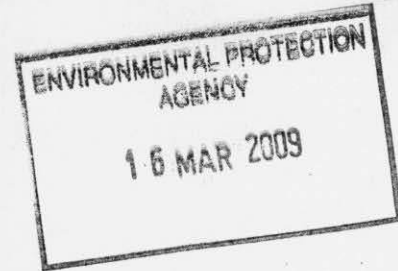


Comhairle Contae Chorcaí Cork County Council

Administration
Environmental Licensing Programme,
Office of Climate, Licensing & Resource Use,
Environmental Protection Agency
Headquarters
PO Box 3000
Johnstown Castle Estate
County Wexford.

Environmental Department,
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Inis Cara, Co. Chorcaí.
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Suíomh Gréasáin: www.corkcoco.ie



12th March 2009.

Subject: WWDL Application For Kanturk REF NO.D0203-01
Response to Notice issued by EPA in accordance with Regulation 18(3)(b) of the Waste Water Discharge
(Authorisation) Regulations 2007 – dated 14th January 2009

Dear Ms O'Callaghan,

I refer to your letter of the 14th January 2009 concerning above. The following is our reply to your request for further information in accordance with Regulation 18(3) (b) dealing in sequence with the points raised:

List of attachments:

1. Revised Non Technical summary,
2. Revised Tables -B4/B5/B9/C2/D2
3. Revised Section F/G4
4. Revised Map3, Map5, Map8 & Map 9
5. Draft River Basin Management Plan for South Western RBD
7. Revised Table F1-8

The content of the electronic files is a true copy of the original hard copy submitted to the EPA.

I trust the above answers the queries you have raised

Yours sincerely,

Valerie Hannon
A/Senior Executive Scientist
Cork County Council

Regulation 18(3)(b)CCC Reponse to EPA for KanturkKanturk D0203-01
March 2009

12th



REGULATION 18(3)(b) REPLY DATED 11th MARCH 2009

APPLICATION NO. D0203-01

Section A: Non-Technical Summary

- (i) *Provide the name of the agglomeration to which the application relates.*

The name of agglomeration is "Kanturk and Environs". The name of the agglomeration has been incorporated in the updated non-technical summary included as Revised Section A.

Section B General

- (i) *Provide an estimate of the existing and the maximum proposed Population Equivalent (p.e.) contribution from (1) domestic, (2) commercial and (3) trade effluent sources.*

The estimation of the existing and the maximum proposed Population Equivalent (p.e.), including domestic, commercial and trade effluent contributions, is shown in the table below.

PE Estimations	Total	Domestic	Commercial	Trade Effluent
Existing	2704	1915	789	0
Maximum Proposed	4427	3095	1332	0

Note that industries with trade effluent within the agglomeration have onsite wastewater treatment and do not discharge to the public sewer.

Revised Sections B.9 (i) and B.9 (ii) are attached and reflect the above information.

Section C: Infrastructure & Operation

In relation to the designated secondary discharges from the overflow pipe at inlet works of WWTP (SW02-KTRK) and pumping station (SW03-KTRK) please provide updated details, where available, on the frequency duration and volumes of effluent released from these secondary discharge points. Justify the classification as a secondary discharge. Please provide:

(i.) Details of the storage volume and storage time, in hours, which is available at the pumping stations in the event of power failure or pump malfunction.

The storage capacity of the pump station is approximately 148m³ which includes the wet wells and open screening area (formerly comminutors area). This storage capacity equates to 4.5 hours storage (under maximum p.e. DWF) in the case of a power failure or total pump malfunction.

(ii.) Details of the pump configuration (e.g. duty, assist, standby) at all identified pumping stations. For any pumping station that does not have a standby pump fitted, justification for this.

There are 4 pumps located at the pumping station, 1 30l/s pump and 3 25l/s pumps. Generally in normal flow Pump 2, 3 & 4 work in sequence (duty/standby/ standby) or alternatively Pump 1 is operating.

(iii.) Clarification as to whether the emergency overflow from the pumping station has been known to activate in the last 12 months. If so, provide the reason for the activation and details of the frequency, duration and discharge volume.

It is not know whether the emergency overflow from the pumping station has been activated in the last 12 months as no records of overflows are sought or kept.

(iv.) Reassess the information provided for storm water overflows. No storm water overflow information was provided. Please confirm that there are no storm water overflows within agglomeration.

Upon reassessment of the two designated secondary discharges (SW02-KTRK and SW03-KTRK), the emission points have been redesignated as stormwater overflows, with the same designation codes.

As a result of the redesignation the following drawings are withdrawn from Section B.4 and replaced with drawings in Section B.5 according to the table below:

Withdrawn Drawing		Replacement Drawing	
Number	Title	Number	Title
KTRK B4-08	1:500 Location Plan of Secondary Discharge Point, SW02-KTRK	CHVE B5-08	1:500 Location Plan of Stormwater Overflow, SW02-KTRK
KTRK B4-09	1:500 Location Plan of Secondary Discharge Point, SW03-KTRK	CHVE B5-09	1:500 Location Plan of Stormwater Overflow, SW03-KTRK

In addition Drawings KTRK B2-03 and KTRK B3-05 have been updated to reflect the redesignation and Revisions A02 of the drawings are included in Attachments B.2 and B.3, respectively.

Title	Number	Previous Revision	Current Revision
1:2500 Wastewater Treatment Plant Site Plan	KTRK B2-03	A01	A02
1:10,000 Location Plan of All Discharge Points	KTRK B3-05	A01	A02

- (v.) ***If storm water overflows exist within agglomeration, provide an assessment of the identified storm water overflows having regard to the requirement of the DoEHLG guidance.***

In assessing the three existing stormwater overflows with regard to Section 4 of the DoEHLG guidance:

1. The overflows do not cause significant visual or aesthetic impact and public complaints,
2. The overflows do not cause deterioration in water quality in the receiving waters,
3. The overflows do not give rise to failure in meeting the requirements of national Regulations on foot of EU Directives (Bathing Waters, etc),
4. The overflows do not operate in dry weather.

Based on the assessment above, no further considerations were necessary.

As a result of the redesignation of the secondary discharge points to stormwater overflows, as outlined above, Sections B.4, B.5, C.2, D.2 and G.4 along with Attachments B.2, B.3, B.5 and C.2 have been revised. These revised sections and attachments are included as attachments to this response.

Section E: Laboratory Monitoring and Analysis

- (i) ***Indicate if composite sampling or continuous flow monitoring is in place on the primary discharge. Detail any plans or timescales for the provision of composite sampling and continuous flow meters on any of the discharges from the agglomeration, if applicable.***

There is composite sampling on the primary discharge of the Kanturk wastewater treatment works. There is no continuous flow monitor on the primary discharge, however, there is continuous flow monitoring at the inlet to the Kanturk wastewater treatment works. There are no plans for the provision for additional composite sampling or continuous flow meters on any discharges from the agglomeration.

Section F: Existing Environment & Impact of the Discharges

Provide a further description of the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. The response should include:

- (i) ***A copy of the most recent water quality management and/or catchment plan in place for the receiving water body. Provide an evaluation of the discharge in relation to the objectives of the water quality management or catchment plan.***

The most recent catchment plan for the receiving water body, the Draft River Basin Management Plan for the South Western River Basin District, is included in Attachment F.1. The treated effluent from Kanturk Wastewater Treatment Plant is compliant with the quality of effluent standards set out by the Minimum Effluent Standards based on S.I.254 of 2001 and meets the objective of preventing deterioration in the receiving waters.

- (ii) ***Confirm that, where applicable, assessment of the impact of discharges from the waste water treatment works are based on the maximum p.e., of the agglomeration to which the application relates. Submit revised assessments where applicable.***

The assessments of discharges from the wastewater treatment works have been updated to reflect the impacts from the maximum p.e. The attached revised Sections B.9(i), B.9(ii), and F.1 reflect the updated assessments.

- (iii) ***Provide details of any correspondence engage in with the National Parks and Wildlife Service in relation to a determination as to the likelihood of discharges from the wastewater works having a significant effect on a European site. If the discharges are deemed likely to have a significant effect an appropriate assessment of the implications for the designated site in view of the sites conservation objectives must be carried out. Any assessment, should it be deemed necessary, shall be submitted as part of the reasoned response to this notice.***

Details of correspondence with the National Parks and Wildlife Service is included in Attachment F.1.

