DRAFT WATER RESOURCES MANAGEMENT PLAN 2013
STATEMENT OF RESPONSE

Prepared by the Water Resources Strategy Team
Water Services
Severn Trent Water Limited

November 2013

On 2 May 2013 we started a period of consultation on our draft Water Resources Management Plan. The consultation period ended on 2 August 2013. We received representations from the following organisations:

- The Canal & River Trust (CART)
- The Consumer Council for Water (CCWater)
- Derbyshire County Council
- English Heritage
- The Environment Agency (EA)
- Group Against Reservoir Development (GARD)
- Haygrove Ltd
- Lichfield District Council
- Natural England (NE)
- Natural Resources Wales (NRW)/ Cyfoeth Naturiol Cymru
- Nottingham City Council
- Ofwat
- Powys County Council
- South Staffs Water
- The Trent Rivers Trust
- Wildfowl & Wetlands Trust (WWT)
- Wildlife Trust Wales
- Worcestershire County Council (WCC)

This is our Statement of Response (SoR). It shows how we have addressed all of the comments and suggestions that we have received. We have shown the comments that each organisation made in the following table and said what we have done as a result. Alongside this Statement of Response, we have published a Revised draft Water Resources Management Plan. Where our response has required changes to our draft WRMP, we have updated the plan and highlighted the areas of change.

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Canals & River Trust	Over the past year (and in the spirit of the EA Water Resource Planning Guidance), the Trust has been proactive in engaging with a number of Water Companies to explore the options to transfer water using the canal network to meet resource shortfalls under different demand scenarios including drought. We support this approach and will continue to work with Water Companies to develop resilient and cost effective schemes in the future. We note that, while we have had detailed discussions with some water companies to identify potential schemes, these are not reported in a consistent way in the various draft Water Resource Management Plans. We are concerned that such schemes may have been evaluated less positively than alternatives because of the perceived complexity of a canal transfer and the uncertainty over commercial terms between water companies and a third party. The Trust is worried that while there has been a very useful and positive initial contact with Water Companies there is a risk that the schemes will not be pursued unless Defra/ EA/ NRW are active in facilitating/promoting such schemes in the future.	In response to the point about inconsistencies between how different companies have reported these options in draft WRMPs we think that this highlights the importance of further collaborative work. We described the way that we evaluated different options in appendix D of our dWRMP. This process accounts for factors such as cost, feasibility and water quality. We treat schemes involving CaRT in the same way as we treat any other option. If an option is complex or uncertain then it is less likely to be considered as a feasible option until these uncertainties have been resolved. Section 7.1 of the August 2013 WRPGs says that we should consider the "confidence that the company has in its ability to deliver the preferred options set" and also the "the risks and uncertainties associated with the preferred option(s)". We are working with CaRT and other water companies to reduce the uncertainty associated with these options. We discuss this future collaborative work more in our response to the following issue.
Canals & River Trust	Severn Trent Water has predicted that it will experience water resource shortfalls as a result of sustainability reductions on abstractions, population growth, climate change and asset deterioration. These will be addressed by reducing leakage and customer demand, improving resource flexibility and efficiency, developing new sources and water trading/bulk transfers with other water companies. Options of greatest interest to the Trust include bulk transfers by canal (Appendix D page 27) of the Plan refers to a possible 50 Ml/d supply to Thames Water and also a 50 Ml/d supply to Anglian Water. The plan makes it clear that more research is required to examine all of the options and the Trust would be keen to participate in the further exploration of the options where appropriate. Since the drought event	We have agreed to support this joint work financially and with our time/ data. We provided comments to CaRT on the brief for this extended feasibility study in April 2013. We expect to see the final version in the next few months. We agree that the CaRT is best placed to co ordinate the study. We look forward to seeing the outcomes of this collaborative study but we do not expect these to be available in time for our final WRMP/ business plan. We agreed with the CaRT that this study will help to reduce some of the uncertainty associated with the options that involve canal transfers. We think that this work will be a major step forwards in terms of quantifying the costs and benefits of these options before we produce our plans for PR19.

