S-06 FLOW CONTROL CHAMBER		
CONTROL	–	HYDRO-BRAKE
TYPE	–	OPTIMUM SW
C.L.	–	152.245
I.L.	–	151.170
HEAD	–	0.990m
FLOW	–	5.00 l/s
DIAMETER	–	100mm
MAX SW DISCHARGE (INC. 30% CC):		
Q1	–	5.00 l/s
Q30	–	5.10 l/s
Q100	–	5.10 l/s

HYDRO INTERNATIONAL TO CONFIRM REQUIRED HYDRO-BRAKE AND SUBSEQUENT SUMP DEPTH

SURFACE WATER ATTENUATION TANK		
TYPE	–	CELLULAR UNIT
MAKE	–	OSMA AQUACELL PLUS
AREA	–	15m² (5m x 3m)
THICKNESS	–	0.4m
VOLUME	–	6m³
INVERT LEVEL	–	151.185m
SOFFIT LEVEL	–	151.585m
MIN. COVER	–	500mm

A VENTILATION PIPE IS TO BE PROVIDED IN 300mm SQUARE RECESS WITH OPEN GRATING

WASH DOWN AND SILT UNIT SPECIFICATION	
MAKE	– KINGSPAN KLAGESTER
TYPE	– W1/020
LENGTH	– 2.074m
DIAMETER	– 1.225m
CAPACITY	– 2000 LITRES
MAX. FLOW	– 5 l/s
COVER LEVEL	– 153.190m
BASE LEVEL	– 150.925m
INLET INVERT	– 152.075m
OUTLET INVERT	– 152.025m

NOTE: UNIT TO HAVE A 100mmØ PVC VENT PIPE CONNECTION. END OF PIPE TO EXTEND 2.4m ABOVE GROUND AND BE TOPPED WITH A VENT COWL

MH
CL 153.86
UTL In Road

Unknown Size

S-04
C.L=152.920
I.L=152.320

100mmØ 25.6m @ 1:23

F-03
C.L=152.480
I.L=151.300

100mmØ 10.9m @ 1:100

100mmØ 12.7m @ 1:40

100mmØ 14m @ 1:56

S-05
C.L=152.160
I.L=151.200
SILT TRAP

F-04
C.L=152.100
I.L=151.050

EXISTING DRAIN RUN TO BE REPLACED AND LAID TO A NEW GRADIENT

EX-05
C.L=153.700
I.L=151.820

PROPOSED EXTENSION
F.F.L=153.760
FDN T.O.C=151.300
FDN U/S=151.000

150mmØ 24.2m @ 1:150

100mmØ 16m @ 1:100

100mmØ 12.6m @ 1:36

PROPOSED DOWNPIPE TO DISCHARGE INTO NEW SW ATTENUATION SYSTEM

EXISTING DOWNPIPE TO BE REPOSITIONED AND DISCHARGE INTO PROPOSED 150mmØ SW DRAIN DIVERSION PIPE BELOW SLAB AND IS NOT TO DISCHARGE INTO NEW SW ATTENUATION SYSTEM (EXISTING DRAIN RUN OMITTED FOR CLARITY)

RE
I.L=151.620

S-01
C.L=153.730
I.L=151.655

150mmØ 11.1m @ 1:40

NOTE: ALL PROPOSED AND REPOSITIONED RAINWATER DOWNPIPES TO HAVE RODDING ACCESS POINTS AS SHOWN ON DRAWING No. 1978.37.121

