PROPOSED FOUL & SURFACE WATER DRAINAGE TO CONNECT INTO EXISTING MANHOLES SEWER SUBJECT TO UNITED UTILITIES & SVA APPROVAL.

EXISTING DRAINAGE TO BE SURVEYED DOWNSTREAM TO CONFIRM CONNECTION PRIOR TO CONSTRUCTION.

MANHOLES TO BE CCTV SURVEYED DOWNSTREAM PRIOR TO WORKS COMMENCING & POST WORKS COMPLETION.

EXISTING MANHOLE MUST BE INSPECTED BY CLERK OF WORKS INSPECTOR TO ENSURE THE MANHOLE CAN ACCOMMODATE THE NEW CONNECTION AND IF ANY REMEDIAL WORKS ARE REQUIRED PRIOR TO WORKS STARTING ON SITE (IT MAY BE NECESSARY TO RECONSTRUCT THE MANHOLE AT THE DEVELOPERS EXPENSE)

SW8FC HYDROBRAKE DETAILS
REFERENCE: MD-SHE-0096-6000-2400-6000
DESIGN 10 AD: 2.4m
ORIFICE SIZE: 96mm
DESIGN FLOW:6.0 l/s
INVERT LEVEL 90.900m

TECHNICAL SPECIFICATION		
CONTROL POINT	HEAD (m)	FLOW (l/s)
PRIMARY DESIGN	2.400	6.000
FLUSH - FLO	0.416	4.700
KICK - FLO®	0.860	3.700
MEAN FLOW		4.6

PROPOSED OFFLINE CELLULAR STORAGE STRUCTURE 1.2m DEEP WITH A MINI 0.5m COVER TO BE MAINTAINED BY A MANAGEMENT COMPANY. OFFLINE STORAGE VOLUME (INCLUDING 40% VOID RATIO) STORAGE AREA 200m² MIN COVER LEVEL =94.100 SOFFIT OF CRATE = 93.200 INVERT LEVEL = 92.000

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NON RETURN VALVE AND PRIVATE DRAINAGE ASSOCIATED WITH THE OFFLINE STORAGE STRUCTURE WILL BE MAINTAINED BY A MANAGEMENT COMPANY.

DRAINAGE STRATEGY:
SITE BOUNDARY: 1.369HECTARES
APPROVED DRAINAGE STRATEGY TO:T19036/2021/04
UNITED UTILITIES PRE DEVELOPMENT ENQUIRY REFERENCE: NOT REQUIRED AS CONNECTING INTO STORY HOMES PROPOSED DRAINAGE NETWORK
TOTAL IMP AREA: 1.267Ha
ALLOWABLE GREENFIELD DISCHARGE AT QBAR: 10.9L/SEC
ALLOWABLE POST DEVELOPMENT SURFACE WATER DISCHARGE INTO STORY SITE: 6.0L/SEC
SURFACE WATER
- SURFACE WATER FROM THE PROPOSED DEVELOPMENT IS TO ULTIMATELY DISCHARGE INTO THE EXISTING SURFACE WATER SEWER WHICH IS LOCATED TO THE NORTH WEST CORNER OF THE SITE.
- SURFACE WATER DISCHARGE RATE IS TO BE RESTRICTED TO A POST DEVELOPMENT SURFACE WATER RATE OF 6L/SEC, THIS IS IN ACCORDANCE WITH THE APPROVED DRAINAGE STRATEGY BY SHAHEEN AND THE REQUIREMENTS SET OUT BY THE ADJACENT DEVELOPMENT.
THE DISCHARGE RATE IS TO BE RESTRICTED USING A HYDROBRAKE FLOW CONTROL UNIT WHICH IS TO BE FITTED INTO THE LAST MANHOLE CHAMBER BEFORE CONNECTION INTO THE EXISTING SEWER.
- SURFACE WATER ATTENUATION ON THE DEVELOPMENT IS TO BE PROVIDED IN THE FORM OF OVERSIZED PIPES WHICH WILL PROVIDE STORAGE FOR THE 2 AND 30 YEAR STORM EVENTS UP TO AND OFFLINE CELLULAR STORAGE WILL PROVIDE THE ADDITIONAL STORAGE FOR THE 1 IN 100 YEAR STORM EVENT, UP TO THE 1 IN 100 YEAR+ 40% CLIMATE CHANGE +10% URBAN CREEP STORM EVENT.
- SOURCE CONTROL OF POLLUTANTS IN HIGH RISK AREAS WILL BE PROVIDED BY FILTER DRAINS & CATCHPITS AT SHARED DRIVEWAYS, SILT TRAPS IN ACO CHANNEL DRAIN UNITS AND YARD GULLIES ON PRIVATE DRIVES, PRE-TREATMENT BY HIGHWAY ROAD GULLIES AND CATCHPITS PRIOR AND AFTER THE OFFLINE STORAGE STRUCTURE.
- ALL MAN ADOPTABLE SURFACE WATER DRAINAGE IS TO BE OFFERED TO UNITED UTILITIES FOR ADOPTION. ALL DRAINAGE IS DESIGNED IN ACCORDANCE WITH THE LATEST SEWER FOR ADOPTION AND UU GUIDANCE DOCUMENTS.
- A MAINTENANCE COMPANY WILL BE REQUIRED TO ENSURE THE OFFLINE CELLULAR STORAGE STRUCTURE IS MAINTAINED.
- PROPOSED DRAINAGE AND CONNECTION SUBJECT TO APPROVAL & SVA AGREEMENT BY UNITED UTILITIES