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	of 2011-12, the Trust has been working with a number of water companies, including Severn Trent Water, to investigate the feasibility of a range of collaborative canal transfer schemes that could have multiple beneficiaries, and could be utilised as both in supply-demand and/or drought options. A brief to undertake an extended feasibility study of a transfer linking United Utilities, Severn Trent Water and Anglian Water as well as onwards to Thames Water and Affinity Water has been written and it is expected that the Trust will co-ordinate this study. The Trust will also collaborate with Severn Trent Water, South Staffs Water and the Environment Agency to ensure that the River Severn Regulations are fit for purpose.	
Consumer Council for Water	In the full document, there are general comments about environmental assessments but it is not clear what social and/or customer impacts Severn Trent has considered. It appears from Appendix D that the company primarily looked at the environmental impacts and may not have considered issues such as local sensitivities towards any capital schemes or potential for disruption.	Social effects of the dWRMP were considered through the SEA process from the outset for each option (supply-side and demand-side options). The SEA methodology, objectives and assessment criteria were agreed through the SEA scoping and subsequent consultation process in accordance with the requirements of the SEA Regulations. Consultation with the statutory consultees (Environment Agency, Natural England, English Heritage, Countryside Council for Wales, Cadw and Welsh Government) took place over July and August 2012. This resulted in the inclusion of several SEA objectives with a social focus (both during scheme construction and scheme operation) as set out below: (i) "To improve human health and well being of the area, improve access to recreation and the environment, and reduce inequalities" - this objective addressed a number of social concerns including access to and affordability of drinking water supplies, effects on human health and quality of life through nuisance, wellbeing and deprivation , access to open spaces, historic environment and recreation; (ii) "To reduce, and make

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		more sustainable, the domestic, industrial and commercial consumption of resources, minimise the generation of waste, encourage its re-use and eliminate waste sent to landfill" - this objective included the need to maintain a reliable public water supply to ensure sufficiency of supply for human uses; (iii) "To protect and enhance heritage assets, their setting and the historic environment" and "To protect, enhance the quality of and improve access to designated and undesignated landscapes, townscapes and the countryside"- these two objectives included consideration of the need to protect green belt land and access to areas of landscape value, protection of natural, cultural and built heritage interests, provision of educational resources, and provision of areas of improved biodiversity in urban areas. Social effects (as well as environmental effects) will continue to be considered at each stage of scheme promotion, design and delivery.
Consumer Council for Water	The detail of Severn Trent's approach to developing its preferred plan is set out in a very comprehensive annex although the WRMP could have benefitted from a little more clarity about this earlier on in the document.	Chapter 5 of the revised draft WRMP now contains a summary of the approach detailed in Appendix D.
Consumer Council for Water	The plan says it has considered leakage options alongside water efficiency, metering, pressure management to reduce leakage, asset renewal and supply side options, so generally a good balance. We would also like to understand whether the company has considered improving its grid to increase the opportunities for transferring water from areas of surplus to areas of deficit.	Chapter 4 of the revised draft WRMP now contains a summary of our wider PR14 strategic resilience investment programme and how it overlaps with our supply / demand plans.

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Consumer Council for Water	We can see that the short term goal of Severn Trent is driving down the number of unsustainable abstractions. The plan would benefit from a bit more information on how it plans to tackle longer term environmental water quality issues, especially where these have the potential to affect availability of water.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Consumer Council for Water	Severn Trent has water efficiency schemes, including for small and medium-sized enterprises, but doesn't seem to be looking at tariff options. This should be included in the plan if it has been looked at.	Our quarterly customer tracking survey shows that an increasing number of our customers think that everyone should be metered (57% @ Q3 2013 compared with 51% @ Q4 2011). Whilst 65% (Q3 2013) think that water charges should be based upon usage (up from 58% in Q4 2011) and so against this background we currently have a free meter optant programme and water efficiency programmes in place to promote and achieve demand efficiency. At this stage we have not considered Tariff Options in detail. Evidence from the tariff trials carried out by other companies suggests little impact on demand behaviour, and they do not present an overriding case to develop a more sophisticated tariff

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		structure. This would seem to be supported by the views of some of our customers who find the current tariff structures confusing or unfair. In addition, we know from our focus groups that as long as tariffs are perceived as being fair and transparent, then customers are generally supportive of them. However, any tariffs that are considered 'complex' are likely to generate a negative reaction. Furthermore, some metered customers object to our tariffs not being a purely volumetric charge: in their minds simple equates to what you use; not a range of additional fixed charges that they cannot understand. We believe it is therefore more appropriate to focus our efforts on keeping costs and therefore customer bills as low as possible, and tariffs simple to understand for our customers.

