Waterbody Summary Sheet

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Water Body Summary Information (Data based on SERBMP Dec 2009)

WATERBODY ID	WB NAME	CATCHMENT	WB TYPE	HMWB
GB107041012010	Lidsey Rife	Arun and Western Streams	River	No
Waterbody Champion		**Catchment Lead**		**Catchment Coordinator**
Fay O'Connell		Rob Boutle		Sara Denton

Designations							
Bathing Water	**Drinking Water**	**Shellfish Water**	**Freshwater Fish**	**Nitrates Directive**	**Urban Waste Water**	**Wild Birds Directive**	**Habitats and Species**
No	No	No	No	Yes	Yes	No	No

Overall Ecological Status/Potential	Confidence WB is less than good	Elements Driving Classification	Other Failing Elements (element status)	Elements Passing
Moderate	Very Certain	Invertebrates (Moderate) DO (Bad) Phosphate (Poor) Ammonia (Moderate)	Quantity & Dynamics of Flow Hydromorphology	BOD pH Temperature Copper Iron Zinc

Relevant Monitoring Points					
Diatoms	**Macrophytes**	**Fish**	**Invertebrates**	**Physico-Chemical**	**Chemistry**
Not Monitored	Not Monitored	Not Monitored	42720 – US Aldingbourne Rife	F0003342 – Lidsey Rife US Lidsey STW F0003322 – Lidsey Rife Upstream of Aldingbourne Rife Confluence	As Physico-Chemical

Investigations into Causes of Failure(s)

BACKGROUND = The Lidsey Rife is a 7.3km tributary of the Aldingbourne Rife. It runs through a predominately rural area. The stream runs over London Clay then Chalk (Littlehampton Anticline).

STATUS = The current status is moderate and it is predicted to remain moderate in 2015, according to SERBMP. The waterbody is at risk from Combined Source Nutrients, Combined Source Sanitary and from Water Abstraction and Flow Regulation. It is probably at risk from Diffuse Source Pollution and from physical or morphological alteration. These risk pressures can possibly be attributed to sewage works, diffuse sources, abstraction and flood protection works.

FAILING ELEMENT OVERVIEW = The following is a summary of the current situation for each failing element:

Physico-Chemical: Dissolved Oxygen, Phosphate and Ammonia - Lidsey Rife is currently Bad for Dissolved Oxygen (DO), Moderate for Invertebrates and Ammonia, and poor for Phosphate. There is a predicted improvement in Ammonia by 2015. The sample point (F0003342) is being affected by Lidsey Waste Water Treatment Works (WWTW), even though it is upstream of the outlet of the works. A stricter Ammonia limit for this STW was approved under PR09 – (31st March 2014). This will be 2mg/l 95%ile, 12mg/l upper tier. These changes are the basis of the predicted improvement in Ammonia. The EA carried out investigative sampling on 5/3/10 and 18/3/10, which show higher levels of Phosphate at, and downstream, of the Lidsey WWTW compared to upstream or the tributaries.

Issues with the STW however also include yearly problems along the foul network resulting in manholes popping along the Rife, from Barnham down to the works. Furthermore low flows in the rife which allow the discharged effluent to back up to the upstream sample point. This infiltration of water into the system causes Lidsey WWTW to back up and manholes to discharge into the Rife. This issue contributes to the DO, Phosphate and Ammonia failures and we would expect to see an improvement in these elements if improvements are made. Southern Water and WSCC have agreed to fund a SWMP putting forward £50k each to survey the catchment area of Lidsey Sewage Treatment Works. This work is expected to take 2 years. Once this report is available, further conclusions can be drawn as to an improvement in status. SW will be carrying out approx £172k worth of pipe jetting and cctv surveying in the area. See **Actions** under **SE0200**.

It is advisable to move the sample point F0003342 (U/S Lidsey WTWW), so that it is not impacted by Lidsey WWTW and therefore provide a reliable and representative baseline for monitoring the works and chemistry within this catchment. There may be an added benefit that if a suitably un-impacted chemistry site could be found, it may used as a general reference for dissolved oxygen levels across the entire rife catchment and therefore help determine if WFD dissolved oxygen standards are realistic for this system. An additional sample point on the Barnham branch of the Lidsey Rife would be useful to investigate and monitor the impact of this area on the Rife. (**Action SE200-6** and previous actions identified under **SE0200** may help with this). In regards to these failing elements (Phys-Chem and Invertebrates), it is worth noting that Water Quality Improvement Plan (WQIP) work has taken place in 2007-8 and 2009-10. A link to the WQIP is to be found as appendix 1. Investigative work is ongoing for this (See **Actions** under **SE0200**).

