MAINTENANCE OF THE BELOW GROUND DRAINAGE SYSTEM

THE BELOW GROUND FOUL AND SURFACE WATER DRAINAGE PROPOSALS INDICATED ARE RELATIVELY TRADITIONAL IN NATURE, AND SHOULD PROVIDE YEARS OF RELATIVELY LOW MAINTENANCE OPERATION IN RELATION TO THE ANTICIPATED LIFESPAN OF THE PROPOSED DEVELOPMENT.

IN LINE WITH CURRENT GOOD PRACTICE:-

- GULLIES AND LINEAR DRAINAGE CHANNELS SHOULD BE INSPECTED AND / OR CLEANED OUT AT 6 MONTHLY INTERVALS.
- INSPECTION CHAMBERS, MANHOLES, CATCHPITS, GEO-CELLULAR SOAKAWAYS, ETC, SHOULD BE INSPECTED AT 6 MONTHLY INTERVALS TO ENSURE THAT THEY AND THE PIPEWORK ASSOCIATED WITH THEM ARE OPERATING EFFECTIVELY.
- PETROL / OIL INTERCEPTORS SHOULD BE MAINTAINED IN LINE WITH THE MANUFACTURERS INSTRUCTIONS.

ANY PROBLEMS HIGHLIGHTED BY INSPECTIONS WILL NEED TO BE INVESTIGATED, POSSIBLY BY CCTV SURVEY, TO CONFIRM THE NATURE OF THE PROBLEM AND TO ALLOW IT TO BE REMEDIED IN A TIMELY MANNER.

IT IS UNDERSTOOD THAT THE MONITORING AND ROUTINE MAINTENANCE OF THE BELOW GROUND DRAINAGE SYSTEM WILL BE CARRIED OUT BY THE OCCUPIERS MAINTENANCE STAFF WITH ADDITIONAL HELP PROVIDED BY EXTERNAL SPECIALIST DRAINAGE PROFESSIONALS BROUGHT IN AS REQUIRED.

FLOOD RISK ASSESSMENT

FROM THE ONLINE GOV.UK FLOOD MAPPING, THE PROPOSED DEVELOPMENT IS LOCATED WITHIN AN AREA THAT IS DESIGNATED AS FLOOD RISK ZONE 1, HENCE IT IS CONSIDERED TO BE AT VERY LOW RISK FROM RIVER AND SEA FLOODING (FLUVIAL FLOODING).

THIS ONLINE MAPPING ALSO INDICATES THAT THE DEVELOPMENT IS NOT AT SIGNIFICANT RISK OF SURFACE WATER FLOODING (PLUVIAL FLOODING),

SIMILARLY THIS ONLINE MAPPING INDICATES THAT THE SITE IS NOT AT RISK FROM POTENTIAL RESERVOIR FLOODING.

REGARDING THE FLOOD RISK POSED BY OVERLAND FLOWS OR THE FAILURE OF LOCAL DRAINAGE INFRASTRUCTURE, THE PROPOSED BUILDINGS ARE NOT TO HAVE BASEMENTS AND THE GROUND FLOOR LEVEL IS TO BE GENERALLY A MINIMUM OF 150mm ABOVE THE SURROUNDING EXTERNAL LEVELS.

IN ADDITION, THE GROUND FLOOR LEVELS ARE TO BE ABOVE THE EXISTING CARRIAGEWAY LEVELS OF COUNTY ROAD AND LEES ROAD. IT SHOULD ALSO BE NOTED THAT BROAD LANE, TO THE SOUTH OF THE SITE, FALLS AWAY FROM THE SITE TO THE SOUTH AND WOULD THEREFORE PROVIDE A CONDUIT FOR ANY OVERLAND FLOWS IN THAT DIRECTION.

GIVEN THE ABOVE IT IS CONSIDERED THAT THE DEVELOPMENT IS NOT AT SIGNIFICANT FLOOD RISK FROM OVERLAND FLOWS OR THE FAILURE OF LOCAL DRAINAGE INFRASTRUCTURE.

GENERAL NOTES

DO NOT SCALE FROM THIS DRAWING WORK TO FIGURED DIMENSIONS ONLY.

NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS ALLOWED WITHOUT PRIOR PERMISSION IN WRITING.

ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND THE SPECIFICATION.

THE CONTRACTOR SHALL INCORPORATE ALL THE REQUIREMENTS OF THE PRE-TENDER STAGE HEALTH AND SAFETY PLAN.

FOR DETAILS OF MATERIALS AND WORKMANSHIP REFER TO THE SPECIFICATION.