FOUL WATER
- PROPOSED FOUL WATER DISCHARGE RATE: 1.94LISEC.
- FOUL WATER FFROM THE PROPOSED DEVELOPMENT IS TO ULTIMATELY DISCHARGE INTO THE EXISTING FOUL WATER SEWER WHICH IS LOCATED TO THE NORTH WEST CORNER OF THE SITE.
- ALL MAN ADOPTABLE FOUL WATER DRAINAGE IS TO BE OFFERED TO UNITED UTILITIES FOR ADOPTION. ALL DRAINAGE IS DESIGNED IN ACCORDANCE WITH THE LATEST SEWER FOR ADOPTION AND UU GUIDANCE DOCUMENTS.
PROPOSED DRAINAGE AND CONNECTION SUBJECT TO APPROVAL & SVA AGREEMENT BY UNITED UTILITIES

DRAINAGE NOTES:
1. ALL PIPES 100Ø UNLESS OTHERWISE STATED.
2. ALL PRIVATE TO ADOPTABLE CONNECTIONS 150Ø UNLESS OTHERWISE STATED.
3. ALL PIPES IN TRAFFICKED AREAS TO HAVE SAID COVERS & CONCRETE BEDDING.
4. ALL INTERNAL PLOT DRAINAGE REQUIRES CONFIRMATION PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO CONFIRM MH COVER & INVERT LEVEL OF PROPOSED CONNECTION POINT PRIOR TO CONSTRUCTION. ANY VARIATION TO BE REPORTED TO ENGINEER.
6. THE INVERT LEVEL OF THE EXISTING SEWERS ARE TO BE VERIFIED PRIOR TO COMMENCEMENT OF ANY DRAINAGE WORKS. ANY DISCREPANCY MUST BE NOTIFIED TO THE ENGINEER.
EXISTING MANHOLES TO BE MODIFIED TO ACCOMMODATE THE PROPOSED LISTING SHALL BE EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.
7. STRUCTURED WALL PLASTIC PIPES TO WIS 4-35-01 MAY BE USED FOR FOUL & SURFACE WATER DRAINAGE, SUBJECT TO ADOPTING AUTHORITY APPROVAL.
8. ALL STUB PIPES ARE TO BE CAPPED.
9. ALL PIPES CONNECTIONS TO BE SOFFIT TO SOFFIT UNLESS STATED OTHERWISE. REFER TO MANHOLE SCHEDULE FOR FURTHER INFORMATION.
10. ALL PROPOSED FILTER DRAINS TO CONNECT BACK INTO PLOT DRAINAGE.
11. STONE FILLED LAND DRAINS REQUIRED IN BACK GARDENS WHERE FALLING TOWARDS PROPERTY

PIPE MATERIALS
- **150-225Ø UPVC PIPES TO BE BSI KITEMARKED AND CERTIFIED TO WIS 4-35-01 & BS/EN13476.**
- **300-630Ø CONCRETE PIPES TO BE BSI KITEMARKED, CLASS 120 CONCRETE & CERTIFIED TO BS5911& 1916.**
- **900Ø-DWARIDO: COMPOSITE STEEL REINFORCED PIPE (AQUASPIRA) TO BE BSI KITEMARKED & CERTIFIED TO BS/EN13476.**

HEALTH & SAFETY:
1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.

ROADS & STORAGE:
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY APPROVED CONTRACTOR ONLY.
5. CONTRACTOR TO NAME OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WEILS DISEASE) AND RECOMMENDED PRECAUTIONS. ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES
7. CONTRACTOR TO OBTAIN ALL SERVICE RECORDS PRIOR TO WORKS COMMENCING.
8. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.

EXCAVATIONS:
9. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
10. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
11. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.