S-02
C.L=153.640
I.L=153.000

100mmØ 13.9m @ 1:21

S-03
C.L=152.980
I.L=151.360

NOTE: ALL SHALLOW DRAINS REQUIRE PROTECTION AS SHOWN ON DRAWING No. 1978.37.122

ACO M200D 20.0 CHANNEL DRAIN

VENT PIPE

BACKDROP
I.L=152.350

100mmØ 4.8m @ 1:40

F-02
C.L=152.900
I.L=151.350

BACKDROP
I.L=151.905

F-01
C.L=153.230
I.L=152.090

WASH DOWN AND SILT UNIT

EXISTING BUILDING
F.F.L.=153.760

EX-04
C.L=153.670
I.L=151.960

EX-03
C.L=152.075
I.L=151.380

EX-02
C.L=153.020
I.L=151.590

EX-01
C.L=153.540
I.L=151.850

UTS Enclosed

Area Overgrown

RWP Into GY
No Exit Visible

REFER TO DRAWING 1978.34.115 FOR PROPOSED EXTERNAL WORKS

EXISTING GULLY TO BE REINSTATED/REPLACED AT SAME LEVEL AND POSITION DUE TO PROPOSED SURFACE CHANGES IN THIS AREA

EXISTING GULLY TO BE REPOSITIONED DUE TO PROPOSED SURFACE CHANGES IN THIS AREA

EXISTING GULLY TO BE REPOSITIONED DUE TO PROPOSED SURFACE CHANGES IN THIS AREA

REFER TO DRAWING No. 1978.37.126 FOR PROPOSED ALTERATIONS TO EXISTING DRAINAGE SYSTEM

S-06
FLOW CONTROL
C.L=152.245
I.L=151.170

100mmØ 5.3m @ 1:96

BACKDROP
I.L=151.115

S-01
C.L=152.220
I.L=150.730

INVERT LEVEL OF EXISTING 225mm CW DRAIN IS TO BE CONFIRMED ON SITE.

Audibly Proven

ATTENUATION TANK

BACKDROP
I.L=151.560

150mmØ 14.9m @ 1:46

152.16

c/l (h11.2)

0 2 4 6 8 10m
1:100

NOTES – DRAINAGE

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ALL THE TEMPORARY WORKS PROPPING AND SHORING INCLUDING EXCAVATIONS AND UNDER-PINNING. ALL WORK IS TO COMPLY WITH RELEVANT HEALTH AND SAFETY LEGISLATION AND REGULATIONS.

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS NOTED OTHERWISE. DIMENSIONS MUST NOT BE SCALED, USE ANNOTATED DIMENSIONS ONLY. ALL DIMENSIONS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

ALL LEVELS ARE IN METERS.

THE SIZES OF MANHOLES STATED ARE MINIMUM. IF TWO OR MORE PIPES ENTER THE MANHOLE THE CHAMBER SIZE MUST BE SUFFICIENT TO ACCOMMODATE ADEQUATE BENCHING. ALL PIPES BUILT INTO THE MANHOLE INVERT SHOULD BE INSTALLED WITH SOFFIT LEVEL.

THE CONTRACTOR SHALL GIVE AT LEAST THREE WORKING DAYS NOTICE TO THE ENGINEER TO ALLOW OPPORTUNITY TO EXAMINE ANY FORMATION OR WITNESS ANY TESTING.

ALL SOFT SPOTS TO BE REMOVED FROM BOTTOM OF EXCAVATIONS AND TO BE REFILLED TO FORMATION LEVEL WITH THE SAME MATERIAL AS PERMANENT WORKS WHICH REST IN IT.

UNLESS NOTED OTHERWISE ALL MANHOLE CHAMBER COVERS TO BE DUCTILE IRON TO BS EN 124 D400.

UNLESS NOTED OTHERWISE ALL MORTAR TO BE CLASS M12 – 1:3 CEMENT:SAND.

CUT ENDS OF REINFORCED CONCRETE PIPES ARE TO BE TREATED WITH EPOXY RESIN PAINT / MORTAR.

CONSTRUCTION JOINTS IN CONCRETE SURROUND MUST NOT BE WITHIN 150mm OF CHAMBER RING JOINTS.

ALL DRAINAGE PRODUCTS TO BE KITEMARK APPROVED & TESTED.

GULLY GRATINGS SHALL BE END HINGED & DUCTILE IRON, BS EN 124 CLASS D400.

ALL CHANNEL DRAIN GRATINGS TO BE CLASS D400 UNLESS NOTED OTHERWISE

ALL ABOVE GROUND FOUL AND SURFACE WATER DRAINAGE DETAILS, INCLUDING SETTING-OUT DIMENSIONS TO SOIL PIPES, SOIL & VENT PIPES AND RAINWATER PIPES, ARE TO ARCHITECT'S / M&E ENGINEER'S DETAILS AND SPECIFICATION.

ALL DRAINAGE UNDER FOOTPRINT OF BUILDING TO BE ENCASED IN 150mm CONCRETE SURROUND.

