

Key.

- F1 (12009)**
CL 130.500
L 130.000
Proposed foul sewer (Invert level shown)
- C1 (12009)**
CL 130.000
L 130.000
Proposed Combined water sewer
- S10 (12009)**
CL 131.050
L 128.59
Proposed surface water drain (roof water/
highway/treated external area flows only)

- 600/460/225 "non-accessible" inspection chambers
Minimum 1200x "accessible" manholes
- Proposed road gully and lateral Connection
- Proposed Rodding Eye point

- Proposed channel drainage system - hauraton
asafixx super or similar approved.

- Existing drain - to remain - Foul water
- Existing drain - to remain - Surface water
- Existing sewers to be diverted/made redundant
/built over

- Proposed surface water attenuation/Soakaway unit
Crate units. Graft eco bloc or similar approved.

- Proposed surface water flow control unit

- FFL 130.000** Proposed Finished Floor Level

- 131.05m** Proposed site levels

- 1:35** Proposed Gradients

- Embankment (@1:3 unless stated)

- Retaining wall/SOE detail

- Exceedance Flow routes.

- Porous paving construction

- Drainage Design Subject to confirmation on proposed finished
site levels and surface finishing + infiltration testing

- RWP and internal foul points positions are indicative only

- Levels provided are indicative only to assist with completion of
drainage design works. For precise level information refer to
architects/landscaping information

Control chamber capable of discharging
0.5l/s in a 100yr + 45% CC event.
HYDRO BRAKE - 0.9m Head design

Discharge rate based on near greenfield
rates, and blockage avoidance.

Drainage design currently based on no
flooding for the 100 year + 45% CC
allowance.

Attenuation Tank 2

Surface water attenuation unit to be
provided.

Crate units. 7.5m³ storage volume.
minimal/no infiltration assumed.

Minimum 850mm cover depth (40T)
size currently based on 700mm deep crate
units, 95% void ratio.

Graf Eco Max range 350mm deep crates
(2layers) or similar approved.

Crate size noted: 7.2m x 1.6m x 0.7m
(800mm x 800mm x 350mm crate units)

TOT - 188.75
BOT - 188.05
CL - 189.50 min

10% urban creep allowed to SW
calculations

attenuation based on 100 year storm
event and 45% climate change allowance

Porous paving with raised edge kerbing
and exceedance drainage suggested for
drive areas.

future access road assumed to be
porous construction or drained into next
phase worked drainage system.

Connection into existing sewer,
contractor to review outfall
conditions and confirm position
and outfall level at least 1 week
prior to construction work
starting. Water Authority (STW)
approval may be required (s106)

Control chamber capable of discharging
0.5l/s in a 100yr + 45% CC event.
HYDRO BRAKE - 0.8m Head design

Discharge rate based on near greenfield
rates, and blockage avoidance.

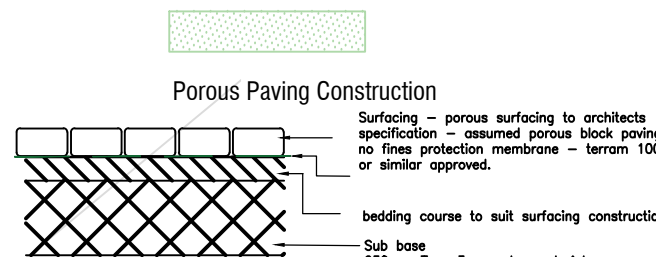
Drainage design currently based on no
flooding for the 100 year + 45% CC
allowance.

Porous paving with raised edge kerbing
and exceedance drainage suggested for
drive areas.

Regrade existing
embankment to
maximum 1 in 1
slope

New porous paving
access construction

Typical Porous surfacing detail - NTS



Attenuation Tank 1

Surface water attenuation unit to be
provided.

Crate units. 16.5m³ storage volume.
minimal/no infiltration assumed.

Minimum 700mm cover depth (12T)
size currently based on 700mm deep crate
units, 95% void ratio.

Graf Eco Max range 350mm deep crates
(2layers) or similar approved.

Crate size noted: 7.8m x 3.2m x 0.7m
(800mm x 800mm x 350mm crate units)

TOT - 185.90
BOT - 185.20
CL - 186.60 min

10% urban creep allowed to SW
calculations

attenuation based on 100 year storm
event and 45% climate change allowance.

New Drainage for existing drive/access
following resurfacing works. Assumed
continued bituminous surface with raised
kerbing edges and road gullies.

