To PEC - R Kirby

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NRA

National Rivers Authority
Thames Region

A Review of the Performance of Aldershot STW and its effect on the River Blackwater

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THE PERFORMANCE OF ALDERSHOT STW AND ITS EFFECTS ON THE RIVER BLACKWATER

INTRODUCTION

The River Blackwater flows from the north of Farnham to Swallowfield, where it joins the Loddon. The southern half of the course flows through the highly urbanised and industrial area of Aldershot, Farnborough and Camberley. Much of the river flow in dry weather consists of treated sewage effluent. This, combined with large amounts of urban run-off, has led to an RQO of 3 being set. During the 1990 survey this level was achieved, but no better.

ALDERSHOT STW

The works catchment is the civilian part of Aldershot to the west of the River Blackwater. The military town has its own STW which is operated by the MOD. Sewerage to the east of the river flows into the Ash Vale STW. The consent from 1st October 1991 has been set at 20/12/3 which takes into account the addition of a new 8 lane A.S. plant. The old filter works has not been demolished. Recent results have shown the STW to be performing within this consent, except for a few failures on solids as 22/23 mg/l which are not significant. Much better levels of nitrification are now being achieved with the ammoniacal nitrogen level generally less than 0.5 mg/l. These samples have been taken generally between 10.00 and 15.00 and little account is taken of any diurnal variation.

The BOD levels and Ammoniacal Nitrogen levels were previously assessed over a 24 hour period in August 1989 and showed a large diurnal variation. It would be very interesting to see how this has changed with the modifications to the works. The spot sample results have much improved since mid 1991.

The consent for the works was reviewed in September 1991. The old works has two outfalls, the North (PLDE.0002) and the South (PLDE.0003). One consent covers both of these points. The North outfall is redundant and the grid reference in the consent (CNTD.0073) refers to the South outfall. However, the reviewed consent has only been applied to the disused outfall. As a result of this the results have been assessed against the old summer/winter consent (20/12/6 from the 1st May, 25/20/10 from 1st November). Virtually no failures have been recorded under the summer/winter consent since 1st October 1991. If the same results are assessed against the correct (20/12/6) consent then 4 solids and 6 ammonia failures have been recorded since 1990. This error has now, hopefully, been corrected and the proper parameters are being used. A number of failures for the Cadmium parameter of 0.005 mg/l have been recorded and a prosecution case was prepared on the basis of this. This case was subsequently dropped when TWU took action against a trade effluent discharge.

RIVER BLACKWATER DOWNSTREAM ALDERSHOT STW

The downstream sampling point is at Government Road, Aldershot (NGR: SU 8850 5190). The URN here is PLDR.0002 and the RQO is currently 3. This point was not used during the surveys carried out in the summer of 1989 so there is virtually no data for diurnal variation. The time of travel from Aldershot STW to here is also not known.

If the archive results are assessed against the Class 3 RQO parameters (D.O. >10% and B.O.D. <17 mg/l) then only 1 failure for B.O.D. is seen (1990-1991 results).

If the same results are assessed against the Class 2B parameters (D.O. >40%, B.O.D. <9 mg/l, unionised ammonia <0.021) then 18 failures for D.O., 2 failures on B.O.D. and 3 failures on unionised ammonia are recorded. Since the new STW consent came into force only 3 D.O. failures have been recorded.

The failures in the RQO have not matched up with poor samples taken from the works. There are many outfalls into the river between the STW and Government Road and polluting discharges from the industrial areas are very likely.

CONCLUSION

The recent modification to Aldershot STW hasve resulted in greatly improved effluent quality. The tightened consent should now see an improvement in the river quality downstream. The levels of B.O.D., Ammonia and Unionised Ammonia are very low and for these the river would comply with Class 2A RQO for recent samples. However, low D.O.'s are being recorded with the improved effluent.

The reasons for this are likely to be either a wide diurnal variation in the effluent or pollution discharges via surface water outfalls. In order to determine the causes, some continuous monitoring is necessary and a programme of pollution prevention in the Aldershot Industrial area needs to be carried out.