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Consumer Council for Water	The plan mentions catchment management activity and water transfers in relation to a few specific schemes but customers would benefit from a clearer explanation of what these involve.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Consumer Council for Water	Our main point relates to issues which colleagues raised and discussed at the Severn Trent Water Resource Management Plan workshop on 25 June. We know that Severn Trent has tested customer and stakeholder views extensively and the document states that the company has taken these views into account. There are references to customer preferences scattered throughout the document and Severn Trent has done a lot of research, including via its 'Making the right choices' consultation and Willingness to Pay engagement. However, it was not clear to us how these views have shaped the plan. The main issue seems to be that the plan provides no information whatsoever about the results of company research, nor any signposts to where this might be. Instead, in the plans states, in the executive summary, that customers' views have informed its development and	Chapter 6 of the revised draft WRMP now includes more information on how we used the results of our willingness to pay survey, the study into supply / demand trade offs and our wider stakeholder feedback to shape the options considered in our plan.

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	provides details of its engagement. We feel that the final plan would benefit from clear explanations of the outcomes of these consultations and how they have been taken into consideration and used to shape the final plan. Preferably, this should involve links to the full information.	
Consumer Council for Water	The customer leaflet is very short and just the executive summary of the full report. It covers most of the key points but the gaps are the same as for the main document – see above. The main document is clearly written and not too inaccessible for its length.	We will produce a more comprehensive summary document to accompany the final WRMP.
Derbyshire County Council	Officers welcome and support the proposed overall strategic approach of reducing demand for water and making the best use of existing water resources. In addition to working to reduce demand and leakage, officers recognise that there is a need to find additional sources of supply to help meet growing demand for water consumption as a result of environmental changes and increased population and household growth. Officers support the four proposed schemes in Derbyshire (Belper Meadows; Little Eaton; Hatton; and Stanton & Milton) which will help to ensure adequate water supply for residential and commercial users over the next 25 years. Severn Trent's plans are a critical part of delivering the strategic infrastructure required to support growth in Derbyshire over the longer term.	Noted

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English Heritage	Overall, we welcome the comprehensive approach of the accompanying SEA and its assessment of the feasible list of schemes, this including the preferred programme as set out in the draft WRMP. Most of these schemes are of relevance to English Heritage, because of the potential impacts they can have on the historic environment and the significance of heritage assets, including the contribution made by their setting. These impacts are primarily related to the creation of new infrastructure and changes in hydrology: · English Heritage recommends that proposals for above-ground infrastructure and other capital works are assessed and implemented in accordance with the principles set out in the National Planning Policy Framework for conserving and enhancing the historic environment and delivering sustainable development. · With regards to changes in hydrology the abstraction of water resources can have negative impacts on buried, waterlogged archaeological and palaeo-environmental (relict wetland) remains of significant interest and fragility. Such sites may be even more vulnerable to new groundwater abstractions or increases on existing licenses than modern wetland habitats. The historic environment interest of wetland areas therefore needs to be considered as carefully as their biodiversity interest. Subject to a number of specific points on the detailed assessment of the proposed schemes, we consider that overall the SEA Environmental Report has taken into account these two main points during the assessment process.	We welcome English Heritage's comments and we will continue to engage with English Heritage as schemes are promoted and designed. We agree that the proposals and principles of the NPPF should continue to be considered throughout project development, as they were for the SEA. Potential hydrology-related effects on buried, waterlogged and other fragile remains were identified at a strategic level in the SEA and we acknowledge the need to continue to assess these potential effects in discussion with relevant specialists at project delivery stage, alongside any investigation of biodiversity impacts.
English Heritage	The draft WRMP also includes proposals for delivering environmental improvements to water quality and water resources as required by the Environment Agency's National Environment Programme in response to key drivers, such as the Water Framework Directive and the Habitats Directive. English Heritage recognises that whilst these improvements	We agree that there is there is a need to protect the historic environment as well as the natural environment. We do ensure that the historic environment is fully considered in the development and design of any of our capital works and any potential effects will be discussed with relevant specialists at