The assessment of the expected water quality for selected parameters in the River Allow downstream of the Kanturk Wastewater Treatment plant is presented in Revised Table F1-8, included in Attachment F.1. The expected concentrations (based on maximum P.E.) are within the thresholds for Pearl Mussels for BOD (<1.4 mg/l), suspended sediment (<50% increase over background levels), and phosphate (<0.03 mg/l). However, concentrations of nitrate and molybdate reactive phosphorus were not recorded in the river water analysis. Note that there are no industrial discharges to the Kanturk Wastewater Treatment Plant and the WWTP is not known to be susceptible to flooding.

Section G: Programmes of Improvements

Provide further details of any work necessary to meet relevant effluent discharge standards and a timeframe and schedule for such work.

The effluent meets the relevant discharge standards, thus no improvement works are deemed necessary or scheduled.

CONTENTS OF ATTACHMENTS

Revised Section A: Non-Technical Summary

Revised Section B.4

Revised Section B.5

Revised Section B.9 (i)

Revised Section B.9 (ii)

Revised Section C.2

Revised Section D.2

Revised Section F.1

Revised Section G.4

Revised Attachment B.2

Revised Attachment B.3

Revised Attachment B.5

Revised Attachment F.1

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Revised SECTION A: NON-TECHNICAL SUMMARY

Advice on completing this section is provided in the accompanying Guidance Note.

A non-technical summary of the application is to be included here. The summary should identify all environmental impacts of significance associated with the discharge of waste water associated with the waste water works. This description should also indicate the hours during which the waste water works is supervised or manned and days per week of this supervision.

The following information must be included in the non-technical summary:

A description of:

- the waste water works and the activities carried out therein,
- the sources of emissions from the waste water works,
- the nature and quantities of foreseeable emissions from the waste water works into the receiving aqueous environment as well as identification of significant effects of the emissions on the environment,
- the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the waste water works,
- further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused;
- measures planned to monitor emissions into the environment.

Supporting information should form **Attachment N° A.1**

Kanturk is located approximately 13 miles North West of Mallow, in the Blackwater Valley and functions as a key support settlement. The Local Area Plan strategy aims to improve its status as an important local centre by establishing links with Millstreet and Newmarket to form a strategic growth and development focus for North West Cork.

Description of the Wastewater Treatment Works

Kanturk Wastewater Treatment Works was constructed on a green field site close to the townland of Gurteenard, south of Kanturk town. The site is approximately 1.56 hectares in area. The plant was opened in 1994 and is manned from 10.30 to 15.00 Monday to Friday.

The treatment plant was designed to cater for a population equivalent (p.e.) of 3500. In the 2006 census, the population of Kanturk was quoted as 1,915.

The design dry weather flow (DWF) for the plant is 805 m³/day, which is based on measured flows (1973). This equates to an average flow of 33.5 m³/hr.

Before entering the treatment plant, the wastewater flows through a pump house. Within the pump house the wastewater is screened. It is then pumped up to the treatment plant entering at the inlet flume.

At the moment the plant is capable of handling a maximum flow of 6DWF. Flows in excess of this, discharge from the pump house directly into the River Allow flowing along the western boundary of the plant.

From the inlet flume, the wastewater is pumped through screw pumps to a splitter chamber where, the flow is divided evenly between two oxidation ditches. The design of the treatment plant is such that two separate process streams are provided. This ensures that each stream can be operated in isolation, allowing the continuous treatment of wastewater while also enabling maintenance and repair work of the plant to be carried out.

In each oxidation ditch, 2 rotors are used to ensure that sludge remains in suspension at all times. From the ditches, the flow passes to the two clarifiers for the purpose of settling sludge.

The sludge from the settling tanks is drawn off and is pumped to a picket fence thickener and then to the dewatering room in the control house. All sludge produced at the treatment works is dewatered to produce a sludge cake with a solids content of 12%. The sludge is given to farmers to spread on land and any surplus sludge is stored in an onsite storage lagoon. There is no overflow from the lagoon to the river.

The effluent from the settling tanks is then passed into an outlet flume. From here it flows through a 375mm \varnothing outfall pipe into the River Allow.

Sources of Emissions from the Wastewater Treatment Works

The wastewater from Kanturk town is collected through a pipe network and flows by gravity to a pump house just south of the town on the east bank of the River Allow. The main source of emissions is the 375mm diameter discharge pipe carrying the treated effluent from the wastewater treatment plant to the River Allow. The River Allow flows along the western boundary of the plant.

The maximum flow to the treatment plant is 4830m³/day. Flows in excess of this are discharged via a 750mm diameter overflow pipe from the pump house, directly into the River Allow.

There is also a 450mm diameter overflow at the inlet works of the treatment plant. However this is very rarely used as flows in excess of the treatment plant capacity are discharged at the pump house.

The nature and quantities of foreseeable emissions from the wastewater works into the receiving aqueous environment as well as identification of significant effects of the emissions on the environment

The flow from the wastewater treatment plant varies from the design dry weather flow of 805m³/day to the maximum capacity of the treatment plant, which is 6 DWF (4830m³/day).

The processes at the treatment plant produce an effluent, which satisfies the requirements of EC Directive 91/271/EEC concerning Urban Wastewater Treatment (SI 491 of 1994 as amended by SI 254 of 2001). The applicable effluent standards as defined in the Directive are shown below.

Table A1-1: Minimum Effluent Standards based on S.I.254 of 2001 and Recorded effluent Concentrations

Parameter	Effluent Standards (mg/l)	Actual Concentrations* (mg/l)
Biological Oxygen Demand (BOD)	25	4.6
Suspended Solids (SS)	35	10.2
Orthophosphate	2	1.3

*Actual Concentration is the average effluent concentrations recorded at the outlet of the WWTP by Cork County Council Wastewater Laboratory during the period Jan '07 to April '08.

From the table above, it is evident that treated effluent from the Kanturk wastewater treatment plant is compliant with the quality of effluent standards set out in the above legislation.

A wastewater assimilative capacity assessment was carried out using all available flow and water quality data. A detailed description of this assessment is completed in Section F1.

Based on the assessment of discharges to the receiving water the concentration of BOD and SS will remain below the limiting water quality standards set for the river under 95%-ile river flows. The concentrations of dangerous substances in both the effluent and the river are significantly lower than allowable standards.

The impact of phosphorus discharges was assessed based on median river flows. This indicated an expected water quality of 0.03mg/l, which is at the limit of the water quality standard as determined by the current Q4 rating for the river.

The wastewater assimilative capacity assessment predicts the expected water quality remains within the water quality limits set in the various regulations with only minor increases in the concentration levels of BOD, SS, phosphorus and various dangerous substances.

The proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the waste water works

The sewerage system in Kanturk is primarily a separate storm and foul system. The North Cork Co-op in Kanturk has a separate wastewater treatment plant and does not contribute to the flow in the foul sewer system. The surface water in Kanturk generally drains directly to the River, therefore not overloading the wastewater treatment plant.

The treatment works include the following elements:

- Screening
- Inlet Flume
- Splitter Chamber
- Oxidation ditches
- Settling Tanks
- Picket Fence Thickener
- Sludge Dewatering House
- Sludge Storage
- Outfall to River Allow

The processes at the treatment plant produce an effluent, which satisfies the requirements of EC Directive 91/271/EEC concerning Urban Wastewater Treatment (SI 491 of 1994 as amended by SI 254 of 2001).

The screen was an addition to the pump house in 2007 to improve the quality of the influent to the plant. This also improves the quality of any overflows to the River Allow. There are two overflows throughout the system, one at the pump house and one entering the treatment plant. The pump house overflow comes into use at present in flows exceeding 6DWF, which arise during wet periods when infiltration is occurring. The overflow in the treatment plant is rarely used.

The Kanturk Electoral Area Local Area Plan, 2005 states that all proposals for housing estate development are connected to the public sewerage system unless there is extenuating circumstance.