Consent No. D.73

WATER ACT 1989
CONSENT TO DISCHARGE SEWAGE EFFLUENT INTO THE RIVER BLACKWATER

WHEREAS:-

(a) the Thames Water Authority submitted an application to the Secretary of State dated 17 March 1989, (as supplemented on 25 August 1989) in accordance with section 34 of the Control of Pollution Act 1974, as modified by the Control of Pollution (Discharges by Authorities) Regulations 1984, to discharge sewage effluent into the River Blackwater from Aldershot Town Sewage treatment Works ("the proposed discharge");

(b) that application is deemed by virtue of paragraph 25(2) (a) of Schedule 26 to the Water Act 1989 to have been made by Thames Water Utilities Limited ("the Company") to the National Rivers Authority ("the Authority"), and the Secretary of State has determined that paragraph 25(3) of that Schedule is to apply to that application;

(c) the Secretary of State, in exercise of his powers under paragraph 4(7) and 6(4) of Schedule 12 to the Water Act 1989, has directed the Authority to issue the following consent for the proposed discharge and to revoke all previous consents relating to that discharge.

NOW THEREFORE the Authority, in exercise of its powers under paragraphs 2 and 6 of Schedule 12 to the Water Act 1989:-

(a) grants a consent to the proposed discharge subject to the conditions set out in the Schedule hereto; and

(b) revokes all existing consents relating to the proposed discharge.

The period during which no notice by virtue of paragraph 6(2) or (4)(c) of Schedule 12 to the Water Act 1989 shall be served in respect of the consent shall be the period ending on the date two years from the date of this consent, or the date specified in paragraph C.1.i of the Schedule hereto, whichever shall be later, or such other date as the person who proposes to make or makes the discharge agrees.

Signed on behalf of the Authority ..29./11/...1989

SCHEDULE

CONDITIONS PRESCRIBED FOR THE DISCHARGE OF SEWAGE EFFLUENT FROM ALDERSHOT TOWN SEWAGE TREATMENT WORKS TO THE RIVER BLACKWATER.

A. NATURE OF EFFLUENT

1. The discharge shall consist of treated sewage effluent from an outlet at National Grid Reference SU ~~8836 4062~~. 8853 5036

B. VOLUME OF EFFLUENT

1.I. For the period up to and including 30 September 1991:

The volume of treated sewage effluent discharged under dry weather conditions shall not exceed 7064 cubic metres in any period of 24 hours.

ii. For the period from 1 October 1991:

The volume of treated sewage effluent discharged under dry weather conditions shall not exceed 9900 cubic metres in any period of 24 hours.

C. COMPOSITION OF EFFLUENT

1. Subject to paragraph C.2 below, no sample of the treated sewage effluent taken by the Authority shall contain more than:

I. For the period up to and including 30 September 1991 :

i. For the period 1 May to 31 October:

(a) 20 milligrams per litre of suspended solids (measured after drying at 105 degrees Celsius);

(b) 12 milligrams per litre of biochemical oxygen demand (determined in the presence of 0.5 milligrams per litre of allyl-thiourea after 5 days at 20 degrees Celsius);

(c) 6 milligrams per litre of ammoniacal nitrogen expressed as nitrogen.

ii. For the period 1 November to 30 April:

(a) 25 milligrams per litre of suspended solids (measured after drying at 105 degrees Celsius);

(b) 20 milligrams per litre of biochemical oxygen demand (determined in the presence of 0.5 milligrams per litre of allyl-thiourea after 5 days at 20 degrees Celsius);

(c) 10 milligrams per litre of ammoniacal nitrogen expressed as nitrogen.

II. For the period from 1 October 1991:

(a) 20 milligrams per litre of suspended solids (measured after drying at 105 degrees Celsius);

(b) 12 milligrams per litre of biochemical oxygen demand (determined in the presence of 0.5 milligrams per litre of allyl-thiourea after 5 days at 20 degrees Celsius);

(c) 3 milligrams per litre of ammoniacal nitrogen expressed as nitrogen.

2. The limit for any of the determinands set out in paragraph C.1 above may be exceeded where, in any series of samples of treated sewage effluent taken (whether before or after the grant of this consent) by the Authority in the period of twelve months ending on the date of the discharge, as listed in column (1) of the table at Annex A to this schedule, no more than the relevant number of samples, as listed in column (2) of the said table, exceeds the applicable limit for that determinand at the time when a sample is taken, that is in respect of samples taken after the grant of this consent, the limit set out in paragraph C.1, and in respect of samples taken before the grant of this consent, the corresponding provision of the consent then in force.