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	are aimed at delivering other environmental objectives, their introduction and operation can also have implications for the historic environment. English Heritage hence recommends that potential impacts on the significance of heritage assets are fully taken into account as part of the national programme.	project delivery stage of the National Environment Programme schemes.
English Heritage	Appendix E of the SEA Environmental Report describes the baseline date collated for the historic environment. English Heritage welcomes the reference to the emerging data set on important palaeo-environmental deposits as supplied by us to Cascade Consulting. This data set is not yet in the wider public domain, but it is subject to further research and will hopefully inform future cycles of WRMPs. Although the baseline recognises that not all heritage assets are designated, it defers the consideration of non-designated heritage assets to the project level assessment. English Heritage recommends that all proposed schemes comprising the preferred programme are fully assessed as to their potential direct and indirect effects on the significance of designated and non-designated heritage assets, including the contribution made by their setting. We hence recommend that the relevant local authority Historic Environment Records are used to inform the scheme assessments in terms of identifying any non-designated water dependent heritage assets, including water logged remains. This is especially where the schemes taken forward will involve some degree of excavation and where there is some indication that the hydrological conditions may change during operation. Depending on this further information the assessment (significance of impact) may need amendment.	We will ensure that the Historic Environment Records will be consulted alongside further consultation with English Heritage personnel during the promotion, design and delivery of schemes in the Preferred Programme. Whilst the SEA has necessarily taken a strategic approach to assessment, it has highlighted the need to consider unknown and non-designated as well as designated heritage assets, and assessment of these assets will be included during scheme promotion, design and delivery.

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English Heritage	In a number of instances the assessment identifies seasonal / short term / intermittent changes in the hydrological conditions during the operation phase. Research on the potential effects of rewetting and drying of water dependent assets continues to develop and we advise that this is taken into account in detailed project assessments and future cycles of WRMPs. For example, a research project has shown that constant rewetting and drying was worse for archaeological materials than being permanently wet or even permanently dry. So in terms of rewetting, the issues are more about maintaining a constant water level rather than the impacts of just one rise in water level. Further information on the effects of rewetting is outlined in the following paper: Williams, J., Fell, V., Graham, K., Simpson, P., Collins, M., Koon, H., and Griffin, R. 2008. Re-watering of the Iron Age Causeway at Fiskerton, England. In: H. Kars and R. M. van Heeringen, eds. Preserving Archaeological Remains In Situ, Proceedings of the Third International Conference (Geoarchaeological and Bioarchaeological Studies 10). Amsterdam: Vrije Universiteit Amsterdam, pp. 181–97.	We note the concerns raised and thank English Heritage for highlighting the research being conducted. We will continue to consult with English Heritage personnel during scheme promotion, design and delivery, as well as during operation where possible effects and mitigation measures are identified. For each scheme, we will be considering the operational effects on the water environment in more detail during the promotion and design phases, and we will share this information with English Heritage to enable further, more detailed discussion as to potential effects of re-wetting and drying.
English Heritage	See table A1	We thank English Heritage for their information and recommendations in relation to specific schemes, including the need to refer to the HER and to consult local English Heritage staff at project development stage. As indicated above, Severn Trent Water will continue to consult with English Heritage staff during scheme promotion, design and delivery to ensure risks to the historic environment are minimised and where possible avoided as a result of capital scheme construction and subsequent operation.

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English Heritage	The SEA Environmental Report includes at Table 11.1 a series of indicators for monitoring the potentially significant environmental effects of the implementation of the WRMP, including for the SEA topic area archaeological and cultural heritage. At the level of the individual project we are generally supportive of the proposals for monitoring the condition of buried archaeology as part of EIA led Environmental Management Plans – this covering the construction and in some cases the operational phase. The monitoring framework for the implementation of the plan as a whole, we recommend that appropriate indicators for the historic environment include: - Number of schemes that maintain or raise groundwater levels - Number of schemes that enhance the significance of heritage assets or historic landscape character, especially those assets identified as at risk - The condition of heritage assets in the ownership of the water company	We welcome English Heritage's suggestions for monitoring indicators for the Water Resources Management Plan and these will be incorporated into the monitoring programme. This will be confirmed within the SEA Post Adoption Statement to be published once the Final Water Resources Management Plan has been approved by the Secretary of State.