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING INVERT LEVELS AND POSITIONS OF ALL EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES SHOWN ON THIS DRAWING IMMEDIATELY ON SITE ESTABLISHMENT. ANY DISCREPANCIES MUST BE REPORTED TO WML CONSULTING IMMEDIATELY.

WHERE THE NEW SITE DRAINAGE CONNECTS IN TO EXISTING MANHOLES IN CARRIAGEWAYS AND / OR EXISTING ADOPTED SEWERS, THE CONTRACTOR IS RESPONSIBLE FOR ALL LIAISON WITH THE RELEVANT STATUTORY UNDERTAKER AND LOCAL AUTHORITY WITH REGARD TO ROAD CLOSURES, TRAFFIC MANAGEMENT, PERMITS TO WORK, SUBMISSION OF CONTRACTORS METHOD STATEMENTS AND RISK ASSESSMENTS AND OTHER DOCUMENTATION AND CORRESPONDENCE ASSOCIATED WITH THE SITE STAGE (PART 2) ELEMENT OF THE WORKS.

ROCKER PIPES TO BE PROVIDED AT ALL CONCRETE CASED INTERFACES.

PROVIDE ADEQUATE PROTECTION TO MAINTAIN MINIMUM COVER TO DRAINS DURING THE CONSTRUCTION PERIOD.

COVER LEVELS ON THIS DRAWING ARE APPROXIMATE AND INDICATIVE ONLY ARCHITECT TO CONFIRM COVER LEVELS TO ALL MANHOLES AND GULLIES PRIOR TO CONSTRUCTION.

THE LAYOUT OF DRAINAGE ON THIS DRAWING IS INDICATIVE ONLY ARCHITECT TO CONFIRM EXACT LOCATION OF MANHOLES AND GULLIES.

U.N.O. ALL DRAINAGE GOODS & FITTINGS TO BE:-

UPTO 225 DIA (AND INCLUDING) TO BE SUPERSLEVE VITRIFIED CLAY PIPES OR SIMILAR.

300 DIA AND ABOVE TO BE CONCRETE BY STANTON BONNA OR SIMILAR.

ALL COVERS AND RODDING ACCESS POINTS TO BE SEALED AND SCREWED TIGHT.

ALL INTERNAL MANHOLE COVERS TO BE DOUBLE SEALED, LOCKABLE AND RECESSED TO ACCEPT FLOOR FINISHES WHERE APPLICABLE.

SETTING OUT OF ALL INTERNAL GULLY / PLUMBING CONNECTIONS TO BE CO-ORDINATED BETWEEN THE SERVICE ENGINEERS AND THE ARCHITECT.

ALL INTERNAL GULLIES, PLUMBING CONNECTIONS, SOIL STACKS, SVPS AND ALL OTHER CONNECTIONS OF FOUL AND SURFACE WATER DRAINS TO BELOW GROUND TO BE FITTED WITH ACCESSIBLE RODDING POINTS ABOVE SLAB LEVEL.

ALL CONNECTIONS TO BE MADE IN ACCORDANCE WITH STANDARD DETAIL DRAWINGS.

ALL PIPEWORK TO BE INSTALLED WITH SOFFITS LEVEL (E.G. AT CHANGES IN PIPE SIZE) U.N.O.

ON COMPLETION OF DRAINAGE WORKS, THE NEW DRAINAGE SYSTEM IS TO BE THOROUGHLY CLEANED AND A CCTV SURVEY CARRIED OUT TO CONFIRM NO CONSTRUCTION DEBRIS OR BLOCKAGES REMAIN.

CONNECTIONS TO CARRIER DRAINS ARE TO BE 'Y' JUNCTIONS.

ALL PRIVATE DRAINAGE IS TO COMPLY WITH BS EN 752 AND BUILDING REGS. PART H.

MANHOLE COVERS IN VEHICULAR AREAS TO BE EN124 CLASS D400, IN NON - VEHICULAR AREAS TO BE EN124 CLASS C250

SURFACE WATER DRAINAGE STRATEGY

THE PROPOSED DEVELOPMENT IS TO BE DRAINED VIA SEPARATE FOUL AND SURFACE WATER DRAINAGE SYSTEMS.

