT THE PROPOSED OUTFALL

SEWER IS AGREED WITH THE LAND OWNER (IN ORDER A S104 AGREEMENT CAN BE COMPLETED AND NO ADOPTION ISSUES FOR DRAINAGE OR HIGHWAYS ARE ENCOUNTERED).

PLEASE NOTE THE ABOVE IS CRITICAL TO THE PROPOSED SCHEME & IT IS THE DEVELOPERS RESPONSIBLY TO ENSURE THIS ELEMENT IS SATISFIED, IN ORDER THAT THE PROPOSED SITE CAN BE DEVELOPED.

FOUL DISCHARGE FROM SITE

NO OF PLOTS (136) * 4000 = 6.3 L/S (PEAK DISCHARGE)

ALL FOUL WATER PIPES 150Ø UNLESS OTHERWISE SPECIFIED.

FOUL INVERT LEVELS INDICATED ONLY AND ARE SUBJECT TO A DEVELOPER ENQUIRY RESPONSE AND SURVEY LEVEL INFORMATION.

AT THE TIME OF PRODUCING THIS DRAWING, THE DESIGNER WAS UNABLE TO ATTAIN ANY EXISTING SEWER RECORD INFORMATION PRIMARILY FOR THE FOUL NETWORK.

ALL DETAILS ARE SUBJECT TO FURTHER REVIEW & POTENTIAL REDESIGN WORKS, FOLLOWING PROVISION OF ANY SITE SPECIFIC FOUL WATER DRAINAGE STRATEGY, UPDATED MODELING REPORT OR ANY OTHER STRATEGIC DESIGN PLANS AND DOCUMENTS.

The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Regulations, British Standard Specifications, Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided. This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any support or fill ground, contaminated or or within the ground should be further investigated by a suitable expert. Any earthwork construction shown indicate typical slopes for guidance only & should be further investigated by a suitable expert. Where existing trees / structures are to be retained they should be subject to a full specialist inspection for safety. All trees are to be planted to as to ensure they are a minimum of 5 metres from buildings. A suitable method of foundation is to be provided to accommodate the proposed tree planting. Residential & Commercial Engineering Limited do not accept any responsibility for any losses (financial or otherwise) to any Client or third party arising out of the Client (or its Developer or Contractor but not limited thereto) non-compliance with above mentioned provisions. © This drawing is the property of Residential & Commercial Engineering Limited and may not be copied or used for any purpose other than that for which it is applied without the express written authority of Residential & Commercial Engineering Limited.

PRELIMINARY
THIS DRAWING ILLUSTRATES A SKETCH PROPOSAL ONLY AND AS SUCH IS SUBJECT TO DETAILED SITE INVESTIGATION INCLUDING GROUND CONDITIONS/CONTAMINANTS, DRAINAGE DESIGN AND PLANNING/IDENTITY NEGOTIATIONS. THE LAYOUT MAY BE BASED UPON AN ENLARGEMENT OF AN OS SHEET OR OTHER SMALL SCALE PLANS AND ITS ACCURACY WILL NEED TO BE VERIFIED BY SURVEY. FULL RISK ANALYSIS UNDER COM REGULATIONS HAS NOT BEEN UNDERTAKEN.

- GENERAL NOTES**
1. DO NOT SCALE FROM THIS DRAWING.
 2. ALL LEVELS GIVEN IN METRES ABOVE ORDNANCE DATUM (M AD).
 3. ALL OTHER DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
 4. ALL SLAB LEVELS ARE ± 0.000 AND ARE SUBJECT TO OTHER SMALL SCALE PLANS AND DESIGN.
 5. ALL CHANGES SHOW IN REDATIVE AND SUBJECT TO DETAILED ENGINEERING DESIGN.
 6. ATTENUATION POND SIZES FOR STORM RUNOFF FROM DEVELOPMENT AREAS BASED UPON LAYOUT PROVIDED.
 7. ALL FOUL SEWERS 150mm UNLESS OTHERWISE STATED.
 8. AVERAGE OVERFLOW GRADIENT 1:8.
 9. ALLOWANCES FOR RETAINING FEATURES INCLUDING RETAINING WALLS, EXPOSED BRICKWORK, TANKING ETC. MAKE AT THE DISCRETION OF THE ENGINEER. THE PROPOSED LAYOUT, SLAB LEVELS INDICATED SUBJECT TO PRELIMINARY DESIGN. OTHER THAN THOSE INDICATED ON THE SUPPLIED MAPPING FROM EACH RELEVANT SERVICE PROVIDER. THE ENGINEER IS TO BE ADVISED IMMEDIATELY FOR FURTHER ADVICE.
 10. DRAINAGE STRATEGY BASED ON FEASIBILITY SKETCH LAYOUT SCHEME 3 Dwg. No. QWRN-027

ALL SEWERAGE OUTFALLS TO BE CHECKED AND CONFIRMED BY THE DEVELOPER AND/OR CONTRACTOR ON-SITE TO ENSURE PROPOSED OUTFALL LEVELS ARE ACHIEVABLE. PRIOR TO ANY CONSTRUCTION BEEN UNDERTAKEN ON-SITE.

SHOULD ANY LEVELS DIFFER, THEN THE ENGINEER IS TO BE ADVISED IMMEDIATELY FOR FURTHER ADVICE. PRIOR TO ANY FURTHER CONSTRUCTION BEEN CONTINUED.

A FULL RADAR SURVEY IS ADVISED PRIOR TO CONSTRUCTION.

SHOULD ANY UNKNOWN SERVICES BE FOUND DURING CONSTRUCTION (OR SERVICES ARE FOUND TO BE IN LOCATIONS OTHER THAN THOSE INDICATED ON THE SUPPLIED MAPPING FROM EACH RELEVANT SERVICE PROVIDER), THE ENGINEER IS TO BE ADVISED IMMEDIATELY FOR FURTHER ADVICE.

IT IS THE DEVELOPERS &/OR CONTRACTORS RESPONSIBILITY TO ENSURE ALL SAFE WORKING METHODS ARE ADHERED TO (IN LINE WITH RELEVANT AUTHORITY REQUIREMENTS FOR HIGHWAYS, DRAINAGE & SERVICES) AND THAT ALL REQUIRED SERVICE DIVERSIONS ARE COMPLETED PRIOR TO CONSTRUCTION WORKS COMMENCING.

A	Amended to suit LFA comments	01/02/21	APJ	
Rev	Description	Date	Drawn	Checked

Revisions:

RACE
RESIDENTIAL & COMMERCIAL ENGINEERING

Drawing Status:
FOR PLANNING ONLY SUBJECT TO DETAILED DESIGN

Client:
DAVID WILSON HOMES
EAST MIDLANDS

Project:
BARKBY ROAD
QUENBOROUGH

Title:
DRAINAGE STRATEGY PLAN

Job Number:
RACE/DWH/BRQ
Drawing No.
ENG_002
Revision: A

Scale: 1:500 @ A0
Date: 10/11/18
Drawn by: APJ
Checked by: #

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CONCEPT DESIGN ONLY.
SUBJECT TO FURTHER REVIEW AND CONSIDERATION.
DRAWING PRODUCED FOR INITIAL DISCUSSION
PURPOSES ONLY