



Drainage Maintenance Strategy.

November 2020

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1.0 Maintenance

- 1.1.1 A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.
- 1.1.2 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event. Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.
- 1.1.3 A management company may be required for maintenance of attenuation facilities.
- 1.1.4 This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy and in relation to typical details. Where proprietary products are specified, the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.
- 1.1.5 The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.
- 1.1.6 The surface water network has been designed to accommodate the 1 in 100-year storm rainfall event plus an allowance for climate change particular to the requirements of the site. It may be that the exceedance flows above the 1 in 30-year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. As the flows are generally being attenuated on site and within SuDS features there will be a period after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs appropriate action should be taken as noted in this section.

1.2 Components

- 1.2.1 The following components have been included within the drainage design for the proposed development:
 - Inspection, Manhole and Catchpit Chambers (Foul)
 - Pipes
 - Drainage Channels and Gullies
 - Filter Trenches
 - Infiltration Basin/Wetland
- 1.2.2 A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.
- 1.2.3 Maintenance of the drainage network will be the responsibility of an on-site facilities management team.
- 1.2.4 A copy of the final construction drainage layout along with supplier information should be provided in the final Operations and Maintenance Manual.

- 1.2.5 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.
- 1.2.6 Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.
- 1.2.7 Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.
- 1.2.8 During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter
- 1.2.9 Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

1.3 Inspection, Manhole and Catchpit Chambers

- 1.3.1 Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.
- 1.3.2 The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access.

1.4 Pipes

- 1.4.1 Pipes are proprietary products and the materials can vary across the site and as such where used the manufacture's recommendations should be followed. Regardless of the product used the pipes will be fully compliant with the FRDS drainage specification.
- 1.4.2 Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.
- 1.4.3 Access for maintenance is provided through access chambers and manholes.
- 1.4.4 Regular inspection and maintenance is important to identify areas which may have been obstructed/clogged and may not be drainage correctly thus exposing the development to a greater level of flood risk.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection should be provided as post construction CCTV survey.	N/A
Regular maintenance\ inspection	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
Remedial Action	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required If above does not improve performance.

1.5 Drainage Channels and Gullies

- 1.5.1 Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.
- 1.5.2 Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating.
- 1.5.3 Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the car park channels.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection including channel outlet boxes.	Half yearly and after large storms.
Regular maintenance\ inspection	Litter and debris removal	Monthly or as required.
	Check and remove large vegetation growth near channel runs.	Monthly or as required
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to provide a flat area or berm adjacent to the paving.	3-monthly, 48 hours after large storms.
Remedial Action	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.

1.6 Infiltration Trenches

- 1.6.1 Infiltration trenches are shallow excavations with rubble or stone that create temporary subsurface storage of stormwater runoff, thereby enhancing the natural capacity of the ground to store and drain water. Infiltration trenches allow water to exfiltrate into the surrounding soils from the bottom and sides of the trench.
- 1.6.2 Ideally they should receive lateral inflow from an adjacent impermeable surface, but point source inflows may be acceptable.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove litter (including leaf litter) and debris from drain surface, access chambers and gullies.	Monthly (as required)
	Inspect trench surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage.	Monthly
	Inspect pre treatment systems, inlets and perforated pipework for silt accumulation and establish silt removal frequencies.	Six Monthly
	Remove sediment from pre-treatment devices.	Six Monthly or as required
Occasional Maintenance	Remove or control tree routes where they are encroaching the sides of the trench using recommended methods (e.g. NJUG, 2007, or BS 3998:2010)	As Required
	At locations with high pollution loads, remove geotextile and replace or wash and replace overlaying filter medium	Five yearly or as required
	Clear perforated pipework of blockages	As Required

1.7 Infiltration Basin/Wetland

1.7.1 Infiltration Basins are depressions in the ground that store water. Water levels rise after rain and then drop to normal level/empty as the excess soaks into the ground or is released slowly to a watercourse or drain. Some water is often held back in a pond for final treatment or amenity interest. Ponds can be permanent or temporary and are mainly open water.

