GRAND UNION CANAL

Gantry

NORTH HYDE GARDENS

FF & SF OFFICES

FF OFFICES

UNIT 3

UNIT 4

UNIT 2

FF OFFICES

F.F.L. 31.000

F.F.L. 31.250

F.F.L. 31.000

Outlet to storage tank (MH S42) to have 2 no. Hydro-Brake flow regulators by Hydro International.
1 no. at IL 28.500m to limit flow to 11.5 l/sec.
Design Head = 0.700m
Type = MD-SHE-0159-1150-0700-1150.
1 no. at IL 29.200m to limit flow to 29.5 l/sec.
Design Head = 0.600m
Type = MD-SHE-0240-2950-0600-2950.

New levels to tie in with existing levels to top of upstand.

Block dished channel.

Outlet to storage tank (MH S33) to have 2 no. Hydro-Brake flow regulators by Hydro International.
1 no. at IL 28.250m to limit flow to 4.5 l/sec.
Design Head = 0.700m
Type = MD-SHE-0105-4500-0700-4500.
1 no. at IL 28.950m to limit flow to 11 l/sec.
Design Head = 0.600m
Type = MD-SHE-0157-1100-0600-1100.

220m² x 1.050m deep `VersaVoid' modular geo-void system, by Environmental Sustainable Solutions Ltd. (ESS).
Storage volume = 220m³ based on 11 l/sec allowable off-site discharge.
Design based on 1:100 year return period +20%CC.
Top of cellular storage = 29.300
Bottom of cellular storage = 28.250
For further details refer to similar note on Unit 4.

New levels to tie in with existing levels to top of upstand.

596m² x 1.050m deep `VersaVoid' modular geo-void system, by Environmental Sustainable Solutions Ltd. (ESS) or similar approved, wrapped in an inner non-woven type geotextile membrane, wrapped in a waterproof butyl membrane and protected by a heavyweight, needle punched, non-woven type geotextile membrane all to the manufacturer's recommendations. The membrane is to be sealed at all edges and where the pipe enters and exits the membrane. (Cellular blocks 500mm x 500mm in plan x 250mm increments (+50mm) deep).
To be installed strictly in accordance with the manufacturer's requirements and recommendations.
Storage volume = 596m³ based on 29.5 l/sec allowable off-site discharge.
Cellular storage to be bedded on min. 100mm thick coarse sand blinding and covered with a 100mm thick coarse sand protection layer. Compacted backfill in accordance with Capita's specification.
Manufacturer to provide layout and detail drawings for construction which should include details of venting and suitable access points for inspection and maintenance.
Manufacturer to provide calculations proving structural suitability taking cognisance of the applied construction loads (temporary and permanent) and the prevailing ground conditions as detailed in the Site Investigation Report.
Design based on 1:100 year return period +20%CC.
Top of cellular storage = 29.550
Bottom of cellular storage = 28.500
All proposed alternative products to satisfy the following;
1. To be in accordance with the recommendations stated in CIRIA C680 - Structural design of modular geocellular drainage tanks.
2. Material partial safety factor of 2.75 to be used in design calculations.
3. Independent load testing certification to be provided including compressive strength, lateral strength and long term creep testing.
4. Design and product PI required.
5. QA detaills to ensure compliance with the above.

Class 1 full retention separator (pipe no. 1.002) with automatic closure device and high level audible alarm systems for oil and silt levels, bedded and surrounded in concrete to manufacturer's details. Type `NS100' - 375 dia. pipework.
Where appropriate, in hardstanding areas, allowance to be made for R.C. cover slab over unit with 1000mm min. bearing either side.
CL = 30.970
IL in = 29.095
IL out = 28.995

Class 1 full retention separator (pipe no. 8.002) with automatic closure device and high level audible alarm systems for oil and silt levels, bedded and surrounded in concrete to manufacturer's details. Type `NS40' - 300 dia. pipework.
Where appropriate, in hardstanding areas, allowance to be made for R.C. cover slab over unit with 1000mm min. bearing either side.
CL = 30.850
IL in = 29.025
IL out = 28.975

Class 1 full retention separator (pipe no. 11.002) with automatic closure device and high level audible alarm systems for oil and silt levels, bedded and surrounded in concrete to manufacturer's details. Type `NS40' - 300 dia. pipework.
Where appropriate, in hardstanding areas, allowance to be made for R.C. cover slab over unit with 1000mm min. bearing either side.
CL = 30.700
IL in = 29.090
IL out = 29.040

Class 1 full retention separator (pipe no. 14.002) with automatic closure device and high level audible alarm systems for oil and silt levels, bedded and surrounded in concrete to manufacturer's details. Type `NS6S' - 300 dia. pipework.
Where appropriate, in hardstanding areas, allowance to be made for R.C. cover slab over unit with 1000mm min. bearing either side.
CL = 29.830
IL in = 28.170
IL out = 28.120

## Siphonic Roof Drainage

1 no. primary siphonic downpipe to continue to adjacent, externally located, manholes on main drainage run.
Manholes to have vented covers, for overflow purposes, to an appropriate load class.
1 no. secondary siphonic downpipes to be located to discharge directly onto hardstanding areas.
Sizes of all siphonic downpipes to specialist's design and details.

## Siphonic Roof Drainage

4 no. primary siphonic downpipes to continue to adjacent, externally located, manholes on main drainage run.
Manholes to have vented covers, for overflow purposes, to an appropriate load class.
4 no. secondary siphonic downpipes to be located to discharge directly onto hardstanding areas.
Sizes of all siphonic downpipes to specialist's design and details.