Due to the rural nature of this Waterbody it is suspected that Phosphate and DO are also being impacted by diffuse pollution from arable fields and horticulture as a result of agriculture and rural land management.

Invertebrates
Invertebrates are currently classed as moderate and are predicted to remain moderate in 2015. A 2007 survey at site 42720 found 18 taxon and an Average Score Per Taxon (ASPT) of 3.78. The expected score was 28 Taxon and an ASPT of 4.63. The Phys-Chem results at this point show slightly elevated phosphate and ammonia and low levels of DO. Lidsey WWTW is suspected to be the primary cause of this invertebrate failure, however sedimentation may also contribute. Actions SE0200 and SE0199 will identify suitable remedial actions to improve the invertebrate communities.

Quantity & Dynamics of Flow
The latest update of quantity and dynamics of flow, carried out in February 2010, has revealed that this water body is compliant and therefore supports good quantity and dynamics of flow. Groundwater modelling shows that the large public groundwater abstraction at the top of this catchment has no impact on this waterbody. In summary, the water resource investigation indicates that the flow is compliant and supporting 'Good' status. The ecology has also been assessed as compliant.

OTHER
The Lidsey Rife waterbody should include the Barnham Rife. This waterbody currently only includes the western arm (Westergate Rife), while Barnham Rife forms the eastern arm of the Lidsey Rife.

LIVE ACTIONS			
Action ID	**Action Description**	**Progress**	**EA Action Lead**
SSD-AW056	The waterbody suffers from surface water flooding and infiltration into sewer network; causing manholes to surcharge and result in sewage overflowing and entering the Lidsey Rife. West Sussex County Council and Arun District Council are completing a surface water management plan (SWMP). EM to review report once completed and revise actions.	Ongoing	Environment Management
SE0104 & SSD-AW047	Improvements to water company assets to deliver benefits against the pressures identified or investigate the need for further investment. For this waterbody improvements will be investigated at Lidsey STW to reduce phosphate levels.	Ongoing	Water Quality (South East)
SE0200 & SSD-AW020	Carry out investigative riverine and land based field work into the origins, causes of and solutions to pollution. This action should particularly focus on diffuse pollution and implementing measures to reduce this source of pollution.	Ongoing	Environment Management
SE0306 & SSD-AW057	Work with Natural England to target Catchment Sensitive Farming type activities and agri-environment schemes to ensure adoption of best farming practices. Building upon the work already carried out under SE0199, this action will implement actions to address priority sites of sedimentation.	Ongoing	Environment Management

Update on Actions to Address Failure(s)

REASONS FOR FAILURE – As described the mains issues affecting this waterbody is pollution from Lidsey WWTW, and diffuse pollution including sedimentation. Improvements to the WWTWs are planned to reduce the ammonia levels and further improvements are to be scoped, while work is ongoing to identify priority sites to tackle diffuse pollution which will reduce the levels of phosphate and ammonia.

ACTIONS TO REACH GOOD ECOLOGICAL POTENTIAL = Utilising our classification data and other evidence, we have identified actions which will form the pathway to moving this waterbody to Good Ecological Status/ Potential. These are known as our Stage 3 Actions, and will be delivered in combination with action identified in the South East River Basin Management Plan (RBMP) 2009. The table below shows the RBMP Actions and Stage 3 Actions which will be delivered in the short term as well as the mitigation measures which need to be implemented. This is not a comprehensive list of actions, and as our evidence and understanding of the waterbody continues to improve actions may be added, changed or removed.

Actions SSD-AW056, SSD-AW047 and SE0104 – These actions will work towards reducing phosphate and ammonia levels by addressing Lidsey WWTWs and related sewerage systems. Work is ongoing, and further actions will derive from this.

Actions SE0200 and SSD-AW020 – These actions are focused on tackling diffuse sources of phosphate.

Actions SE0306 and SSD-AW057 – These actions are focused on reducing sedimentation, which will reduce phosphate levels in the waterbody.

