The following Minimum Standard is applicable on all projects

Concrete wagon wash-out contains suspended solids and has a high pH (is highly alkaline), therefore has the potential to pollute watercourses and groundwater. The substances in concrete wash-out water are far more mobile than when concrete is placed in the ground and therefore wash-out water can cause significant environmental impact. Concrete wash-out water must therefore be controlled to prevent pollution.

Planning

If concrete pours are expected, suitable measures for preventing or dealing with concrete wash-out water must be identified and agreed with subcontractors or suppliers prior to concreting activities starting.

The **hierarchy of control** in relation to concrete wash-out is:

1. Avoid concrete wash-out on site (e.g. use of ConcreteSock®)
2. Use concrete wagons with integrated wash-out collection tanks
3. Contain on site and pump back into concrete wagon for reuse at the batching plant
4. Treat on site and;
    a. Discharge to foul sewer under a temporary Trade Effluent Consent
    b. Discharge to surface water in accordance with the Environment Agency position statement for concrete wash-out (with a permit)
    c. Tanker off site and dispose of at a permitted water treatment facility as a waste.

Evaporation is not an efficient solution for dealing with concrete wash-out water and should be avoided.

The volume of concrete wash water should be kept to a minimum by efficient use of water during wash out, use of brushes etc. Hoses and sprays must not be left unattended. Where concrete pumps are used, washout will be necessary and must be controlled.

On-site treatment of concrete washout water can be by use of suitably lined skips / containers and manual treatment, or by use of proprietary systems such as the Siltbuster RCW Unit. **Manual treatment** requires two containers, the first to settle out the solids, the second to adjust the pH of the washout water prior to discharge.

A suitable wash out facility can be constructed (as below) in place of using lined skips. This must be impermeable and designed to ensure no untreated wash water can enter surface water drains or watercourses, including groundwater, and risk assessed.

Some new concrete wagons now have integrated wash-out containment.

Others will allow untreated wash water to be pumped back into the wagon for return to the batching plant.

After the solids have settled out the washout water should be pumped to a second container for the pH to be adjusted. The pH of the wash-out water can be adjusted using citric acid and should be within a neutral range (usually pH 6-9) prior to discharge. If pH treatment is done in the same container that the solids are settling out in, it will be ineffective as the sediment will continue to affect the wash water ph.

The **Siltbuster RCW automated treatment Unit** includes hoppers for the placement of geotextile dewatering bags to filter gravels and solids. Concrete wagon chutes are washed out into the hoppers and filtered.

The pH of the wash water is then automatically adjusted using carbon dioxide to bring it into a neutral range (pH 6-9).

Treated water (whether by manual or automated methods) can be discharged to **foul sewer** under a temporary trade effluent (TTE) consent. The consent must be obtained from the local water company prior to any discharge. The consent will include conditions in relation to suspended solids, pH, flow rate etc. Any discharges must be monitored in accordance with the consent and records must be kept to demonstrate compliance.

Any discharges to **surface water drains and watercourses** will require an Environmental Permit from the Environment Agency / SEPA etc. These are costly, time consuming to get and include a number of conditions that would need to be satisfied, so are unlikely to be a suitable solution.

Procurement
All of the above options involve a cost, whether for treatment of the wash-water prior to discharge, or for off-site disposal. These costs should be identified and requirements communicated to subcontractors for inclusion in pricing. The chosen solution for dealing with concrete wash-out water must be recorded and any associated plant or equipment must be identified and included in subcontractor packages or procurement schedules (including concrete socks, settlement tanks, pH dosing kit, details of monitoring records etc.). Contractors involved in concrete wash out activities must work to approved method statements including implementation of relevant control measures. If the effluent is to be removed from site, details of the waste carrier and disposal point must be recorded. Refer to the Unitas Waste Management Standard (SHEMS-STD-GR-065).

Competence / Training
Persons operating Siltbuster RCW Units must be given a set-up briefing by Siltbuster when the unit is delivered. Only persons who attend the briefing should operate the Unit. If manual treatment is being used, those undertaking the dosing and measurement of pH should be briefed on the use of the equipment.

Documentation
If manual treatment is being used, records of the dosing, pH measurement and suspended solids must be recorded. A record must be produced prior to each discharge (in accordance with any temporary trade effluent consent).

Further Guidance / Reference
Pollution Prevention Standard SHEMS-STD-GR-064
Waste Management Standard SHEMS-STD-GR-065
C692 CIRIA Environmental Good Practice on Site Guide
PPG6 Working on Construction & Demolition Sites

For hard copies of information linked to this document, please contact a member of Unitas staff.

Project: .....

Contract No: ..... Date: .....

Name of person undertaking check or monitoring: .....

All projects undertaking concrete washout on site must complete checklist 1. The subsequent checklists must be completed where that option is used for managing concrete washout, e.g. a project that is capturing concrete wash water, treating it manually then discharging under a temporary trade effluent consent must complete checklists 1, 3a and 4a.

1 General checklist for capture of concrete wash water on site
2 Checklist for return of wash water to concrete batching plant
3a Checklist for manual on-site treatment
3b Checklist for automated on-site treatment (Siltbuster)
4a Checklist for discharge of treated concrete wash water
4b Checklist for removal of treated or untreated concrete wash water by tanker

If the answer to any checklist question is 'no', concrete wash-out must not proceed.