3. Notwithstanding paragraphs C.1 and C.2 above, for the period up to and including 30 September 1991 no sample of the treated sewage effluent shall contain more than:

i. For the period 1 May to 31 October: 1991

(a) 60 milligrams per litre of suspended solids (measured after drying at 105 degrees Celsius);

(b) 24 milligrams per litre of biochemical oxygen demand (determined in the presence of 0.5 milligrams per litre of allyl-thiourea after 5 days at 20 degrees Celsius);

(c) 12 milligrams per litre of ammoniacal nitrogen expressed as nitrogen.

ii. For the period 1 November to 30 April:

(a) 75 milligrams per litre of suspended solids (measured after drying at 105 degrees Celsius);

(b) 60 milligrams per litre of biochemical oxygen demand (determined in the presence of 0.5 milligrams per litre of allyl-thiourea after 5 days at 20 degrees Celsius);

(c) 20 milligrams per litre of ammoniacal nitrogen expressed as nitrogen.

4. At all times no sample of the treated sewage effluent shall contain more than:

(a) 5 micrograms per litre of total Cadmium.

5. The product of the concentration of the treated sewage effluent and the flow of the discharge at the time of sampling (expressed in terms of the quantity of matter discharged over a 24 hour period) shall at no time be greater than:

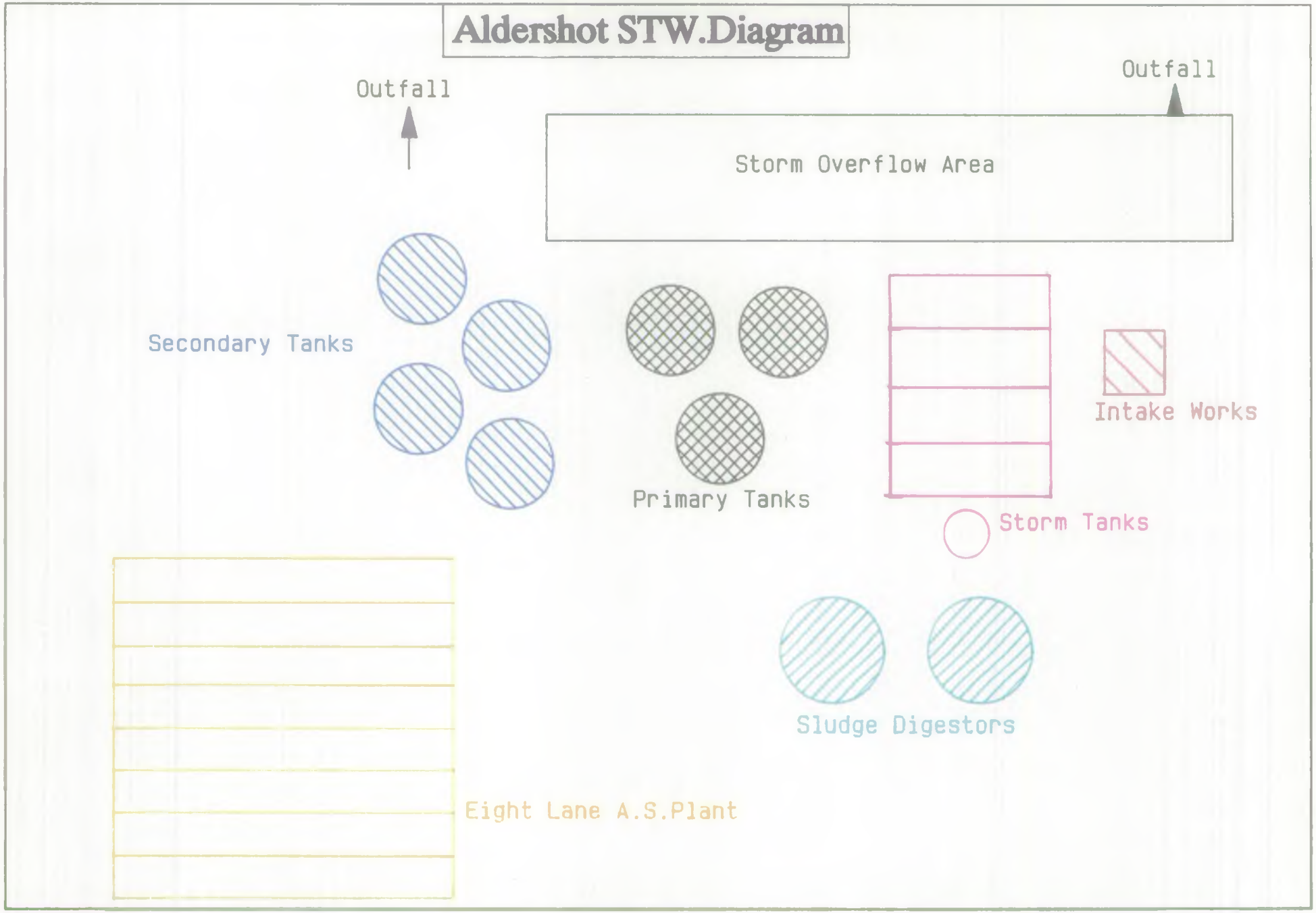
(a) 35 grammes of total Cadmium.