COMPLETED OR REDUNDANT ACTIONS		
Action ID	**Action Description**	**Outcome**

SE0109	Improvements to water company assets at 6 locations in the Arun and Western Streams Catchment, to deliver benefits against the pressures identified or investigate the need for further investment. The improvements include: - Schemes to ensure compliance with the Water Framework Directive targets for Ammonia, BOD and/or phosphate at Pulborough STW, Chiddingfold STW, Grayswood STW, Liss STW, South Harting STW and Warnham STW. - Schemes to identify investigations to quantify risk from chemicals at Sidlesham STW and Tangmere STW.	Not relevant - None of the works mentioned within this action are within the Lidsey Rife waterbody.
SE0199	Carry out investigative riverine and land based field work into the origins, causes and solutions to sedimentation. Outcome: Improve our understanding of problems, in order to take effective action to address them.	Complete – Outcomes will further inform
NA 1	Raise the need to include Barnam Rife in the Lidsey Rife water body	
NA 2	Investigate the possibility of moving the chemistry site F0003342, so that it is not affected by the downstream WTWW. Also determine if this site could be used as a baseline for monitoring DO in the Aldingbourne/Lidsey Rife catchment. In addition, check the location of the storm discharge in case it is also impacting on the U/S Lidsey sample point.	Complete -

ACTIONS PROGRAM
From the list of proposed actions above, the following package of actions are put forward to take this water body to GES/GEP. The technical feasibility of the actions has been taken into account when determining the most suitable work to progress. This does not represent a final solution, and the actions program will be altered as necessary to ensure work to improve the waterbody is effective and appropriate.

- **Description:** F0003342 sample point u/s of Lidsey STW is impacted by the discharge - EM to agree location of more representative sample point.
- **Progress:** EM walkover completed 22/10/12, identified suitable mon point u/s of works, Helen Carter from S&C been out and agreed location. Email sent to Grant Miller on 5/11/12 to confirm.

- **Description:** This part of the catchment suffers from surface water flooding and infiltration into the sewer network causing manholes to pop and cause sewage pollution. WSCC and Arun DC are completing study to address this. Output of this to feed into WBSS.
  Progress: Insert information about how the action is progressing, what work on the ground has been completed.

- **Description:** Tighter ammonia limits at Lidsey STW in PR09, which should improve this failing element.
- **Progress:** Insert information about how the action is progressing, what work on the ground has been completed.

- **Description:** Results of SAGIS modelling will be used to identify contributions from Lidsey STW and diffuse inputs. This will be used to inform EM work plan.
- **Progress:** Insert information about how the action is progressing, what work on the ground has been completed.