THE SURFACE WATER DRAINAGE PROPOSALS HAVE BEEN DESIGNED IN ACCORDANCE WITH BS EN 7524 AND THE BUILDING REGULATIONS APPROVED DOCUMENT H (2010), WHICH INDICATES THE FOLLOWING HIERARCHY FOR THE DISPOSAL OF SURFACE WATER DRAINAGE FROM DEVELOPMENT SITES:-

1. DISCHARGE VIA INFILTRATION;
2. DISCHARGE TO WATERCOURSE;
3. DISCHARGE TO SEWER.

THESE OPTIONS ARE DISCUSSED IN FURTHER DETAIL BELOW.

SURFACE WATER DISCHARGE VIA INFILTRATION

FROM RECENT SITE INVESTIGATION WORKS, WHICH INCLUDED SOAKAWAY TESTING, THE NEAR SURFACE GROUND CONDITIONS HAVE BEEN CONFIRMED AS PRIMARILY SANDY IN NATURE. ON THIS BASIS THE USE OF INFILTRATION / SOAKAWAYS IS PROPOSED. THE SOAKAWAY TESTING CARRIED OUT ACROSS THE SITE HAS YIELDED AN AVERAGE INFILTRATION RATE OF 0.03679m / hr. THIS INFILTRATION RATE HAS BEEN USED IN THE CALCULATIONS THAT SUPPORT THIS DRAWING AND SHOULD BE READ ALONG SIDE IT.

SURFACE WATER DISCHARGE VIA WATERCOURSE

GIVEN THE ABOVE IT WILL NOT BE NECESSARY TO DISCHARGE THE SURFACE WATER RUNOFF FROM THE PROPOSED DEVELOPMENT TO A WATERCOURSE.

SURFACE DISCHARGE VIA THE PUBLIC SEWERAGE SYSTEM

GIVEN THE ABOVE IT WILL NOT BE NECESSARY TO DISCHARGE THE SURFACE WATER RUNOFF FROM THE PROPOSED DEVELOPMENT TO THE PUBLIC DRAINAGE SYSTEM.

IN LINE WITH MODERN DESIGN STANDARDS FOR SURFACE WATER DRAINAGE SYSTEMS, THE PROPOSALS HAVE BEEN FORMULATED TO ENSURE THERE WILL BE:-

1. NO SURCHARGING OF SEWERS FOR THE CRITICAL 1 IN 1 YEAR STORM EVENT.
2. NO SURFACE FLOODING FOR THE CRITICAL 1 IN 30 YEAR EVENT.
3. NO SURFACE FLOODING THAT MAY AFFECT BUILDINGS ON OR OFF SITE FOR THE CRITICAL 1 IN 100 YEAR EVENT INCLUDING A 40% CLIMATE CHANGE ALLOWANCE.

PRELIMINARY

Rev.	Amendment	Date	By	Chkd
P01	PRELIMINARY ISSUE.	18.08.21	KPT	AL

Project
ACADEMY BUSINESS PARK
LEES ROAD, KNOWSLEY, L33 7SA

CLIENT
ORBIT DEVELOPMENTS

Title
SITE WIDE DRAINAGE STRATEGY

WML Job No.	Drawn	Checked	Date	Scale
9552	KPT	AL	AUG. 2021	1:150 AT A0

WML CONSULTING
Civil, Structural & Geotechnical Engineers
No.8 Oak Green
Earl Road
Stanley Green Business Park
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Tel 0161 482 0600
Fax 0161 486 9210
e-mail info@wmlconsulting.com
www.wmlconsulting.com

Drawing No.

Project	Originator	Volume	Level	Type	Role	Number	Rev
9552	WML	00	XX	DR	C	1002	P01

EXISTING ROAD GULLIES AT SITE / HIGHWAY BOUNDARY TO BE REPLACED WITH NEW DOUBLE ROAD GULLIES. EXISTING CONNECTIONS TO BE INVESTIGATED AND RE-USED.

RETAINING FEATURE REQUIRED OVER THIS LENGTH. APPROX MAX HEIGHT 600mm

ROAD GULLY WITH 6m LONG 150 DIA PERFORATED OUTLET PIPE REFER TO DETAIL.

RWP GULLY WITH 12m LONG 100 DIA OUTLET PIPE. DOWNSTREAM 6m SECTION TO BE PERFORATED PIPE, UPSTREAM 6m SECTION, I.E. THAT PART WITHIN 5m OF THE BUILDING TO BE NON-PERFORATED. DETAIL SIMILAR TO ROAD GULLY DETAIL.