Maintenance Schedule	Required Action	Frequency
Regular maintenance\ inspection	Mow grass access paths and verges surrounding basins, ponds and wetlands areas at 35mm-50mm minimum and	Monthly or as required

	75mm maximum or as specified to provide a cared for appearance and allow pedestrian access. Mow rough grass areas for occasional access or habitat reasons at 100mm and maximum 150mm with cuttings removed to wildlife piles. Grass areas not required for access may be managed for wildlife interest and to reduce costs. 2 cuts in July and September or 1 cut annually in September or October as specified and cutting removed to wildlife piles	As required 4-6 times annually Annually or as required.
	Cut (strim) wetland Vegetation at 100mm with cuttings removed to wildlife piles September - October or Maintain as a mosaic to be cut 25-30% in any one year at 100mm in September or October with cuttings removed to wildlife pile.	Annually or as required.
Occasional tasks	Where silt accumulates on apron or area in front of inlet or outlet then remove and land apply within design profile of SuDS. Where silt accumulates more than 150mm in base of wetland undertake a phased removal of silt subject to Client approval. Confirm whether a liner is present to hold water or prevent pollution of groundwater and protect. Remove silt as instructed but not more than 30% of pond or wetland area at any one time and to an agreed depth but not subsoil layer. Retain as much representative existing vegetation as possible to ensure rapid re-colonisation of open areas. Stack excavated material adjacent to wetland to allow de-watering of silt.	Annually or every 3 years as required

	Undertake silt removal during September-October to minimise damage to protected wildlife and ensure re-growth of aquatic vegetation before winter. Spread excavated material on site above SUDS design profile, e.g. top of banks, in accordance with E.A. Waste Exemption Guidance.	
Remedial Action	Although not usually required this may be needed due to damage to liners or control structures. Undertake as design details or as required	Undertake as design details or as required

2.0 Typical Inspection Regime Summary

Activity	Indicative frequency	Typical tasks
Routine/regular maintenance	Monthly (for normal care of SuDS)	litter picking grass cutting inspection of inlets, outlets and control structures.
Occasional maintenance	Annually	silt control around components vegetation management around components suction sweeping of permeable paving silt removal from catchpits, soakways and cellular storage
Remedial maintenance	As required (tasks to repair problems due to damage or vandalism)	inlet/outlet repair erosion repairs reinstatement of edgings reinstatement following pollution removal of silt build up

Inspections

As part of the on-going management of most SuDS components there is a need for regular inspections to ensure that blockages, silt and excess litter are not adversely affecting the component or scheme.

Routine inspection

Routine inspections should be carried out once a month for most components, although some, such as infiltration devices, require less frequent visits. Site managers and/or landscape contractors should be used to inspect the SuDS.

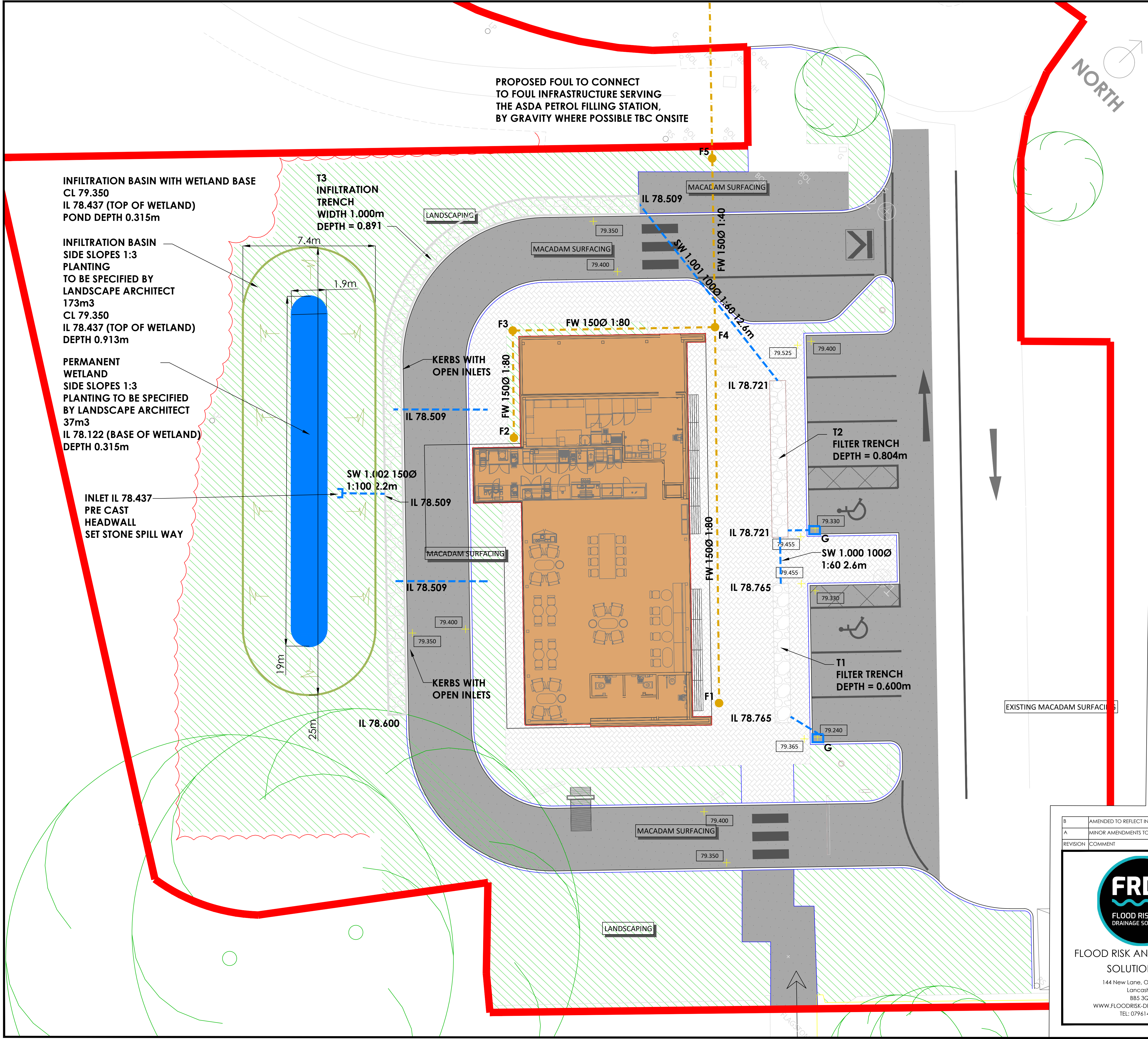
Recurring attendance ensures monitoring of the drainage system, a rapid response to problems and “ownership” of the SuDS components. The inspections should be recorded on a maintenance record.