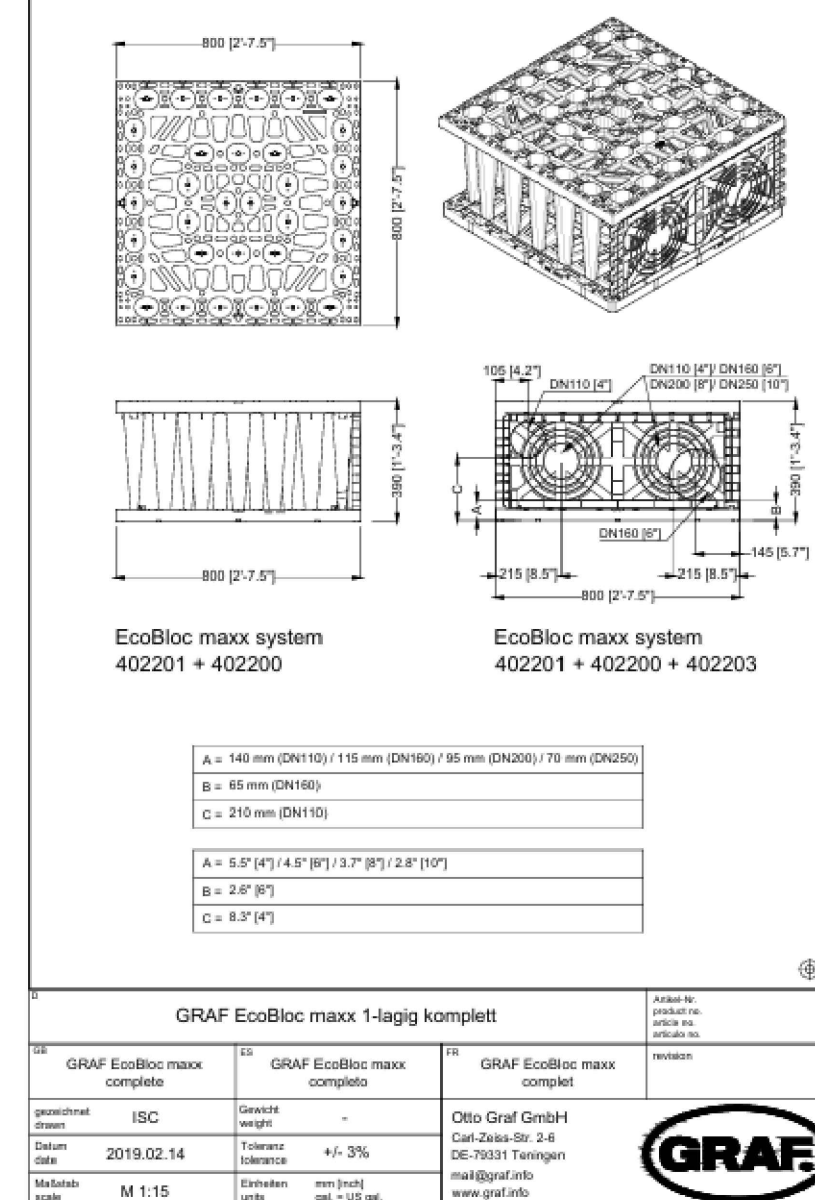
Regrade existing
embankment to
maximum 1 in 1
slope

New porous paving
access construction

ACO Q-Brake detail - Flow Control Unit

- Construct the chamber that is to house the ACO Q-Brake. Note that if the chamber has a curved wall (e.g. a concrete ring manhole), the diameter of the chamber should be specified on the order for the ACO Q-Brake.
- The base of the chamber must be at a level 200mm below the bottom of the ACO Q-Brake. When the chamber base is finished, there must be a sump at the location of the units, 200mm below the bottom of the unit as shown on the sketch.
- Offer the ACO Q-Brake unit up to the outlet pipe. Ensure the unit is upright (arrow pointing vertically up). Mark the position of the fitting holes on the chamber wall. Remove the unit and drill the fitting holes to suit the M12 bolts supplied with the unit. (Note: bolts are Rawlplug R-SP7.5 stainless steel M12 bolts requiring a hole 13mm diameter and 60mm deep).
- Place bolts into the drilled holes. Locate the ACO Q-Brake onto the bolts (again check it is upright). Ensure that the gasket is flat against the wall. Fit the nuts and tighten them to pull the unit against the gasket and seal it against the wall.
- Fix the two wire guide rings (supplied) to the chamber wall, one approximately mid height and one just under the access cover. Thread the bypass door lifting wire through the rings. Adjust the length of the wire by fitting the handle in the correct position and cutting the cable to length.

ACO Q-Brake detail - Flow Control Unit



PPIC inspection Chamber - Typical detail

suitable

Graf Ecobloc Max detail - Crate Attenuation

Soakaway Tank 3

Surface water attenuation unit to be
provided.

Crate units. 4m³ storage volume.
infiltration based on initial 5x10_6
infiltration rate. (rate to be confirmed)

Minimum 850mm cover depth (40T)
size currently based on 700mm deep crate
units, 95% void ratio.

Graf Eco Max range 350mm deep crates
(2layers) or similar approved.

Crate size noted: 3.8m x 1.6m x 0.7m
(800mm x 800mm x 350mm crate units)

TOT - 182.65
BOT - 181.95
CL - 183.50 min

attenuation based on 100 year storm
event and 45% climate change allowance.