Critical 1:100 yr. + 20% CC ponding in Service Yard.
Volume = 16m³ approx.
Depth at dock leveller channel = 80mm.
Depth at outer edges = 0mm.

170m² x 1.050m deep `VersaVoid' modular geo-void system, by Environmental Sustainable Solutions Ltd. (ESS).
Storage volume = 170m³ based on 9 l/sec allowable off-site discharge.
Design based on 1:100 year return period +20%CC.
Top of cellular storage = 29.300
Bottom of cellular storage = 28.250
For further details refer to similar note on Unit 4.

Outlet to storage tank (MH S22) to have 2 no. Hydro-Brake flow regulators by Hydro International.
1 no. at IL 28.250m to limit flow to 3.5 l/sec.
Design Head = 0.700m
Type = MD-SHE-0093-3500-0700-3500.
1 no. at IL 28.950m to limit flow to 9 l/sec.
Design Head = 0.600m
Type = MD-SHE-0144-9000-0600-9000.

This drawing is copyright and owned by Capita, and is for use on this site only unless contractually stated otherwise.

DO NOT SCALE this drawing (printed or electronic versions). Contractors must check all dimensions from site.

All other design team elements, where indicated, have been imported from the consultant's drawings and reference should be made to the individual consultant's drawings for exact setting out, size and type of component.

Discrepancies and / or ambiguities within this drawing, between it and information given elsewhere, must be reported immediately to the architect for clarification before proceeding.

All works are to be carried out in accordance with the latest British Standards and Codes of Practice unless specifically directed otherwise in the specification.

All setting out to be in accordance with the Architect's details, (the Architect's drawings to take precedence over any setting out shown on this drawing).

## SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

Refer to the relevant Construction (Design and Management) documentation where applicable.

It is assumed that all works on this drawing will be carried out by a competent contractor, working where appropriate to an approved method statement.

## LEGEND

- existing foul water drain with manhole
- existing surface water drain with manhole
- new foul water drain with manhole
- new surface water drain with manhole
- new surface water manhole with vented cover
- linear drainage channel
- permeable paving
- flow regulator
- 162.095 spot level
- 162.095 existing spot level
- concrete protection to pipework adjacent to tree roots

| | |
|---|---|
| CL | Cover Level |
| IL | Invert level |
| SL | Sump level |
| S/A | Soakaway |
| RAI | Reverse Action Interceptor |
| bd | backdrop |
| re | rodding eye |
| svp | soil & vent pipe (rodable) |
| wvp | waste and vent pipe (rodable) |
| ss | stub stack (rodable) |
| sg | shower gully (rodable) |
| sp | silt pit (rodable) |
| ra | rodding access |
| rg | 4500l x 900 deep precast concrete trapped, rodable, road gully with grating area greater than 900cm² |
| fg | floor gully (rodable) |
| rwp | rainwater downpipe (rodable) |
| psdp | primary siphonic downpipe |
| ssdp | secondary siphonic downpipe |
| vp | vent pipe (oil separator) |
| aav | air admittance valve |
| TOB | Top of base level |
| CI | Cast Iron |
| VC | Vitrified Clay |
| R | Flexible `Rocker' joint |
| PPIC | Polypropylene inspection chamber |

Note: Final setting out of all drainage points at ground level to the Architect's and M and E Engineer's details.

| Rev | Date | By | Description | Rev/ check |
|---|---|---|---|---|
| P05 | 20.03.18 | GM | Surface water pipe sizes, pipe gradients and storage volumes upgraded to cater for HBC's requirement of Cv of 0.925. Modular geo-void storage tanks replace Tubosider, Flow control details updated to suit and sumps added to flow control manholes, Layout of siphonic drainage updated, | WFG |
| P04 | 20.03.17 | GM | Site layout updated in accordance with the Architect's latest requirements (MSA model MS101-D2-Site Layout Plan dated 10.03.2017) and drainage layout and external levels updated to suit, All car parking areas now permeable paving in accordance with the Architect's latest requirements, By-pass separator removed from Unit 4 car park, | WFG |
| P03 | 23.02.17 | GM | Site layout updated in accordance with the Architect's latest requirements (MSA model MS101-Site Layout Plan dated 20.02.2017) and drainage layout and external levels updated to suit, Vented manhole covers indicated, | WFG |
| P02 | 24.01.17 | GM | Pipe 1.005 (Unit 4) increased from 225Ø to 300Ø. Surface water storage tank for Unit 1 increased in length by 1,000m, Details of surface water flow controls updated in line with Planning requirements, | WFG |
| P01 | 21.06.16 | GM | Pipe design numbers added, Ponding volumes updated following further design, | WFG |

Drawing status
PRELIMINARY

Client
SEGRO
WHERE BUSINESS WORKS

Project
FORMER NESTLE SITE
HAYES

Drawing
DRAINAGE LAYOUT
AND EXTERNAL LEVELS

SHEET 2 OF 2

| Scale @ A0 | Drawn | Checked |
|---|---|---|
| 1:250 | G. Males | NRB |
| Project No. | Date | Office |
| CS/075666 | Apr 2016 | WATFORD |

Drawing Identifier — BS1192:2007 / Avanti Compliant

| project | origin | zone | level | file type | role | number | revision |
|---|---|---|---|---|---|---|---|
| 075666 | -CA- | 0 - | GF - | DR - | S - | 011 - | P05 |

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