Waste management

SuDS generate waste - they are designed to intercept silt and allow the natural breakdown of organic pollutants. Regular maintenance of SuDS, including occasional removal of silt and vegetation that gathers in SuDS, is required to ensure long term performance.

Removal of silt from surface water runoff is important because a large proportion of pollutants are attached to silt particles. If the silt is removed, then most of the pollution will be dealt with.

Organic waste should be used around the SuDS components or schemes to form wildlife piles. If this is not practical it should be composted or, as a last resort, removed to a licensed landfill site.



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 5. NO DIMENSIONS TO BE SCALED FROM THIS DRAWING.
 6. THE LOCATION AND LEVELS OF EXISTING DRAINAGE PIPES AND CULVERTS MUST BE CHECKED ON-SITE PRIOR TO CONSTRUCTION.
 7. PROPOSED FINISHED LEVELS HAVE ONLY BEEN ASSUMED AND SHOULD BE FINALISED BY A CIVIL ENGINEER.
 8. POSITION OF RAINWATER DOWN PIPES TO BE CONFIRMED BY THE ARCHITECT.

SURFACE WATER ATTENUATION

INFILTRATION BASIN WITH WETLAND BASE
TOP AREA = 173m²
BASE AREA = 37m²
DEPTH OF BASIN = 0.913m
DEPTH OF POND = 0.345m
SIDE SLOPES 1:3

FOUL

FOUL FLOWS FROM THE PROPOSED DEVELOPMENT TO BE DIRECTED TO EXISTING ASDA FOUL NETWORK TO BE CONFIRMED ON-SITE

KEY

- 90.150 PROPOSED LEVELS
- SW 1.000 PROPOSED SURFACE WATER DRAIN
- FW 1.000 PROPOSED FOUL DRAIN
- F1 PROPOSED FOUL MANHOLE
- G PROPOSED SURFACE WATER GULLY
- DRY DETENTION BASIN
- INFILTRATION TRENCH



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CLIENT:	EURO GARAGES	DATE:	30/01/2020
PROJECT:	DRIVE THRU COFFEE SHOP ASDA WREXHAM	STATUS:	
DRAWING TITLE:	SABS PRE APPLICATION SURFACE WATER/FOUL LAYOUT	DRAWN BY:	CV
DRAWING REFERENCE:	2020-EG09-01	SCALE:	1:100
		SIZE:	A1
		REVISION:	

B	AMENDED TO REFLECT INFILTRATION BASIN WITH WETLAND BASE	05/11/20	CV
A	MINOR AMENDMENTS TO DEVELOPMENT AREA	21/02/20	CV
REVISION	COMMENT	DATE	BY