Further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused

The Water Services Investment Programme 2007-2009 does not allocate any funding for improvements to the Kanturk Wastewater Treatment Plant, which was originally commissioned in 1994.

The most recent upgrades that were made to the plant were in 2007. A 6mm screening unit was put in place at the pumping station replacing comminutors, which were not achieving the required results.

A wastewater assimilative capacity assessment was carried out for the Kanturk Wastewater Treatment Plant. The background concentration levels of nutrients in the river were estimated from data collected by Cork County Council wastewater laboratory in 2007 and 2008. Based on this data Kanturk wastewater treatment plant does not appear to be having a major negative effect on the River Allow. Therefore the basic obligations of the operator are being adhered to.

Measures Planned to Monitor Emissions into the Environment

The Cork County Council Environmental Laboratory carries out sampling of the influent and effluent biannually. The Environmental Laboratory also undertakes sampling and analysis of the wastewater sludge.

The Cork County Council Environmental Department located in Inniscarra takes samples from the River Allow upstream and downstream of the wastewater treatment plant approximately 6 times per year. Samples of the influent and effluent are also taken at these times.

The EU Water Framework Directive Monitoring Programme is to be fully operational by the year 2012. This monitoring programme was prepared by the EPA to meet the requirements of the EU Water Framework Directive (2000/60/EC) and National Regulations implementing the Water Framework Directive (S.I. No. 722 of 2003) and National Regulations implementing the Nitrates Directive (S.I. No. 788 of 2005). The River Allow is to have a number of operational monitoring sites under this monitoring programme.

Revised SECTION B.4

B.4 Location of Secondary Discharge Point(s)

Give the location of **all** secondary discharge point(s) associated with the waste water works. Please refer to Guidance Note for information on Secondary discharge points.

Type of Discharge	Not Applicable
Unique Point Code	Not Applicable
Location	Not Applicable
Grid ref (6E, 6N)	Not Applicable

Attachment B.4 should contain appropriately scaled drawings / maps ($\leq A3$) of the discharge point(s), including labelled monitoring and sampling points associated with the discharge point(s). These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.5, C.1, D.2, E.3 and F.2.

Attachment included	Yes	No
		✓

Revised SECTION B.5

B.5 Location of Storm Water Overflow Point(s)

Give the location of **all** storm water overflow point(s) associated with the waste water works.

Type of Discharge	450mm diameter overflow pipe from inlet works of the wastewater treatment plant. Open Pipe
Unique Point Code	SW02-KTRK
Location	Approximately 1km south of the town centre, off the R576
Grid ref (6E, 6N)	138475E, 102202N

Type of Discharge	750mm diameter overflow pipe from the pump station 500m upstream of treatment plant. Open Pipe
Unique Point Code	SW03-KTRK
Location	Overflow at main pump station at the junction of R576 and 580
Grid ref (6E, 6N)	138418E, 102634N

Attachment B.5 should contain appropriately scaled drawings / maps ($\leq A3$) of storm water overflow point(s) associated with the waste water works, including labelled monitoring and sampling points associated with the discharge point(s). These drawings / maps should also be provided as geo-referenced digital drawing files (e.g. ESRI Shapefile, MapInfo Tab, AutoCAD or other upon agreement) in Irish National Grid Projection. This data should be provided to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, C.1, D.2, E.3 and F.2.

The locations of the stormwater overflows are shown on Drg. Nos. B5-08 and B5-09 included in Attachment B.5.

Attachment included	Yes	No
	✓	

Revised SECTION B.9 (i)

B.9 (i) Population Equivalent of Agglomeration**TABLE B.9.1 POPULATION EQUIVALENT OF AGGLOMERATION**

The population equivalent (p.e.) of the agglomeration to be, or being, served by the waste water works should be provided and the period in which the population equivalent data was compiled should be indicated.

Population Equivalent	3495
Data Compiled (Year)	2005-2008
Method	2006 Census (2008 Planning Permissions)

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Revised SECTION B.9 (ii)

B.9 (ii) Pending Development

Where planning permission has been granted for development(s), but development has not been commenced or completed to date, within the boundary of the agglomeration and this development is being, or is to be, served by the waste water works provide the following information;

- information on the calculated population equivalent (p.e.) to be contributed to the waste water works as a result of those planning permissions granted,
- the percentage of the projected p.e. to be contributed by the non-domestic activities, and
- the ability of the waste water works to accommodate this extra hydraulic and organic loading without posing an environmental risk to the receiving water habitat.

The population equivalent is based on census figures compiled in 2006 by the Central Statistics Office. All developments with granted planning permission and all developments under construction at present have also been included in the agglomeration. Some residentially zoned land is unlikely to be developed in the lifetime of this discharge licence and therefore is not included in the agglomeration. There are no industries with an IPPC licence or Cork County Council discharge licence, discharging to the wastewater network in Kanturk.

The additional p.e. due to granted planning permissions is estimated to be 1141, based on 2.9 people per dwelling as recommended by Kanturk Electoral Area Local Area Plan 2005 and incremental increase in commercial activities. There are currently no planning permissions granted in relation to non-domestic activities.

For both the existing p.e. (2354) and maximum proposed p.e. (3495) the domestic contribution is approximately 80% of the load and commercial the remaining 20%. All industries with trade effluent within the agglomeration have separate treatment plants, therefore there is no trade effluent contributing to the treatment plant load.

At present Kanturk wastewater treatment plant is operating at less than its potential capacity. The proposed maximum p.e. is also less than the capacity. Therefore the plant has adequate capacity to accommodate the extra hydraulic and organic loading without posing additional environmental risk to the receiving water habitat.

Revised SECTION C.2

C.2 Outfall Design and Construction

Provide details on the primary discharge point & secondary discharge points and storm overflows to include reference, location, design criteria and construction detail.

Attachment C.2 should contain any supporting documentation on the design and construction of any and all discharge outfalls, including stormwater overflows, from the wastewater works.

Primary Discharge Point, SW01-KTRK

Type of Discharge	375mm diameter outfall pipe from wastewater treatment plant. Open Pipe
Unique Point Code	SW01-KTRK
Location	Approximately 1km south of the town centre, off the R576
Grid ref (6E, 6N)	138386E, 102086N

The primary discharge point, SW01-KTRK, is the main outlet from Kanturk Wastewater Treatment Plant. The outfall runs in a southwest direction approximately 65m across the flood plain to the river. The point of discharge is an open pipe and is always below water level.

Stormwater Overflow, SW02-KTRK

Type of Discharge	450mm diameter overflow pipe from inlet works of the wastewater treatment plant. Open Pipe
Unique Point Code	SW02-KTRK
Location	Approximately 1km south of the town centre, off the R576
Grid ref (6E, 6N)	138475E, 102202N

The stormwater overflow, SW02-KTRK, is an overflow pipe from the inlet flume of the wastewater treatment plant. The outfall runs in a northwest direction approximately 30m to the river. The point of discharge is an open pipe and is always below water level.

Stormwater Overflow, SW03-KTRK

Type of Discharge	750mm diameter overflow pipe from the pump station 500m upstream of treatment plant. Open Pipe
Unique Point Code	SW03-KTRK
Location	Overflow from main pump station at the junction of R576 and R580 (500m upstream of WWTP)
Grid ref (6E, 6N)	138418E, 102634N

The stormwater overflow, SW03-KTRK is an overflow from the pumping station. The overflow may activate following mechanical failure of the pumping station or

overloading of the wastewater treatment plant. The outfall runs in a southwest approximately 30m across the flood plain to the river. The point of discharge is an open pipe and is always below the water level.

No detailed design or construction details are available for the outfalls.

Attachment included	Yes	No
		✓

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Revised SECTION D.2

D.2 Tabular Data on Discharge Points

Applicants should submit the following information for each discharge point:

Table D.2:

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING
SW01-KTRK	Primary	Cork County Council	River	River Allow	cSAC	138386	102086
SW02-KTRK	Stormwater Overflow	Cork County Council	River	River Allow	cSAC	138475	102202
SW03-KTRK	Stormwater Overflow	Cork County Council	River	River Allow	cSAC	138418	102634

An individual record (i.e. row) is required for each discharge point. Acceptable file formats include Excel, Access or other upon agreement with the Agency. A standard Excel template can be downloaded from the EPA website at www.epa.ie. This data should be submitted to the Agency on a separate CD-Rom containing sections B.1, B.2, B.3, B.4, B.5, C.1, E.3 and F.2.