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Environment Agency (EA)	SvT‟s draft WRMP has identified a 75Ml/d sustainability reduction (SR) from the Wye system due to the changes required by the Wye HD Review of Consents (RoC). The SR is scheduled to be implemented in 2024/25. The Wye RoC SC is a „confirmed‟ scheme within DCWW NEP (as the Elan licence is DCWW licence) and requires changes to Wye River Regulation, which is supported by releases from the Elan Valley reservoirs. SvT has a large transfer from these reservoirs (raw water transfer of 338 Ml/d). NRW initial analysis, from its RoC model, indicates there should be no increased impact on SvT‟s transfer and hence) places a large uncertainty on SvT‟s modelled DO sustainability reduction for the Wye. The issue is further complicated by DCWW confirming in its draft WRMP that it does not intend to accept any voluntary changes to its licences on the Wye and Usk until the statutory consultation process on its draft WRMP is completed at the earliest. NRW and EA are therefore proposing to work collaboratively with SvT, DCWW and other interested parties over the next 12 months to review licence change options to ensure that we determine an appropriate outcome for abstractors whilst meeting the environmental outcomes for the SACs. Further work is required to ascertain the validity of SvT‟s modelling of the Wye system and the potential changes the revised RoC model could bring. This work should be completed in time to inform the final plan	We welcome this proposal to work with others such as DCWW, the EA and NRW. We are already working closely with these stakeholders on the Wye and Usk abstraction group (WUAG). During 2012-2013 we have undertaken several actions to demonstrate the validity of our modelling. These include: - we have produced and circulated a review by MWH into the Hysim/ aquator modelling approach that we take across our region. This concluded that the Hysim flows that we use were generated by using an 'industry standard' approach - we have produced and circulated a validation report for our Aquator and Hysim modelling approach. We are currently addressing the comments that NRW have given us about this - we commissioned MWH to recalibrate the Hysim rainfall runoff models that we use to produce flow sequences for the Wye catchment - this work used the latest naturalised flows provided by the Wye and Usk Foundation (WUF) - We have modelled the impact of these revised hysim flows on DO. As we have reported to the WUAG, we have used these flow sequences to look at how sensitive our DO results are to different inflow scenarios. Using the revised Hysim flows caused a substantial reduction in the DO of our strategic grid in our baseline (existing licences) scenario. - We have modelled a scenario with the Wye licence changes as described in the RoC but with increased pumping costs - this gives a reduction in DO of approx 40 Ml/d. We will reflect this reduction in DO in our updated WRP tables. Although we have carried out all of the work above this does not necessarily mean that we agree with the statement that there is

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		"large uncertainty" associated with our modelled reduction in DO. There is some uncertainty associated with it but this is true of any modelling of this nature. We are not aware of any model that can currently provide a more accurate estimate of DO in our strategic grid than our Aquator model. Even if we assume that the models that aim to replicate flows in the River Wye flows are 100% accurate, as they do not include all of our strategic grid and they do not account for levels of service they can not model changes in DO. We also think that it is important to realise that the scope of work that we can do in time to inform our final plan is different to the ongoing work that will contribute to the RoC/ licence change work. We agreed this point about the different scopes and timescales with the EA and NRW during a teleconference on 9 September 2013.

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Environment Agency (EA)	Information within the SEA has concluded that „at this stage, it has not been possible to demonstrate that the dWRMP will cause no deterioration in WFD waterbody status due to potential effects of: Schemes 96 (Upper Worfe Augmentation (AMP6)), 27 (Hatton Conjunctive Use.(AMP10)) and 35 (Kenilworth Borehole Scheme (AMP 10)). Scheme 96 is scheduled for implementation earliest in the programme (2020-2025), whilst Schemes 27 and 35 are not scheduled for implementation until 2035-40. " The potential WFD effects will be considered and a conclusion formed for the final WRMP. Depending on the conclusion, it may be necessary to consider alternatives to the schemes in question. SvT believe the advantage of the dWRMP is that there are other schemes available as a contingency. The dWRMP does not provide information on what the likely alternatives will be. Scheme 96: There are uncertainties around effects of the scheme on status for the Burlington Brook and Albrighton Brook/River Worfe to confluence of Wesley Brook) waterbodies due to potential effects of reduced flows on biological elements. Also effects on the Burlington Brook could arise due to significant increases in river flows through the groundwater flow augmentation scheme. Effects would most likely be temporary, and there could be benefits due to increased habitat availability. Water quality impacts are also unknown from significant groundwater augmentation flows. The Albrighton Brook/River Worfe to confluence of Wesley Brook waterbody could be subject to reduced flows in its upper part, whilst the lower part (River Worfe) could benefit from increased flows during droughts, with uncertain ecological impacts. Further investigation would also be required to conclude if the scheme may introduce an impediment to Good status for the Worcestershire Middle Severn	Scheme 96 Since the draft WRMP was published, we have commissioned consultants to undertake modelling of the likely flow and ecological changes resulting from Scheme 96, in order to assess the potential WFD effects of the scheme on the wider Worfe catchment. Additionally, since the draft WRMP was published, draft Impact Assessments, undertaken as part of the AMP5 Restoring Sustainable Abstraction investigations, have also been completed for the Upper and Lower Worfe Catchments. In combination, these have improved current understanding of the WFD status of the Worfe catchment and likely changes to WFD status through implementation of Scheme 96. Initial modelling of Scheme 96 has indicated that the scheme will not cause deterioration in the WFD waterbody status, and that the scheme is likely to improve WFD status in the Worfe catchment. Scheme 96 will provide a positive contribution to the WFD water balance test by reducing the deficit seen in the water body, and it is considered unlikely that the scheme will introduce an impediment to Good status for the WMSS water body. We propose to continue to undertake modelling and engineering feasibility assessments throughout AMP5 to further refine the scheme and inform the detailed design as we go forward. Scheme 27 and Scheme 35 These two schemes formed part of the longer term draft WRMP strategy and were not envisaged to deliver until AMP10. We take a phased approach to the detailed assessment and investigation of longer term strategy schemes. At the appropriate time we will commission consultants to undertake detailed