DRAINAGE NOTES
1. ALL ADOPTABLE DRAINAGE WORKS AND MATERIALS TO BE IN ACCORDANCE WITH "CODE FOR ADOPTION", THE RELEVANT BRITISH/EUROPEAN AND WATER AUTHORITIES 'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
2. MANHOLE COVERS SHALL/MUST HAVE A CLEAR OPENING OF 600MM AND SHALL BE CLASS D400 TO BS EN 124 WITH 100MM DEEP FRAMES IN HIGHWAYS.
3. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF WATER AUTHORITIES BEFORE ANY SEWER WORKS ARE CARRIED OUT.
4. ALL ADOPTABLE SEWERS TO BE KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS/EN13476).
5. PLASTIC CHAMBER SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND THE WATER AUTHORITY PREFER CLAYWARE CHAMBER IN MANHOLES. PLASTIC CHAMBER ARE DIFFICULT TO SET IN CONCRETE BECAUSE THEY FLOAT AND A SATISFACTORY FINISH CANNOT BE OBTAINED ON THE BENCHING.
6. SULPHATE RESISTANT CEMENT (CSI-DCD) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
7. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.
8. SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES.
9. SEWERS MUST BE CLEAR OF ADJOINING FOUNDATIONS (100MM DRAIN) AND SURROUNDS. WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.0M IN HIGHWAYS AND VERGES OR LESS THAN 900MM IN NONE VEHICULAR ACCESS AREAS THEN A CLASS 2 BEDDING/CONCRETE SURROUNDS SHOULD BE PROVIDED.
10. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).
11. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
12. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2010 EDITION.
13. CONTRACTOR TO ESTABLISH POSITION SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
14. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
15. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND PAVEMENT WORKS.
16. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
17. FOR PIPE SPECIFICATION PLEASE REFER TO ADDITIONAL NOTES.
18. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.
19. STRUCTURED WALL PLASTIC PIPES TO WIS 4-35-01 MAY BE USED FOR FOUL & SURFACE WATER DRAINAGE, SUBJECT TO ADOPTING AUTHORITY APPROVAL.
20. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. CONCRETE PIPES TO BE CLASS 120 UNLESS NOTED OTHERWISE.
21. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. ALL LOAD CLASS D400 FOR ROADS AND SERVICE YARD AREAS. CLASS C250 TO BE USED IN CAR PARKING AREAS.
22. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY. OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE NEW ROADS AND STREET WORKS ACT 1991 AND THE "NRSWA 1992" AND RELEVANT PROVISIONS OF A.H.D.T. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" JUNE 1992, BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.
23. ALL TRADITIONAL BANKWATER PIPE DOWN CORNERS TO DISCHARGE TO TRAPPED GULLIES.
24. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
25. ALL GULLY LEADS TO BE 150mm DIAMETER.
26. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUTED. ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
27. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
28. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.
29. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.
30. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES PRIOR TO COMMENCING WORKS.
31. PIPELENGTHS BETWEEN MANHOLES TO BE LIMITED TO A MAXIMUM 3m LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
32. WHERE PLASTIC PIPES ARE INSTALLED PRIOR TO GETTING APPROVAL THEN A LIGHT LINE CCTV SURVEY AND REPORT ARE REQUIRED PRIOR TO APPROVAL.
33. WHERE A B125 COVER AND FRAME HAS BEEN APPROVED, THIS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.
34. THERE SHOULD BE ENOUGH CLEARANCE TO ACCOMMODATE THE BEDDING FOR BOTH PIPES. APPROX 300MM IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY BE INCREASED.
35. THE MINIMUM CRUSHING STRENGTH FOR ALL PIPES SHOULD BE AS FOLLOWS : 100MM DIA. 40KNM, 150MM DIA. 40KNM, 225MM DIA. 49KNM AND 300MM DIA. 72KNM. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE: CLASS 120 TO EN 1916/BS5911-1:2002. PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN13476.

KEY

	SITE BOUNDARY
EX 300Ø →	EXISTING ADOPTED SURFACE WATER
EX 300Ø →	EXISTING ADOPTED FOUL WATER
150Ø 1:150 →	PROPOSED ADOPTED SURFACE WATER
150Ø 1:150 →	PROPOSED ADOPTED FOUL WATER
	PROPOSED EASEMENT
OF	PROPOSED OVERFLOW WITH NON RETURN VALVE FITTED TO OUTLET CATCHPIT FROM OFFLINE STORAGE
CP	PROPOSED CATCHPIT
FC	PROPOSED SuDS BASIN
	PROPOSED CELLULAR STORAGE
	PROPOSED ADOPTED HIGHWAY GULLY
150Ø 1:150	PROPOSED PRIVATE SURFACE WATER
SWC CL 0.000 IL 0.000	PROPOSED PRIVATE SURFACE WATER PPIC
	PROPOSED PRIVATE SW ACCESS CHAMBER (300Ø)
RWP	PROPOSED RAINWATER PIPE
	PROPOSED 0.3M3 CATCHPIT
	PROPOSED DRAINAGE CHANNEL
	PROPOSED PRIVATE YARD GULLY
	PROPOSED FILTER DRAIN
150Ø 1:150	PROPOSED PRIVATE FOUL WATER
FWC CL 0.000 IL 0.000	PROPOSED PRIVATE FOUL WATER PPIC
	PROPOSED PRIVATE FW ACCESS CHAMBER (300Ø)
SVR/SFG/SP/BIG	PROPOSED SVR/SFG/SP/BIG

SUBJECT TO LOCAL AUTHORITY & WATER AUTHORITY APPROVAL

Date	Revisions	Drawn	Checked	Rev
11/08/2022	ADDITIONAL DRAINAGE LABELS ADDED.	NNA	AE	2
08/04/2022	FIRST ISSUE	NN	AE	1

Dwg Status: APPROVAL

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Client: GLEESON HOMES

Project: WATERS EDGE, WHITEHAVEN

Title: SECTION 104 PLAN

DO NOT SCALE	Scale @ A0: 1:250	Drawn NN	Checked AE	Date 08/04/2022
Job No 21201		Dwg No D802		Rev 2