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Revised SECTION F.1

F.1. Assessment of Impact on Receiving Surface or Ground Water

- Give summary details and an assessment of the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.
- Details of all monitoring of the receiving water should be supplied via the following web based link: http://78.137.160.73/epa_wwd_licensing/. Tables F.1(i)(a) & (b) should be completed for the primary discharge point. Surface water monitoring locations upstream and downstream of the discharge point shall be screened for those substances listed in Tables F.1(i)(a) & (b). Monitoring of surface water shall be carried out at not less than two points, one upstream from the discharge location and one downstream.
- For discharges from secondary discharge points Tables F.1(ii)(a) & (b) should be completed. Furthermore, provide summary details and an assessment of the impacts of any existing or proposed emissions on the surface water or ground (aquifers, soils, sub-soils and rock environment), including any impact on environmental media other than those into which the emissions are to be made.
- Provide details of the extent and type of ground emissions at the works. For larger discharges to groundwaters, e.g., from Integrated Constructed Wetlands, large scale percolation areas, etc., a comprehensive report must be completed which should include, inter alia, topography, meteorological data, water quality, geology, hydrology, and hydrogeology. The latter must in particular present the aquifer classification and vulnerability. The Geological Survey of Ireland Groundwater Protection Scheme Dept of the Environment and Local Government, Geological Survey of Ireland, EPA (1999) methodology should be used for any such classification. This report should also identify all surface water bodies and water wells that may be at risk as a result of the ground discharge.
- Describe the existing environment in terms of water quality with particular reference to environmental quality standards or other legislative standards. Submit a copy of the most recent water quality management plan or catchment management plan in place for the receiving water body. Give details of any designation under any Council Directive or Regulations that apply in relation to the receiving water.
- Provide a statement as to whether or not emissions of main polluting substances (as defined in the *Dangerous Substances Regulations S.I. No. 12 of 2001*) to water are likely to impair the environment.
- In circumstances where water abstraction points exist downstream of any discharge describe measures to be undertaken to ensure that discharges from the waste water works will not have a significant effect on faecal coliform, salmonella and protozoan pathogen numbers, e.g., Cryptosporidium and Giardia, in the receiving water environment.

- o Indicate whether or not emissions from the agglomeration or any plant, methods, processes, operating procedures or other factors which affect such emissions are likely to have a significant effect on –
 - (a) a site (until the adoption, in respect of the site, of a decision by the European Commission under Article 21 of Council Directive 92/43/EEC for the purposes of the third paragraph of Article 4(2) of that Directive) –
 - (i) notified for the purposes of Regulation 4 of the Natural Habitats Regulations, subject to any amendments made to it by virtue of Regulation 5 of those Regulations,
 - (ii) details of which have been transmitted to the Commission in accordance with Regulation 5(4) of the Natural Habitats Regulations, or
 - (iii) added by virtue of Regulation 6 of the Natural Habitats Regulations to the list transmitted to the Commission in accordance with Regulation 5(4) of those Regulations,
 - (b) a site adopted by the European Commission as a site of Community importance for the purposes of Article 4(2) of Council Directive 92/43/EEC¹ in accordance with the procedures laid down in Article 21 of that Directive,
 - (c) a special area of conservation within the meaning of the Natural Habitats Regulations, or
 - (d) an area classified pursuant to Article 4(1) or 4(2) of Council Directive 79/409/EEC²;

¹Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ No. L 206, 22.07.1992)

²Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (OJ No. L 103, 25.4.1979)

- o Describe, where appropriate, measures for minimising pollution over long distances or in the territory of other states.
- o This section should also contain full details of any modelling of discharges from the agglomeration. Full details of the assessment and any other relevant information on the receiving environment should be submitted as **Attachment F.1.**

The plant is performing satisfactorily at present and operating within the requirements of the following legislation. There are no improvements planned at present for the Kanturk Wastewater Treatment Plant.

Water Quality Standards

The Water Framework Directive (WFD) aims to establish an integrated approach to water protection, improvement and sustainable use. In order to achieve the requirements of the WFD, Ireland has been divided into a number of River Basin Districts or management units. The South Western River Basin District (SWRBD) comprises substantially the counties of Cork and Kerry, all of Cork City, and also parts of counties Limerick, South Tipperary and Waterford.

The River Allow is included in the SWRBD. The overall objectives of the SWRBD project include the following:

- Strengthen compliance with EU Directives and national legislation
- Collect and analyse information to determine water quality and identify possible threats to water status
- Prevent further deterioration and protect/enhance water quality
- Develop a programme of measures to address all significant pressures and sources of impact on aquatic ecosystems and groundwater
- Encourage and facilitate public participation including the maintenance of a project website
- Promote sustainable water use

In order to achieve these objectives the following project tasks have been identified:

- Identify pressures on water bodies and assess risk of not achieving compliance with the Water Framework Directive
- Prepare a Characterisation Report
- Identify Heavily Modified (HMWB) and Artificial Water Bodies (AWB)
- Establish risk to waters from Hazardous Substances
- Establish data management system and GIS
- Prepare programme of measures
- Review of monitoring needs
- Design monitoring programme
- Prepare River Basin Management Strategy
- Assist public participation in the project
- Prepare printed reports
- Assist capacity building

The SWRBD have yet to set water quality standards for the River Allow under a water quality or catchment management plan. The River Basin Management System currently being developed will include a programme of measures and a River Basin Management Strategy, designed to achieve at least good status for all waters by 2015, and to maintain high status where it exists. Therefore discharges from Kanturk Wastewater Treatment Plant cannot cause deterioration in good water quality under the Water Framework Directive at present. The Draft River Basin Management Plan for the South Western River Basin District is included in Attachment F.1.

The River Allow is not a designated Shellfish area under the Shellfish Waters Regulations, S.I.200 of 1994. The River Blackwater, into which the River Allow flows, is also not designated under these regulations.

The River Allow is not designated a Salmonid Water under Salmonid Water Regulations, S.I. 293 of 1988 and tributaries of the Blackwater are also not designated under these regulations.

The River Allow is not designated a Bathing Water under the Bathing Water Regulations, S.I. 178 of 1998 as amended.

The River Allow is not a designated Sensitive Area under the Urban Wastewater Treatment Regulations 2001 (S.I. 254 of 2001). The River Blackwater downstream of Mallow Railway Bridge is a designated Sensitive Area. This is not within 2km of any discharge point from the Kanturk wastewater works.

There are no areas along the River Allow or River Blackwater downstream of the Kanturk wastewater treatment plant designated for the abstraction of water intended for human consumption.

Areas of Conservation

The Department of the Environment, Heritage and Local Government is responsible for the designation of conservation sites in Ireland. It is required under European law and national laws to conserve habitats and species, through designation of conservation areas under Special Areas of Conservation, Natural Heritage Areas and Special Protected Areas.

Special Areas of Conservation

Candidate Special Areas of Conservation (cSACs) are protected under the European Union (EU) Habitats Directive (92/43/EEC), as implemented in Ireland by the European Communities (Natural Habitats) Regulations, 1997.

The Blackwater River cSAC (Site Code: 002170) is very large, extending from the tidal estuary of the river at Youghal Co. Cork to the upper tributaries and their flood plains, in Cos. Cork Kerry, Limerick, Tipperary and Waterford, including the River Allow which flows through Kanturk, adjacent to the wastewater treatment plant site.

The cSAC is designated on the basis of the presence of a large number of EU Habitats Directive Annex 1 habitats and Annex 2 species. Many of these are estuarine habitats and species found only in the lower reaches of the River Blackwater, however a number may be present in the River Allow section of the cSAC including, for example the Annex 1 habitats, 'alluvial wet woodlands', 'floating river vegetation', and 'old oak woodlands'; and the Annex 2 species sea lamprey, river lamprey, brook lamprey, Atlantic salmon, freshwater pearl-mussel and otter.

The Blackwater River Site Synopsis is included in Attachment F.1.