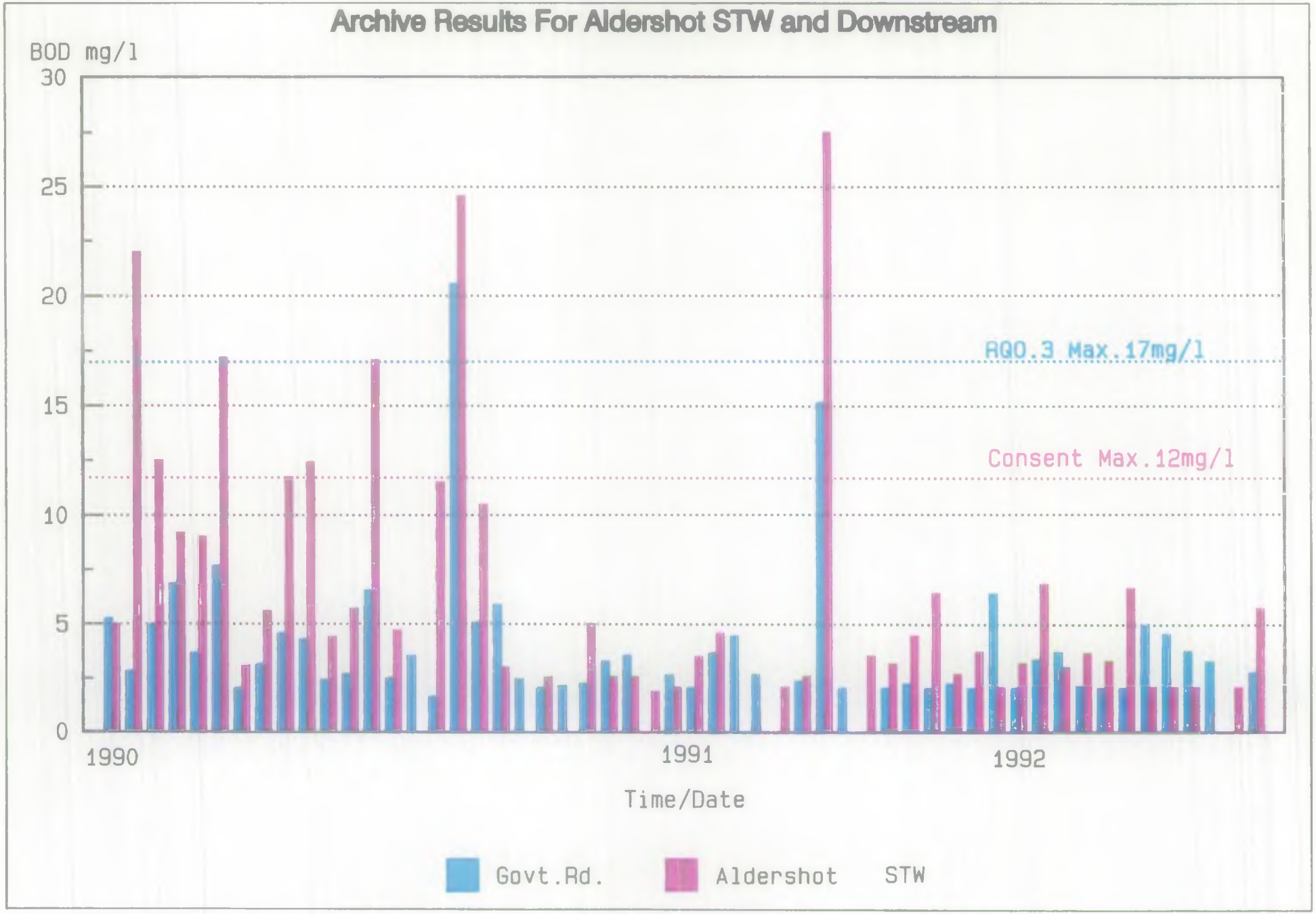
D. TAKING OF SAMPLES

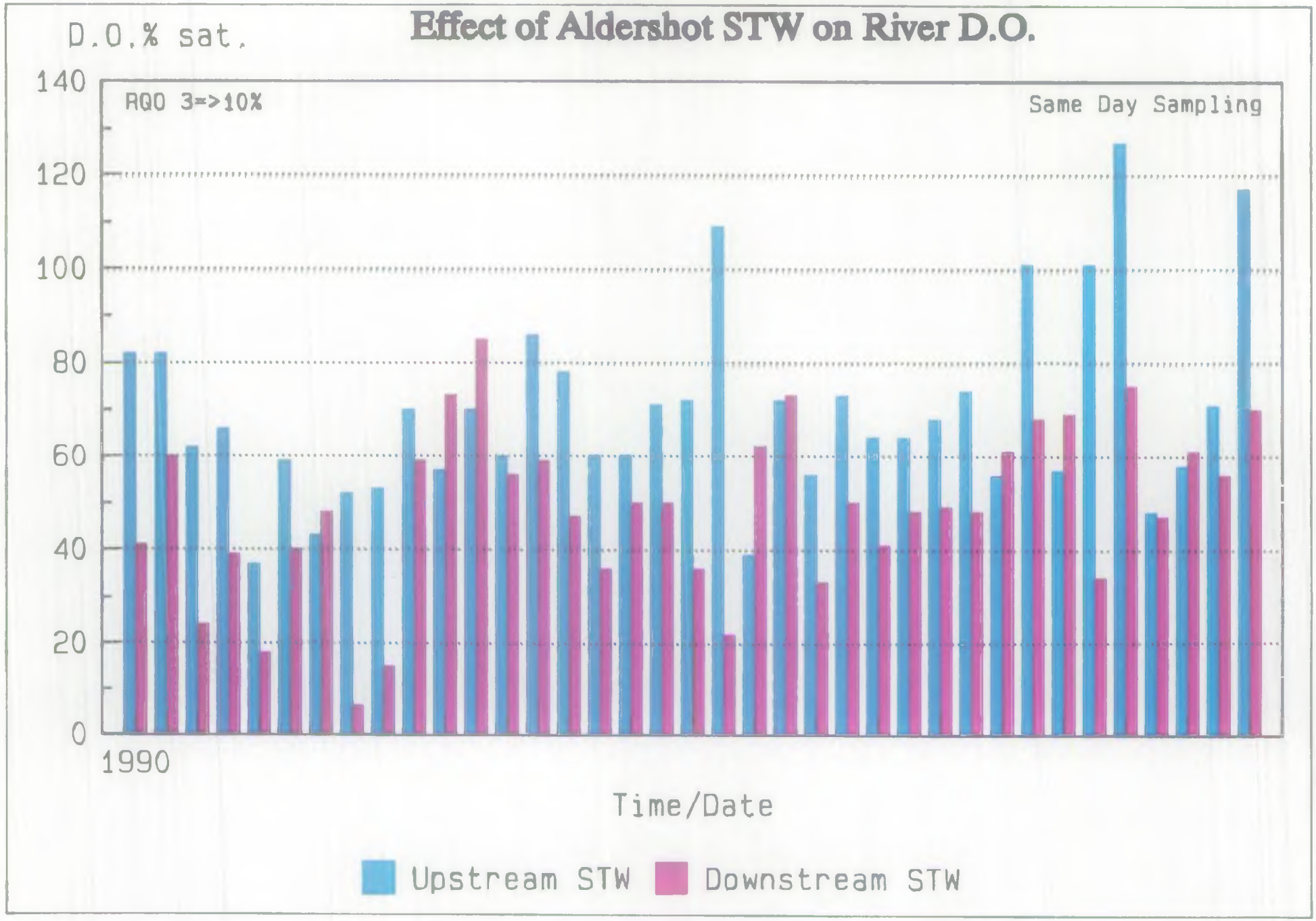
1. Facilities shall be provided to the Authority's authorised representatives so as to enable samples of the effluent to be conveniently obtained.