Soakaway testing required to confirm
calculations and attenuation sizing

Drainage Plan - 1:200

Entrance area alterations - 1:125

CLIENT	PROJECT	GENERAL NOTES	© D20-ONE STRUCTURAL DESIGN LTD 2023		DRAWING TITLE	JOB REF	DRAWING NUMBER		REVISION	SHEET SIZE	018002254-0001 018002254-0002 018002254-0003	
A. J. Beaman	2 Residential dwellings Harewood Cl, Leek Road.	1. All dimensions in millimetres unless stated otherwise. 2. All drainage works are to comply with the requirements of BS 752 building drainage and building regulations 2010 Approved Document H 2015 edition. 3. All materials, unless specified otherwise, shall comply with the relevant British Standard. Sources of materials are to be agreed with the employer's representative/engineer in advance of the works. 4. This drawing to be read in conjunction with all other engineering drawings and details and contract documentation. 5. Any discrepancies in the details shown to be reported to the employer's representative/engineer prior to construction. 6. Location and levels of existing drainage runs are based upon sewer record plans and MUST be checked on site prior to the commencement of any drainage works. 7. All existing services to be located prior to the commencement of any drainage works where necessary protection or diversions to be undertaken to avoid conflict with the proposed works.										

General Notes

- This drawing is to be read in conjunction with all other relevant Engineers, Architects and Specialist design drawings and specifications.
- All dimensions and levels are in metres unless noted otherwise.
- This drawing is for information purposes and all information displayed is subject to detailed design.
- Cover levels noted are indicative or best design levels. constructed levels should take into account as-built surfacing levels and gradients.
- The Contractor shall be responsible for checking all tie-ins for line and level with existing foul and surface water systems before commencing any works.
- The Engineer shall be notified immediately, in writing, should any errors or discrepancies be found prior to the commencement or continuation of any works. All work is to be carried out in accordance with current British Standards, Building Regulations and NHBC Standards.
- All drainage work is to be strictly in accordance with the requirements of the Building Regulations 2010, Approved Document Part H, "Drainage and waste disposal".
- It is the responsibility of the Contractor to execute the works at all times in strict accordance with the requirements of the Health and Safety at Work Act 1974, and the C.O.M. Regulations 2015. The Contractor will be deemed to have allowed for full compliance, including full liaison with the Principle Contractor, within his rates.
- All existing land drains encountered on site during construction are to be re-connected.
- Should any departure from the proposed slab or external levels be considered, agreement shall be sought from the Engineer immediately and prior to the commencement or continuation of any works. Proposals should take full account of all restrictions to the slab level.
- Temporary protection to be provided to drainage work during construction as necessary.
- Power supply to separator/treatment units, alarm, panel, vent etc to be provided by contractor in accordance with manufacturers recommendations.
- Existing survey shown is based upon BHB architects existing site plan drawing 3910-810
- Architects layout shown is based upon BHB architects drawing 3910-815
This layout may be subject to change and is intended for indicative purposes only.

Specification Notes

- The following types of pipe may be used unless noted or agreed otherwise;
 - Pipes up to 300mm diameter to be Structured Wallled to BS EN 13476, Polypropylene to BS EN 1852 or PVC-U to BS EN 1401.
 - Pipes 300mm diameter or over to be Concrete to BS 5911.
- Both Clay and Concrete pipes shall be strength class 120 (100/150mm min crushing strength 28kN/m). Thermoplastic pipes shall have a minimum ring stiffness of SN4.
- Pipes which run adjacent to buildings shall be installed in strict accordance with Part H, Clauses 2.23 to 2.25.
- All pipes, chambers and fittings shall be installed, bedded and backfilled in accordance with the manufacturers instructions subject to the following minimum requirements;

Pipe Location	Cover to crown	Clay/Concrete Pipe * Bedding	Plastic Pipe Bedding	Backfill
Roads (HGV)	>1.2m	Class S	Class S (Stor2)	Type 1 Granular
Drives / car parking	>0.9m <0.3m	Class S (Concrete)	Class S (Stor2) Class A (Concrete)	Type 1 Granular
Hard and soft Landscaping	>0.6m <0.6m	Class S	Class S (Stor2) Class A (Concrete)	Suitable as dug material

- The first flexible joint in pipes adjoining a manhole shall be a maximum length of 600mm from the inside face of the manhole, connecting to a rocker pipe. The length of the rocker pipe shall be as follows;

Pipe diameter	Length of Rocker pipe
150-600mm	600mm
675-750mm	1000mm
over 750mm	1250mm

- All manholes and inspection chambers situated in areas subject to vehicular loading to have class D400 covers and frames to BS EN124 and those not subject to vehicular loading to have class minimum class B125 covers and frames.
- Drainage frames must be tied to manhole risers by use of manufacturers ties (eg. Polypipe ref FRK500 fixing kit and FRK501 black ties.) The ground works contractor will be held fully responsible for any accidents due to incorrect fitting or failure to use the correct manufacturers fixing equipment.
- All drains in the vicinity of existing or proposed trees to be constructed in accordance with the requirements of NHBC Practice Note 3.

P01	07 03 25	Building Regulation issue- approval
REV	DATE	DESCRIPTION

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