Natural Heritage Areas

The River Allow does not flow through any Natural Heritage Areas (NHA). Natural Heritage Areas are the basic designation for wildlife. An NHA is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection.

Under the Wildlife Amendment Act 2000, NHAs are legally protected from damage from the date they are formally proposed for designation. Areas of the River Blackwater are designated as proposed NHAs, however these areas are greater than 2km from all discharge points and prior to statutory designation pNHAs are subject to limited protection.

Special Protected Areas

Special Protection Areas (SPAs) are designated in order to safeguard certain habitats pursuant to EU Directive requirements. The EU Birds Directive (79/409/EEC) requires designation of SPAs for listed rare and vulnerable species, migratory species and wetlands.

No designated special protected areas are located along the River Allow. There are areas of the River Blackwater that are designated SPAs, however these are located downstream of Fermoy and therefore greater than 2km from all discharge points.

Receiving Water Quality Requirement

Water Quality analysis data for the River Allow was obtained from Cork County Council. The EPA also takes samples from three locations along the River Allow in the vicinity of the treatment plant. These are located 0.5km upstream of Kanturk Bridge (u/s of plant), 1.3km downstream of Kanturk Bridge (d/s of plant) and Leader's Bridge (d/s of plant).

The biological quality rating (Q value) for the above locations is presented in Table 2 for the period 1982 to 2003. The EPA biological quality rating indicates that the existing water quality upstream of the plant is unpolluted and generally satisfactory. It is evident that there is a reduction in water quality just downstream of the treatment plant. The data also indicates an improvement in water quality at Leaders Bridge from 1994. This is most likely due to the commissioning of the wastewater treatment plant in that year.

Table F1-2: Biological Quality Rating for River Allow

Sampling Location	EPA Biological Quality Rating (Q values)						
	1982	1986	1990	1994	1997	2000	2003
u/s Kanturk Bridge	3-4	3-4	5	4-5	4-5	4-5	4
d/s Kanturk Bridge	3-4	3-4	3-4	3-4	3-4	3-4	3-4
Leader's Bridge	3-4	3-4	3-4	4-5	4	4	4

The Monitoring Station downstream of Kanturk Bridge (i.e. downstream of plant) has a baseline Q-rating (1995) of Q3-4. The target set in the Phosphorus Regulations implementation report 2006 is to achieve a Q-rating of Q4 with a target median phosphorus level of 0.03mgP/l as MRP by 2007. The most recently recorded Q-value as shown above is Q3-4, which indicates phosphorus levels of less than 0.03mgP/l.

The level of suspended solids allowable in the receiving waters is 25mg/l. This is based on the Freshwater Fish Directive in the absence of alternative guidelines.

The Royal Commission in its report on Water Quality Guidelines recommends that "in all circumstances effluent discharges which are calculated to raise the BOD of the receiving water, outside the mixing zone, by more than 1 mg/l should be discouraged". The average existing background level for BOD is estimated at 1mg/l. Therefore the receiving water limiting value for BOD for this river is 2mg/l.

The standard water quality requirements for dangerous substances are based on the Water Quality (Dangerous Substances) Regulations 2001.

Hence, the principal receiving water quality requirements are given in Table 3 below: -

Table F1-3: Receiving Water Quality Limiting Values

Parameter	Water Quality Standard (mg/l)
BOD	2
Suspended Solids	25
Phosphorus mg/l	0.03
Atrazine	0.001
Dichloromethane	0.01
Simazine	0.001
Xylenes	0.01
Arsenic	0.025
Copper	0.005
Cyanide	0.01
Lead	0.005
Nickel	0.008
Zinc	0.05

Effluent Standards

The treated effluent quality requirements shown in the table below are determined with respect to the EC Urban Wastewater Directive, given effect in Irish Law by S.I.254 of 2001.

Table F1-4: Minimum Effluent Standards based on S.I.254 of 2001 and Recorded Effluent Concentrations

Parameter	Effluent Standards (mg/l)	Actual Concentrations* (mg/l)
Biological Oxygen Demand (BOD)	25	4.6
Suspended Solids (SS)	35	10.2
Orthophosphate	2	1.3

*Actual Concentration is the average effluent concentrations recorded at the outlet of the WWTP by Cork County Council Wastewater Laboratory during the period Jan '07 to April '08.

From Table 4 above, it is evident that treated effluent from the Kanturk wastewater treatment plant is compliant with the quality of effluent standards set out in the above legislation.

Assimilative Capacity of the Receiving Water

An assimilative capacity assessment based on a dilution model was carried out, using all available flow and water quality data. The limiting water quality standards for the River Allow and the estimated expected concentrations of the various water parameters in the River Allow after the treated effluent is discharged are summarized in Table 5 below.

Based on the assessment of discharges to the receiving water the concentration of BOD and SS will remain below the limiting water quality standards set for the river under 95%-ile river flows. The concentrations of dangerous substances in both the effluent and the river are significantly lower than allowable standards.

The assessment of the impact of the phosphorus discharges based on median river flows indicates an expected water quality of 0.03mg/l which is at the limit of the water quality standard as determined by the targeted Q4 rating for the river.

Table F1-5: Expected Water Quality

Parameter	Background Conc. (mg/l)*	Expected Water Quality (mg/l)	Water Quality Limiting Value (mg/l)
Biochemical Oxygen Demand	1	1.07	2
Suspended Solids	3.5	3.61	25
Phosphorus	0.025	0.027	0.03
Atrazine	0.000005	0.00001	0.001
Dichloromethane	0.0005	0.0005	0.01
Simazine	0.000005	0.00001	0.001
Xylenes	0.0005	0.0005	0.01
Arsenic	0.001	0.00098	0.025
Copper	0.00001	0.00041	0.005
Cyanide	0.0025	0.0025	0.01
Lead	0.01	0.01052	0.005
Nickel	0.01	0.01	0.008
Zinc	0.01	0.01	0.05

*Background Concentrations were estimated based on average concentrations recorded in the river u/s of the WWTP by Cork County Council Wastewater Laboratory during the period Jan '07 to April '08

The assimilative capacity assessment predicts the expected water quality remains within the water quality limits set in the various regulations. The table above shows there are only minor increases in the concentration levels of BOD, SS, phosphorus and various dangerous substances.

A screening method is used for testing metals, with a limit of detection of 2mg/l. The estimated expected concentrations of Lead and Nickel are marginally higher than the water quality limits due to this limit of detection. However the expected concentrations of the metals are the same as the background concentrations. If tests were repeated at a lower limit of detection it is most likely the expected concentration limits and background concentrations would be lower than the water quality limits.

Therefore the River Allow has sufficient assimilative capacity for discharges from the Kanturk wastewater treatment plant.

Discharges in proximity of Wastewater Works

North Cork Creameries Co-operative is discharging approximately 100m upstream of the Kanturk wastewater treatment plant and Ducon Concrete are discharging downstream of the treatment plant before the River Blackwater confluence.

Water quality analysis data presented in Tables 6&7 below was recorded by Cork County Council wastewater laboratory and covers a sampling period from 2007 to 2008.

The downstream monitoring station is located 4km downstream of the wastewater treatment plant, which is also downstream of Ducon Concrete. The upstream monitoring station is located 2km upstream of the wastewater treatment plant and is also upstream of North Cork Creameries Co-op.

Table F1-6: Upstream Water Quality

Parameter	Upstream Monitoring Station							
	01/07	03/07	08/07	09/07	02/08	02/08	03/08	04/08
Ph	7.6	7.3	7.9	7.6	8.1	8	-	-
BOD	0.5	0.5	1.2	1.04	1.57	0.5	0.5	0.5
SS	5	7	5	4	4	1.25	1.25	26
Ammonia	0.05	0.05	0.05	0.05	0.05	0.05	-	0.05
Ortho-Phosphate	-	-	0.025	0.025	0.025	0.025	-	0.025

Table F1-7: Downstream Water Quality

Parameter	Downstream Monitoring Station							
	01/07	03/07	08/07	09/07	02/08	02/08	03/08	04/08
Ph	7.5	7.3	8.1	8.0	8.1	7.9	-	-
BOD	0.5	0.5	0.5	1.1	1.56	1.17	0.5	0.5
SS	-	6	-	-	1.25	9	1.25	1.25
Ammonia	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Ortho-Phosphate	-	-	0.025	0.025	0.025	0.025	-	0.025

No chemical data is available at the location of the effluent discharge. However the data in the above tables confirms the wastewater discharge has little effect on the overall river quality given adequate flow in the river and dispersion time.