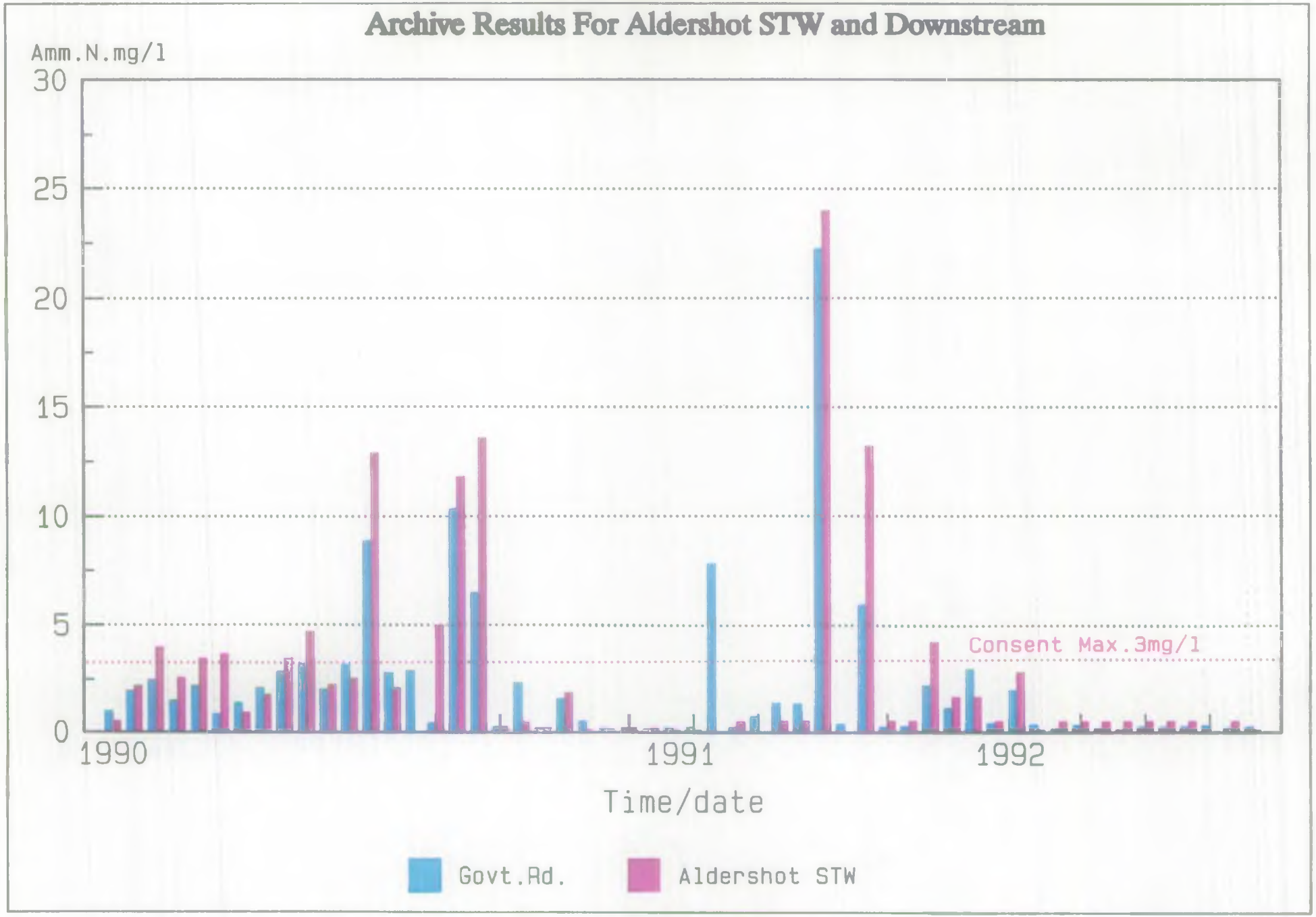
2. A measurement will be taken of the rate of flow of the discharge at the time of sampling, and records thereof kept for inspection by the Authority's authorised representatives.

Aldershot STW.Diagram




Archive Results For Aldershot STW and Downstream
BOD mg/l
30
25
20
15
10
5
0
RQO.3 Max.17mg/l
Consent Max.12mg/l
1990
1991
1992
Time/Date
Govt.Rd.
Aldershot STW


Effect of Aldershot STW on River D.O.
D.O.% sat.
140
120
100
80
60
40
20
0
RQO 3=>10%
Same Day Sampling
1990
Time/Date
Upstream STW
Downstream STW


Archive Results For Aldershot STW and Downstream
Amm.N.mg/l
30
25
20
15
10
5
0
1990
1991
1992
Time/date
Consent Max.3mg/l
Govt.Rd.
Aldershot STW