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	aquifer Scheme 27: - Hatton Conjunctive Use.(AMP10) There is uncertainty around effects of this scheme on WFD status for Gog Brook due to the potential impact of flow reduction on local habitat and ecology. Further investigation is required to assess the potential impact on ecology, although it should be noted that only macroinvertebrates were assessed for the 2012 WFD status assessment. The scheme complies with WFD objectives 3 and 4, but does not assist attainment of GES. Scheme 35: - Kenilworth Borehole Scheme (AMP 10) There is uncertainty around effects of this scheme on WFD status for the Finham Brook to the confluence of Canley Brook to the confluence of River Sowe‟ (waterbody. This is due to potential loss of habitat and altered flow regime in the Finham Brook. This waterbody is at good Ecological Status. This investigation would also clarify if the scheme may introduce an impediment to improvement of the Warwickshire Avon - Coal Measures Coventry waterbody to Good status. for inclusion in the Final WRMP. Severn Trent Water should endeavour to complete the impact assessment for the WFD in time to inform the Statement of Response any detail any alternative schemes if required.	assessment of the impacts of these schemes on the respective WFD status. We will follow the same approach that has been undertaken with Scheme 96. However, note that in our revised draft WRMP these two schemes no longer feature in our preferred plan, due to our changed leakage strategy and the updated supply / demand outlook.

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Environment Agency (EA)	SELL has been reviewed for dWRMP. Appendix B4, p67. The dWRMP also identified area where further work is still required to comply with all recommendations from the October 2012 report. These are: 8.2.3 Supply pipe leakage; Automated meter reading (AMR) as they have little evidence of the benefits and separate SELL models for USPL which the company are working on resolving – no timeframes. 8.2.6 treatment of repair costs: Repair costs are considered in SELL but ALC repairs are fixed at current observed levels. 8.2.12 General approach to SELL: Sat believe they haven't considered strategic options for reducing leakage and report on the net costs of operating at different levels. Sat state that „We are considering the definition of strategic options and how we would use our model to show different whole life costs for 10, 20, 30% enforced drop of leakage". The company do have options to reduce leakage need to investigate further why they think they need to do further work. 8.3 regulating Leakage: Company will report on upper and lower band for leakage based on a combination of our sensitivity work and judgement of the variation caused by the weather. Timescales are required for this work. The company should carry out the work needed to fully comply with the report.	8.2.3 We are not expecting to make further changes in regard to Supply Pipe Leakage in the current model for AMP6. We will include recommendations from current UKWIR project "Economics of Supply Pipe Leakage" in future model developments for PR19. 8.2.6 For PR14 planning, the number of repairs as a result of ALC activity are fixed at current observed levels. We believe this is the correct approach for PR14 as we do not know how many additional repairs future ALC activities will generate when considering new technologies such as the 'burst on plastic' leak detector. In the future we will look to develop the model to include a dynamic number of repairs as the level of leakage reduces. 8.2.12 Our leakage reduction modelling has sensitivity tested multiple scenarios, taking into account the range of costs and benefits of different leakage reduction options. Following customer and stakeholder feedback on our draft WRMP and our PR14 plans, we have taken the strategic decision to double our AMP6 leakage reduction targets and set a more ambitious reduction target of 6%. 8.3 We have sensitivity tested multiple scenarios and have calculated upper and lower bands, which have then informed our PR14 leakage reduction targets. Our PR14 leakage reduction Measure of Success sets financial incentives and penalties using these upper and lower bounds.