Attachment included	Yes	No
		✓

Revised SECTION G.4

G.4 Storm Water Overflow

Provide details on a programme of improvements to ensure that discharges other than the primary and secondary discharges comply with the definition of 'storm water overflow' as per Regulation 3 of the Waste Water Discharge (Authorisation) Regulations, 2007.

Attachment G.4 should contain the most recent programme of improvements, including a copy of any approved funding for the project and a timeframe for the completion of the necessary works to take place.

The Water Services Investment Programme 2007-2009 does not allocate any funding for improvements to the stormwater overflows within the foul sewer network that drains to or stormwater overflows within the Kanturk Wastewater Treatment Plant.

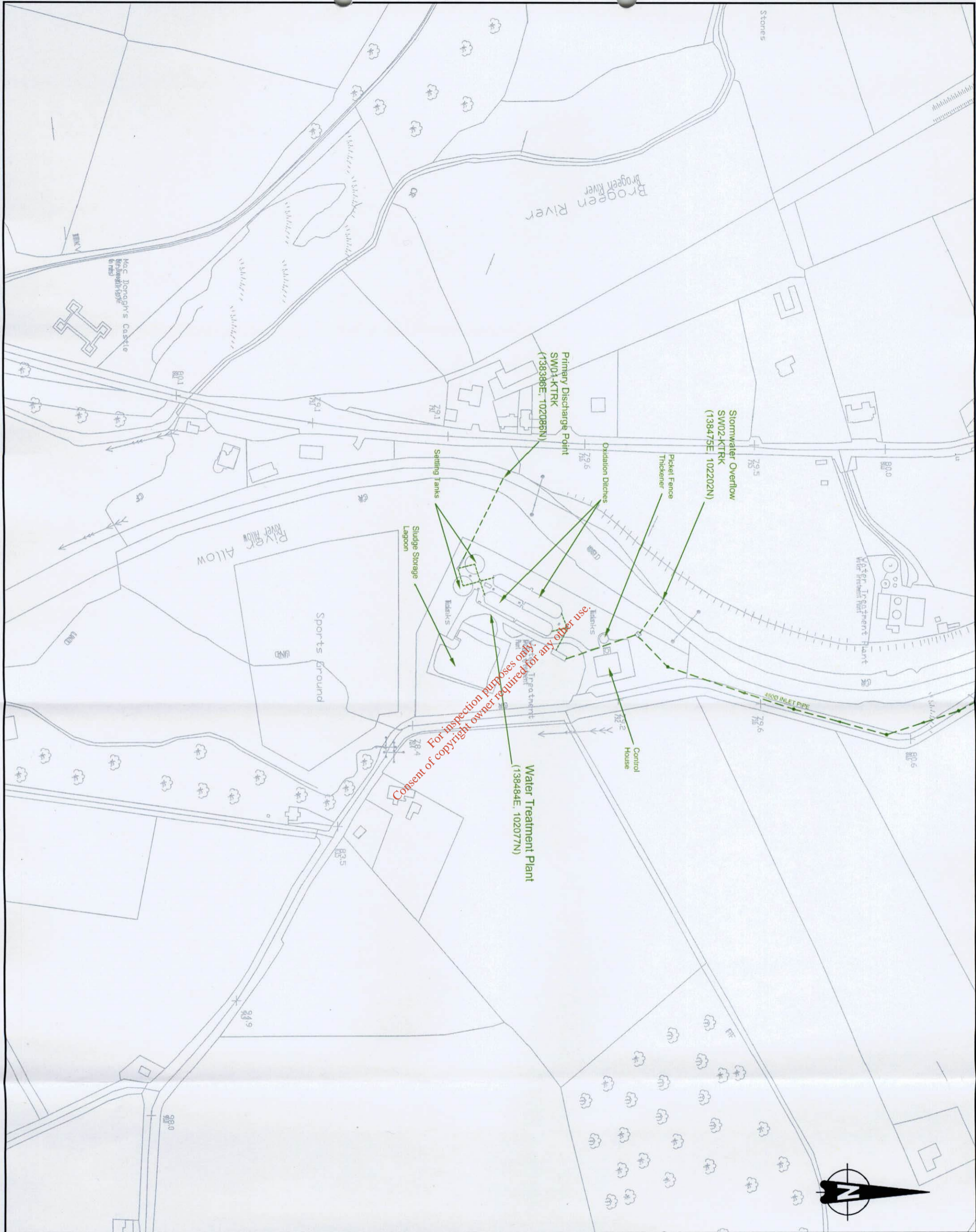
Attachment included	Yes	No
		✓

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Revised ATTACHMENT B.2

Item	Title	Revised Drg. No.	To Replace Drg. No.
1	Revised 1:2500 Wastewater Treatment Plant Site Plan, KTRK B2-03	KTRK B2-03 (Rev. A02)	KTRK B2-03 (Rev. A01)

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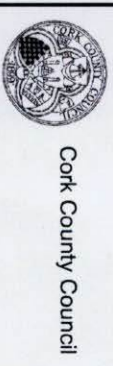


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No.	Date	Amendment / Issue	App.
A02	Mar 08	Issue for Approval	SC
A01	July 08	Issue for Approval	BB



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Title:
 Attachment B2
 1:2500 Wastewater
 Treatment Plant Site Plan

Drawn by:	BC	Job No:	MCN0543
Checked by:	CD	File No:	DG0003
Approved by:	SC	Dwg No:	KTRK B2-03
Scale:	1/2500	Rev:	A02
Date:	July 2008		

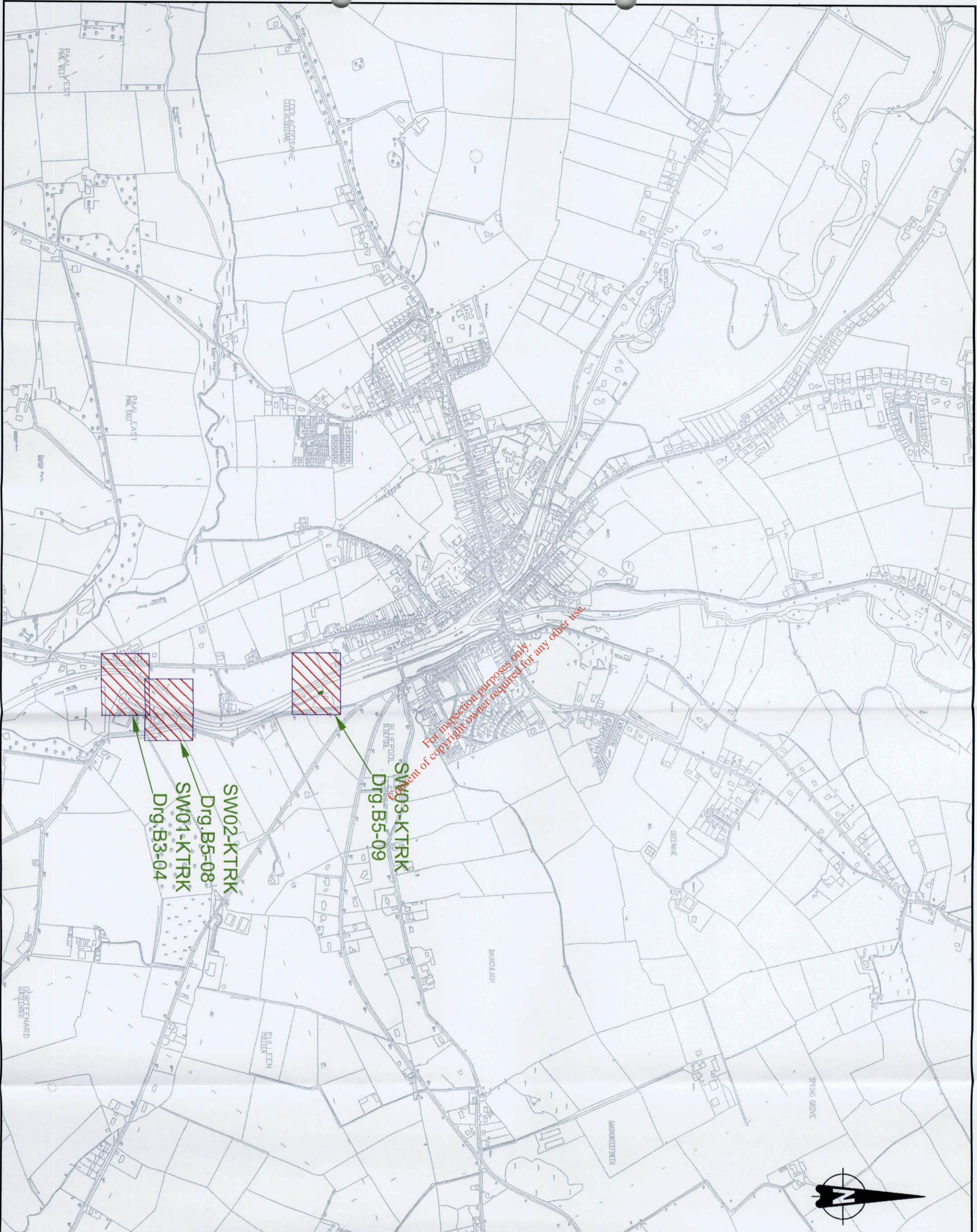
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Revised ATTACHMENT B.3