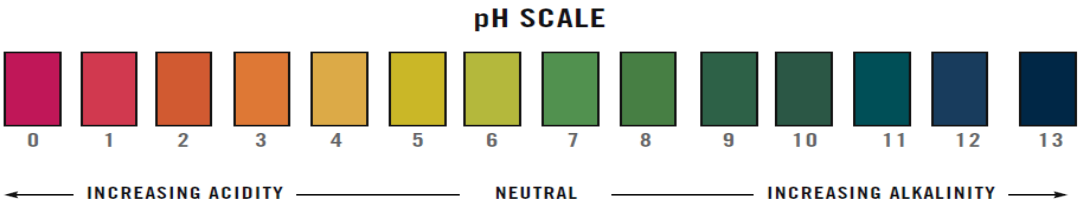
1. GENERAL CHECKLIST FOR CAPTURE OF CONCRETE WASH WATER ON SITE

	Check	Complete	
		Y	N
1/1	Has a designated area been set up for washout of concrete wagon chutes & pumps?		
1/2	Is the area at least 10m away from drains and watercourses **or** have protection measures been put in place to protect drains / watercourses?		
1/3	Are suitable containers in place to capture concrete washout, i.e. impermeable containers with enough capacity to capture all wash water?		
1/4	Are pumps in good working order and located on drip trays / plant nappies / hard standing?		
1/5	Are hoses / pipes in good working order, with no leaks?		

2. CHECKLIST FOR RETURN OF WASH WATER TO CONCRETE BATCHING PLANT

	Check	Complete	
		Y	N
2/1	Are concrete wagon / chute washout and pumping operations monitored to ensure measures are effective in capturing and removing concrete wash water from site?		

3A. CHECKLIST FOR MANUAL ON-SITE TREATMENT

	Check	Complete	
		Y	N
3A/1	Are suitable containers for manual treatment available, i.e. two separate containers, one for settlement of solids, the second for pH treatment? **pH treatment will not work if it is done in the same container that holds settled solids.**		
3A/2	Is suitable material available for adjusting the pH of the wash water e.g. citric acid granules?		
3A/3	Is suitable equipment available for checking the pH, e.g. digital pH meter, or litmus paper and pH colour chart?		
			
3A/4	Is a monitoring sheet available to record details of manual treatment i.e. date, time, name of person undertaking treatment, pH before treatment, pH after treatment?		

3B. CHECKLIST FOR AUTOMATED ON-SITE TREATMENT (SILTBUSTER)

	Check	Complete	
		Y	N
3B/1	Have staff had the set-up briefing on the use of the Siltbuster at installation? A member of staff who has attended this briefing must operate the Siltbuster in accordance with the Siltbuster RCW O&M Manual and any other user guides supplied by Siltbuster.		
3B/2	Are the geotextile dewatering bags in place and not full of gravel / solids?		
3B/3	Is there sufficient capacity for wash water from the planned operation in the Siltbuster?		
3B/4	The instructions in sections 4.3-4.8 of the Siltbuster RCW O&M Manual must be followed.		

4A. CHECKLIST FOR DISCHARGE OF TREATED CONCRETE WASH WATER

	Check	Complete	
		Y	N
4A/1	Has a temporary trade effluent (TTE) consent been obtained from the local water company to allow discharge of treated washout to the foul sewer? **or** Has an environmental permit to discharge to surface water / a watercourse been obtained from the relevant environmental regulator (e.g. Environment Agency, SEPA etc.)? If no, concrete wash-out water **may not** be discharged to drains or watercourses.		
4A/2	Is a monitoring sheet available to record compliance with the requirements of the consent, i.e. flow rate, quantity discharged, suspended solids, pH etc.? This must be completed prior to each discharge and include date, time and the name of the person undertaking the discharge.		

4B. CHECKLIST FOR REMOVAL OF TREATED OR UNTREATED CONCRETE WASH WATER BY TANKER

	Check	Complete	
		Y	N
4B/1	Has a waste carrier certificate for the tanker company been obtained and checked for validity?		
4B/2	Has the environmental permit / waste management licence for the relevant waste facility been obtained (likely to be for a sewage treatment / water treatment works)?		
4B/3	Has the environmental permit / waste management licence been checked to ensure they can accept the specific waste type?		
4B/4	Where the water has been pH treated on site prior to disposal, it is likely to be non-hazardous. The relevant European Waste Code would be 16 10 02. Has a waste transfer note been produced in accordance with the Unitas Waste Management Standard SHEMS-STD-GR-065?		
4B/5	Where the water has not been pH treated on site, it may be hazardous waste. The relevant European Waste Code is likely to be 16 10 01. Has a hazardous waste consignment note been produced in accordance with the Unitas Waste Management Standard SHEMS-STD-GR-065? If yes, a signed copy showing that the waste was received at the waste facility must be obtained.		
4B/6	Have details of the waste movement been recorded in the site waste management plan or in the waste Register (SHEMS-FOR-GR-042)?		