UNIT 5A DRIVE - THRU FFL 41.700

NEW FW MH 1.002 CL 41.500 IL 40.300 1200 DIA PCC

NEW FW IC 1.000 CL 41.500 IL 40.800 450 DIA PPIC

NEW FW IC 1.001 CL 41.500 IL 40.750 450 DIA PPIC

VEHICLE WASH INTERCEPTOR FITTED WITH AUDIBLE AND VISIBLE LEVEL WARNING DEVICE CL 41.400 IL 40.800 IL 40.700

NEW FW MH 1.003 CL 41.500 IL 39.825 1200 DIA PCC

NEW 100mm DIA CONNECTION TO EX FW MH 1.003

NEW GEO-CELLULAR ATTENUATION TANK WITH 95% VOID RATIO, A PLAN AREA OF 173m sq AND A DEPTH OF 1.2m. MIN GROUND LEVEL = 41.600 COVER TO TANK = 0.600 TOP OF TANK = 41.000 BOTTOM OF TANK = 39.800 TANK VENTING, MAINTENANCE ACCESS, PROTECTION, ETC. ALL TBC BY MANUFACTURER / SUPPLIER

CLASS ONE BYPASS INTERCEPTOR FITTED WITH AUDIBLE AND VISIBLE LEVEL WARNING DEVICE TO SUIT AREA OF 3,000m sq. KLARGESTER NSBP006 OR EQUIVALENT CL 41.700 IL 40.150 IL 40.050

NEW SW MH 1.002 CATCHPIT CL 41.700 IL 40.200 (PIPES) IL 39.700 (CHAMBER) 1200 DIA PCC

ACO S300 CLASS F DRAINAGE CHANNEL WITH GULLY TO DOWNSTREAM END

CANOPY RWP CONNECTION

LINEAR DRAINAGE CHANNELS SHOWN THUS

NEW FW MH 1.004 CL 41.800 IL 39.270 1200 DIA PCC

NEW SW MH 1.001 CL 42.100 IL 40.600 1200 DIA PCC

PFS DRAINAGE DESIGN CONCEPT:-

1. CALCULATIONS CARRIED OUT BY ACO TECHNOLOGIES PLC HAVE CONFIRMED THAT THEIR S300 CHANNELS, WHICH ARE TO BE INSTALLED TO THE PERIMETER OF THE FUEL TANKER STANDING AREAS, CAN ACCOMMODATE 44 LITRES PER SECOND OVER A 2m CHANNEL LENGTH.

2. THE 225 DIAMETER PIPEWORK LEADING FROM THE ACO S300 CHANNELS TO THE FORECOURT INTERCEPTOR ARE LAID TO A MINIMUM FALL OF 1 IN 100 GIVING A FLOW CAPACITY OF 52 LITRES PER SECOND.

3. IN THE EVENT OF A MAJOR SPILLAGE THE FORECOURT INTERCEPTOR AUTOMATIC SHUT OFF VALVE WILL CLOSE, THEREBY LOCKING ANY SPILLAGE WITHIN THE INTERCEPTOR.

CLASS ONE FORECOURT INTERCEPTOR FITTED WITH AUTOMATIC SHUT OFF VALVE AND AUDIBLE AND VISIBLE LEVEL WARNING DEVICE CL 42.300 IL 40.700 (IN) IL 40.600 (OUT)

EX UU FW MH CL 42.300 (TBC) IL 39.000 (EX TBC)

5m LONG 150mm DIA CONNECTION INSTALLED AS PART OF COSTA DEVELOPMENT

EX UU 225 DIA FW SEWER

NEW FW IC 1.002 CL 42.400 IL 40.550 1200 DIA PCC

NEW FW IC 2.001 CL 42.200 IL 40.750 1200 DIA PCC

ALL FOUL PIPEWORK TO BE 150mm DIA AT MINIMUM 1 IN 80 FALL UNLESS NOTED OTHERWISE

225mm DIA AT MINIMUM 1 IN 100 FALL

NEW SW MH 1.000 CL 42.400 IL 40.900 1200 DIA PCC

NEW FW IC 2.000 CL 42.400 IL 41.050 1200 DIA PCC

NEW FW IC 1.001 CL 42.400 IL 41.350 450 DIA PPIC

NEW FW IC 1.000 CL 42.400 IL 41.500 450 DIA PPIC

PFS FFL 42.430

ALL FOUL CONNECTIONS TO BE 100mm DIA AT MINIMUM 1 IN 40 FALL UNLESS NOTED OTHERWISE

RETAINING FEATURE REQUIRED OVER THIS LENGTH. APPROX MAX HEIGHT 600mm

YARD GULLY WITH 5m LONG 100 DIA PERFORATED OUTLET PIPE. REFER TO DETAIL.

NEW TRENCH

County Road

Lees Road

UNIT 6