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Environment Agency (EA)	The draft WRMP does not contain information on how the uncertainty within target headroom will resolved over time. The plan should contain information on how the risks identified in target headroom will be addressed over time	In our target headroom assessment we have identified the main sources of uncertainty for each of our water resource zones. In two of our conjunctive use zones (Strategic Grid and Nottinghamshire), the greatest source of uncertainty relates to the impact of climate change. Whereas our groundwater only zones have been shown to be resilient to future potential changes in climate, with the greatest sources of uncertainty instead being supply-side data and demand. We have chosen an approach to estimating climate change uncertainty that excludes the more extreme, drier scenarios suggested by UKCP09 for our region. Therefore, our risk profile in these two zones reflects the fact that we have already discounted some of these higher impact/lower probability scenarios. As a result, we have adopted a target headroom risk profile that gives us high confidence in the short to medium term that we can meet our planned levels of service while coping with the range of planning uncertainties. The long term headroom profile in these two zones changes to accept an increasing and manageable degree of risk over time. The longer term uncertainties around climate change can be managed using the flexible adaptation responses we have set out in our plan, and through the five yearly update of our water resources strategy. Due to the improvements we have made to the way we model and assess target headroom, the allowance we have made for target headroom in this plan at a company level is less than we allowed for in our WRMP09, with a difference of 41Ml/d in 2015-

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		16 and 73Ml/d in 2034-35 for example. We will continue to refine our climate change assessments and mitigation/adaptation over the forthcoming AMP. We are also intending to review and improve our supply-side data over the forthcoming AMP. We will continue to review and improve our understanding of the components of demand over the next AMP, and thereby reduce uncertainty, via water balance reviews and improvement projects.
Environment Agency (EA)	SvT are in talks with neighbouring companies but no "firm‟ transfer could be agreed sufficiently to inform the dWRMP (Appendix D4 p26-27). SvT will look to include transfer options in the fWRMP SvT should continue to work with neighbouring companies and endeavour to "firm up‟ the trade options	Since the draft WRMP was published, we have continued to explore the new trading options with neighbouring water companies. We have agreed which of the options should be developed further, and we have agreed the ambition that we should work these up to sufficient detail that they can be named as feasible options with outline costs and benefits in the final WRMP. We have continued to work on the engineering feasibility assessments for these options to determine the associated capital and operating costs. Our intention is that we and the donor / receiving companies should have sufficient confidence around costs, benefits and impacts of these options that they can be included as named feasible options when the final WRMPs are published.
Environment Agency (EA)	The bulk supply from SvT to YWS is not consistently reported in the both company‟s planning tables. SvT has the export at a constant 48.57Ml/d in both the baseline and final plan. Yorkshire Water Services (YWS) have a declining profile due to the influence of Climate Change (49.16Ml/d in base year declining to 43.57Ml/d in 2040). Both SvT‟s and YWS SoR should report consistent quantities for the Rivelin bulk supply transfer	When we round this bulk supply to the nearest Ml/d we use the same value (49 Ml/d) as Yorkshire Water Services (YWS) in the base year 2011-12 and in 2015-16. In our dWRMP tables we used 49Ml/d in every year throughout the 25 year planning period. In our revised draft WRMP we have included values in our WRP tables that show this export declines across the period due to the impact of climate change. The values that we have now included in our WRP tables show a decline of ~ 1 Ml/d to 48 Ml/d by 2040.

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		These values are still not identical to those Yorkshire Water use because: - Yorkshire Water' climate change modelling used factors for the Humber river basin/ Yorkshire region - Severn Trent Water's climate change modelling used flow factors for the Severn river basin/ Midlands region - We both used a risk based approach, which identifies UKCP09 model IDs based on drought indicator analysis and the risk of low reservoir stocks. The risk based analysis allowed the selection of 20 model ID's (10 average and 10 in the high risk area) which best represent each company's level of risk but these 20 model IDs are not the same - The flow factors of the Median model ID are very different - We use different deployable output models, we each have different levels of service and we each model our supply region but not other company's region We know that the source of the difference between our planning assumptions and Yorkshire's is the uncertainty around the methodologies for estimating future climate change impacts. We do not consider that this difference is a material issue and we will continue to improve our understanding around these long term uncertainties through the WRMP process.