Item	Title	Revised Drg. No.	To Replace Drg. No.
1	Revised 1/10,000 Location Plan of all Discharge Points	KTRK B3-05 (Rev. A02)	KTRK B3-05 (Rev. A01)

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No.	Date	Amendment / Issue	App
A02	Mar '08	Issue for Approval	SC
A01	July '08	Issue for Approval	BB



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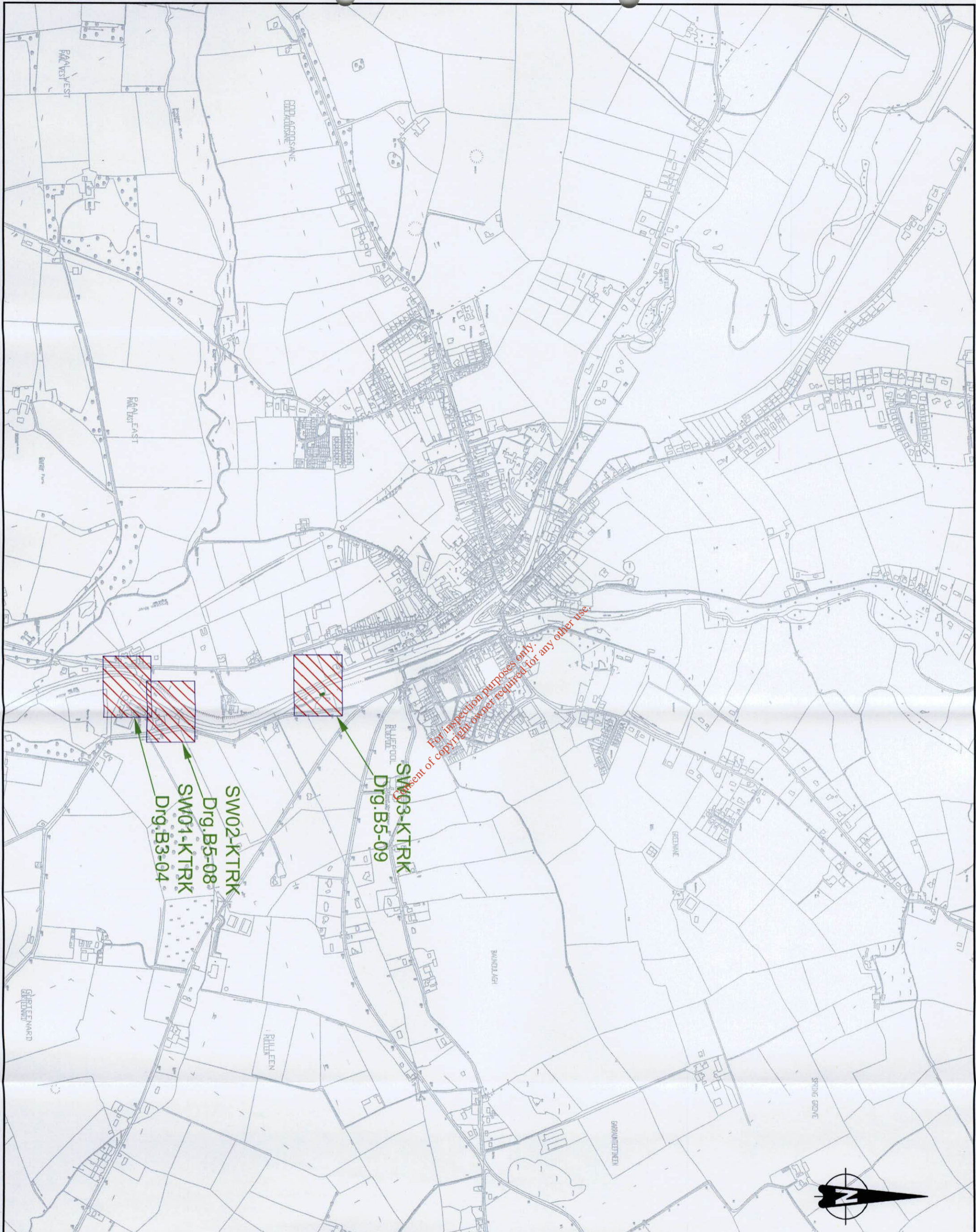
Title:
 Attachment B3
 1:10,000 Location Plan
 of All Discharge Points

Drawn by:	BC	Job No:	MCW0043
Checked by:	CD	File No:	DG0003
Approved by:	SC	Drg. No.:	KTRK B3-05
Scale:	1/2500	Rev:	A02
Date:	July 2008		

Revised ATTACHMENT B.5

Item	Title	Revised Drg. No.	To Replace Drg. No.
1	Revised 1/10,000 Location Plan of all Discharge Points	KTRK B3-05 (Rev. A02)	KTRK B3-05 (Rev. A01)
2	Revised 1/500 Location Plan of Stormwater Overflow, SW02-KTRK	CHVE B5-08	CHVE B4-08
3	Revised 1/500 Location Plan of Stormwater Overflow, SW03-KTRK	CHVE B5-09	CHVE B4-09

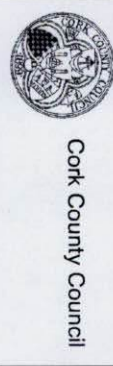
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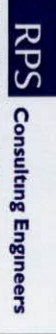
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A02	Mar 08	Issue for Approval	SC
A01	July 08	Issue for Approval	BB