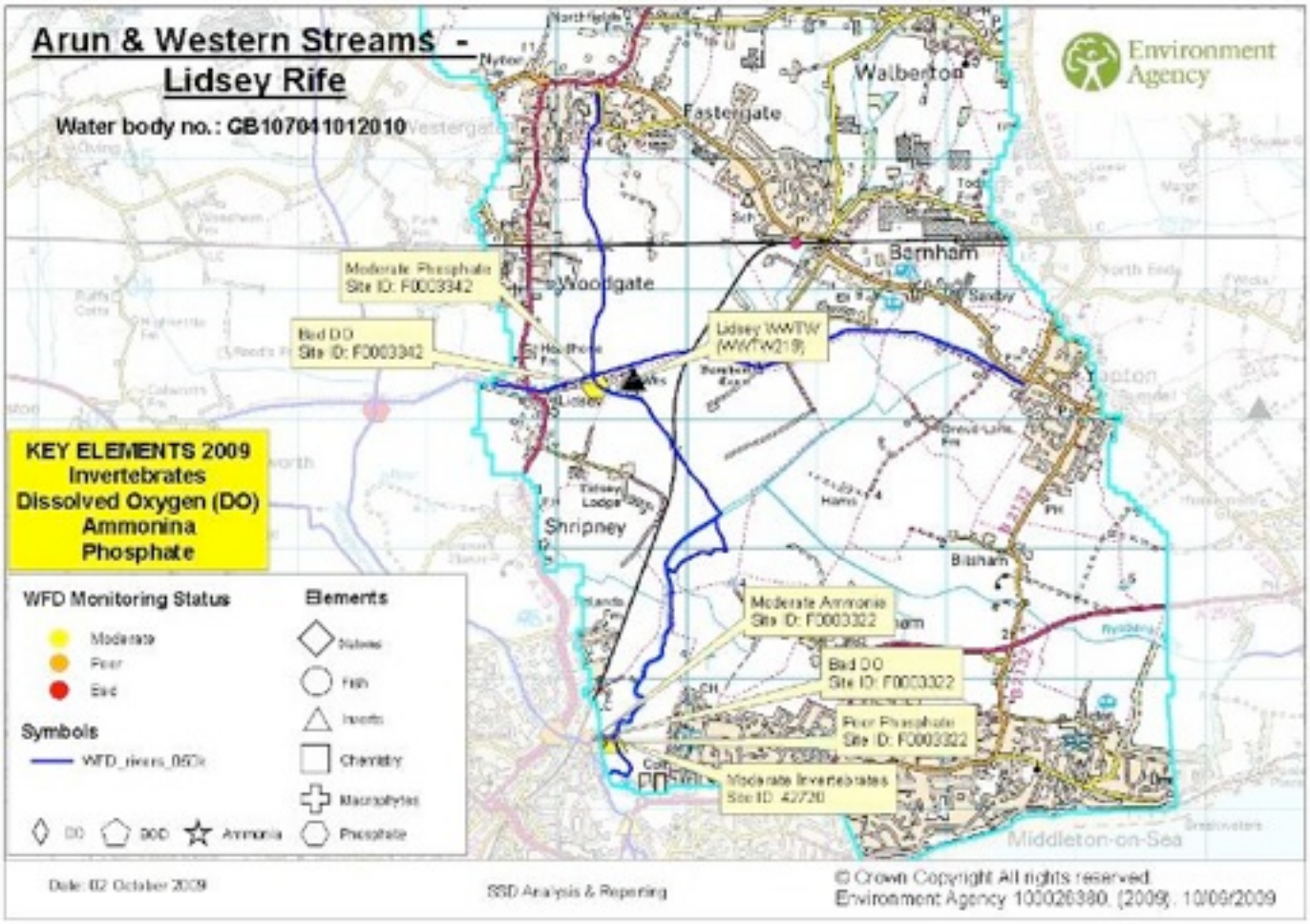
- **Description:** EM to assess whether Barnham Rife should be classified as a WFD WB and grouped with Lidsey Rife as similar pressures on both stretches.
- **Progress:** Barnham Rife visited 22/10/12 assessed DO. Suitable mon point found, supporting DO at Higherground Lane.

- **Description:** TCE - the d/s WB (GB107041006590 - Aldingbourne Rife - lower) fails for TCE. The source of this is land contamination from a historic LEC plating site. This site is also likely to cause contamination of WB GB107041012010 (Lidsey Rife) but chemicals are not monitored on this WB. EM to request TCE monitoring suite in this WB at F0003322 phys/chem sample point to assess potential impact. Actions to address contamination are under WB GB107041006590)
- **Progress:** Email sent to S&C requested this.

PARTNERSHIP WORKING
Space to briefly discuss external partners that would be involved in delivering the actions, or for any comments which came from stage 3 discussion with external partners.

Expected Outcome: Waterbody to reach good ecological status by XXXX

Map of Catchment –



Glossary

A&R	Analysis and reporting team
ASPT	Average Score Per Taxa
BIOSYS	Our main database for storing, manipulating and reporting data from freshwater and marine biological surveys at any taxonomic level
BMWP	Biological Monitoring Working Party
CEO	Combined emergency overflow
CSF	Catchment sensitive farming
CSM	Customer Self Monitoring (of STPs/WIMS sampling points)
CSO	Combined sewer overflow
D/S	Downstream
DO	Dissolved oxygen
EM	Environment management team
EP	Environmental planning team
FCS2	Fisheries Classification Scheme version 2
FRB	Fisheries recreation and biodiversity team
HEVI	HydroEcological Validation tool
LIFE	Lotic Invertebrate index for Flow Evaluation
NFPD	National Fish … Database
NTAXA	Number of taxa
P	Phosphate
RIVPACS	River InVertebrate Prediction and Classification System
RIVPACS	predicts the macro-invertebrate fauna at any site on a river from a small number of environmental parameters derived from maps or measured at the site.
SERBMP	South East River Basin Management Plan
SS	Suspended solids

STP	Sewage treatment plant
STW	Sewage Treatment works
U/S	Upstream
WB	Waterbody
WQIP	Water Quality Improvement Plan
WWTW	Waste water treatment works