ALL DRAINAGE INSTALLATIONS SHALL BE AIR TESTED IN ACCORDANCE WITH BS EN 1610 IN THE PRESENCE OF THE BUILDING CONTROL OFFICER OR BRADSHAW GASS & HOPE LLP ENGINEER.

UPON COMPLETION OF THE PROPOSED DRAINAGE WORKS, THE CONTRACTOR IS TO ARRANGE FOR ALL SYSTEMS, INCLUDING INTERFACES WITH EXISTING DRAINAGE PIPES AND MANHOLES, TO BE CCTV SURVEYED AND A REPORT PROVIDED TO BRADSHAW GASS & HOPE LLP.

ALL SURFACE WATER PIPES TO BE 100mmØ PVC UNLESS NOTED OTHERWISE.

ALL FOUL WATER PIPES TO BE 100mmØ PVC UNLESS NOTED OTHERWISE.

DRAINS ARE TO BE LAID TO THE GRADIENTS INDICATED ON PLAN. IN THE ABSENCE OF THIS INFORMATION THE FOLLOWING MINIMUM GRADIENTS CAN BE ADOPTED:
FOUL OR COMBINED WATER 100mm Ø = 1 IN 40
SURFACE WATER 100mm Ø = 1 IN 100
SURFACE WATER 150mm Ø = 1 IN 150

FW STACKS/DOWNPIPES TO HAVE REST BEND INVERT OF 750mm BELOW F.F.L. UNLESS NOTED OTHERWISE.

INTERNAL RWP'S TO HAVE REST BEND INVERT OF 600mm BELOW F.F.L. UNLESS NOTED OTHERWISE

CONCRETE MANHOLES TO BE CONSTRUCTED IN PRECAST CONCRETE RINGS APPROVED TO BS EN 1917 AND BS 5911-3. RINGS TO BE BEDDED IN SEALANT STRIPS.

DRAINAGE DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH; BUILDING REGULATIONS APPROVED DOCUMENT H. BS EN 12056 – GRAVITY DRAINAGE SYSTEMS INSIDE BUILDINGS. BS EN 752 – DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS. BS EN 1610 – CONSTRUCTION AND TESTING OF DRAINS AND SEWERS. SEWERS FOR ADOPTION – 7TH EDITION.

ALL LEVELS TO EXISTING DRAINAGE TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORK.

ALL DRAINS (INCLUDING EXISTING) TO BE DYE TESTED TO CONFIRM THEY ARE CONNECTED TO THE CORRECT SEWER SYSTEM.

status **TENDER**

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All dimensions are to be checked on site by the contractor prior to proceeding with any work.

Hazard Identification

ref	hazard	date

LEGEND

FW = FOUL WATER
CW = COMBINED WATER
SW = SURFACE WATER

MANHOLE REFERENCE SW4
MANHOLE COVER LEVEL C.L=96.160m
MANHOLE INVERT LEVEL I.L=93.335m

PIPE DIAMETER/LENGTH/GRADIENT/FLOW DIRECTION
100mmØ 3.5m @ 1:100

EXISTING FW DRAIN
EXISTING SW DRAIN
EXISTING CW DRAIN
PROPOSED FW DRAIN
PROPOSED SW DRAIN
PROPOSED CW DRAIN
PROPOSED SW LAND DRAIN
EXISTING DRAIN TO BE REMOVED
CHANNEL DRAIN & GULLY / SUMP (G CHD SMP)
SLOT DRAIN & GULLY / SUMP (G SD SMP)
RODDING EYE (RE)
ROAD GULLY (RG) ACCESS GULLY (AG)
SURFACE WATER SLAB PENETRATION OR EXTERNAL RAINWATER DOWNPIPE POSITIONS (DP)
FOUL WATER SLAB PENETRATION OR EXTERNAL SOIL STACK POSITIONS (FW)

NOTE: REFER TO ABOVE GROUND DRAINAGE DESIGN FOR SOIL PIPE/STACK DETAILS. ALL STACKS TO HAVE RODDING ACCESS AS PER 'BUILDING REGULATIONS APPROVED DOCUMENT H' SECTION 1.34

ref	revision	by	date
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client: GREATER MANCHESTER FIRE AND RESCUE SERVICE

project: LITTLEBOROUGH FIRE STATION EXTENSION AND REFURBISHMENT

drawing: PROPOSED UNDERGROUND DRAINAGE LAYOUT

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