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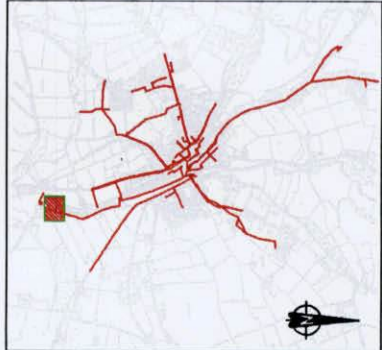
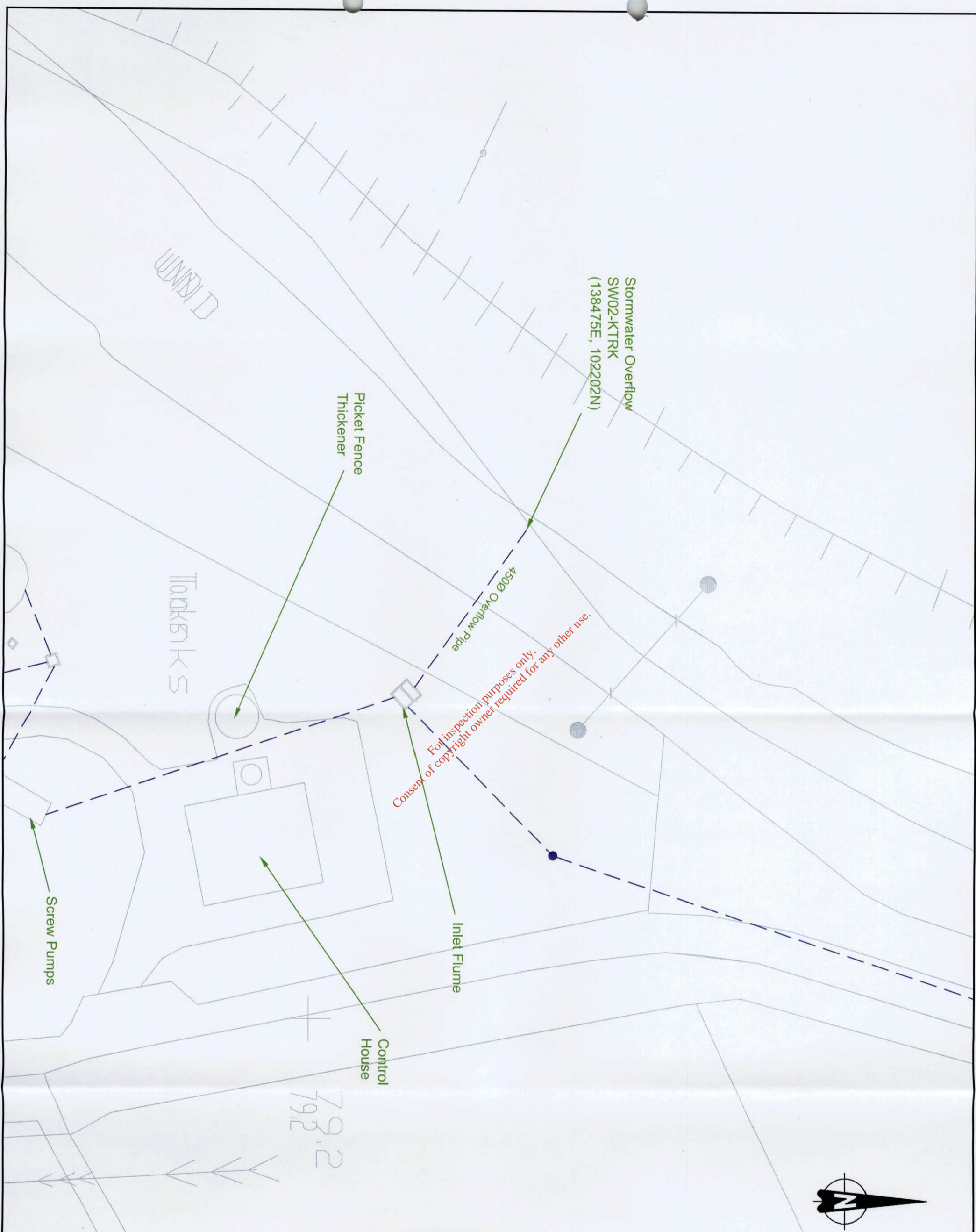


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Title:
 Attachment B3
 1:10,000 Location Plan
 of All Discharge Points

Drawn by:	BC	Job No:	MCW0543	Rev:
Checked by:	CD	File No:	DG0003	
Approved by:	SC	Drg. No.:	KTRK 93-05	A02
Scale:	1:2,500			
Date:	July 2008			



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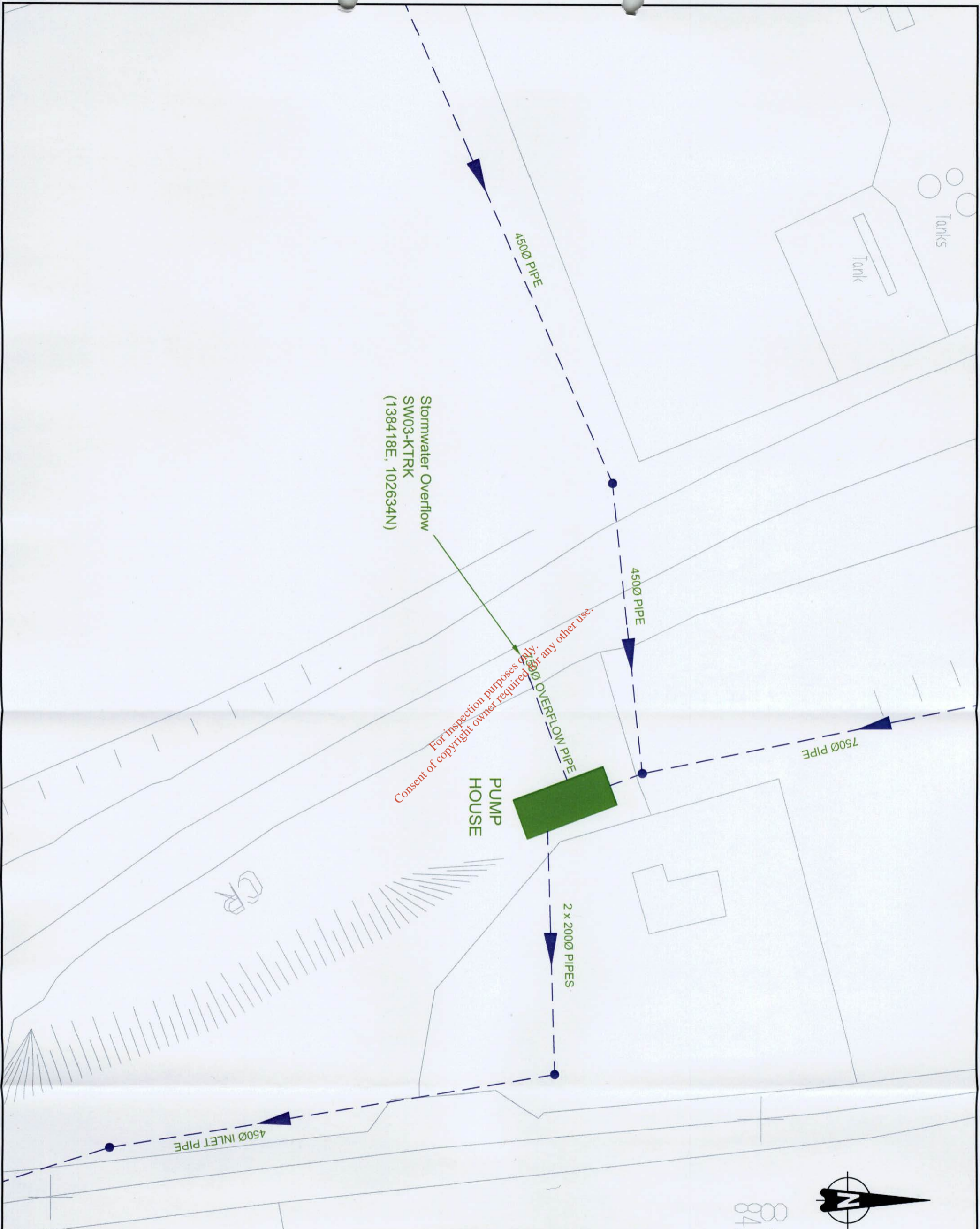
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Project:
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Title:
Attachment B5
1:500 Location Plan of Secondary
Discharge Point, SW02-KTRK

Drawn by:	BC	Job No:	MCW0543
Checked by:	CD	File No:	DG0003
Approved by:	SC	Dwg. No.:	KTRK 95-08
Scale:	1 / 500	Rev:	A01
Date:	March 2006		



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Project:
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Title:
**Attachment B5
1:500 Location Plan of Stormwater
Overflow SW03-KTRK**

Drawn by:	BGC	Job No:	MCM0543
Checked by:	CD	File No:	DG0003
Approved by:	SC	Dwg No:	KTRK B5-09
Scale:	1 / 500	Rev:	A01
Date:	March 2009		

Revised ATTACHMENT F.1

Item	Title	Drg. No.
1	Draft River Basin Management Plan for the South Western River Basin District	N/A
2	Revised Table F1-8	N/A
3	Copy of Correspondence with National Parks and Wildlife	N/A

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