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Environment Agency (EA)	The company does not provide sufficient evidence that it has considered the risk of deterioration from its existing abstraction licences. The company should assess whether any planned increases in abstraction within existing licences could risk deterioration in water body status. It should develop a plan for a more detailed assessment of these in time to inform the final plan The company"s plan should assess the impact of changes to existing operations to ensure no deterioration in WFD water body status.	The AMP5 low flow river investigations have played a key part in the decisions taken around our wider PR14 supply / demand, water quality and capital maintenance investment programmes. As a result, we are not proposing AMP6 investment in refurbishing or increasing output from sources that would have a damaging environmental impact. Our holistic water supply investment planning approach means that we are confident that we will improve the status of water bodies failing WFD flow targets, and we will not cause future deterioration of WFD status in those water bodies that current comply.
Environment Agency (EA)	Not all the investigations and options appraisals (OA) will be complete in time to inform the SoR. The main impact on the WRMP will be lack of certainty around future SCs/SRs required and therefore the preferred options set to maintain the supply-demand balance. It may also mean that environmental improvements are delayed. All investigations and OA should be completed in time to inform the SoR.	The Impact Assessment reports for the investigations are due for completion by December 2013, which is the statutory date set at the beginning of the AMP. We have undertaken a phased programme throughout 2013 to deliver these in order to help inform the NEP, which was issued in August. The Options Appraisal phase is due for completion by December 2014 (statutory date) and should ideally be influenced by the outcomes of the Impact Assessment phase. The outcomes so far recommend that Options Appraisal is not necessary at two sites and should be deferred into AMP6 for several others. However in order that we were able to have solutions costed for the Business Plan we undertook an exercise with the EA in 2012 to agree a constrained list of solutions. This has meant that we have costed solutions for the 26 sites identified for Implementation in the NEP. We met with the EA in October to agree the final scope of the PR14 NEP, the alignment with our WRMP / AMP6 plans and agree the approach to completing AMP5 Options Appraisal.

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Environment Agency (EA)	In the draft plan, all the SR‟s are implemented in 2024/25 (110Ml/d) – which results in a decline in DO in just one year of the plan. A phased approach could be more appropriate and allow for earlier implementation of the “quick win‟ schemes such as the Upper Worfe SC. SvT should consider implementing a phased approach	We are planning for a phased approach to deliver the Sustainability Changes, throughout AMP6 and into AMP7 where necessary. Since the draft WRMP we have worked with our Asset Creation team to develop the scheme delivery plans. We met with EA in October to share the planned delivery timelines and we have agreed that the more complex / high risk solutions will be completed in early AMP7. EA agreed to recognise these delivery timescales in the phase 4 NEP when it is issued in December 2013 / January 2014.
Environment Agency (EA)	SvT‟s Forest & Stroud zone has a number of spring fed sources and run of river abstraction and as such we would expect it to be quite vulnerable to climate change (CC). SvT‟s assessment for this zone was low even though all sources are in CAMS areas as either over abstracted or over licensed, during the dry weather in 2011/12 the company experienced low yields with its spring sources and three of the spring sources were determined to be impacted by CC (Appendix A, p73). The CC assessment for the zone saw an increase in DO of 2Ml/d but this reduces to zero when combined with SC. The company should reassess the climate change impact for this zone and report any new assessment.	Our climate change vulnerability analysis showed that the Forest and Stroud zone is "medium" vulnerability in terms of the groundwater sources, but "low" vulnerability when groundwater and surface water are considered together. Whilst the groundwater sources are the most climate sensitive sources of supply in the zone, the surface water resource is more resilient. When we were comparing the different methodologies available to assess the impacts of climate change, ensuring that we had a spatially coherent method was one of our main requirements. Due to the complexity of our supply system, we needed to ensure that any flow series derived from the climate change assessment could be used together at the same time and with the groundwater impacted yield changes. We adopted a “high” vulnerability approach for all zones to ensure consistency in our zonal deployable output modelling. Since we published our draft WRMP we have continued to refine our modelling, the most notable change being to the baseline groundwater yields for some sources in our conjunctive use zones. In our most recent modelling for the Forest and Stroud

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		zone we have made some changes to our assumptions around the operation of the Mitcheldean to South Gloucester link which we feel better reflects the actual network. Our climate change assessment now shows a 1Ml/d reduction in DO in the Forest and Stroud zone under our "mid range" scenario. We have re-modelled all the zones and have included revised figures in our Water Resource Planning tables.
Environment Agency (EA)	Company level outage is 175.38 Ml/d, 8% of total DO (2172.25Ml/d). The Strategic zone has the highest outage at 10% of DO (157.98 Ml/d) as well as the largest supply demand balance deficits. The company should consider options to reduce outage in the strategic zone.	Our wider PR14 investment plans include a major programme of capital maintenance, resilience and water quality improvement work which will improve the condition of our assets, making treatment processes more reliable and lowering the risk of their failure. At the time of publishing our draft WRMP in May 2013, our capital improvement and maintenance plan for AMP6 and beyond was still being formulated. The PR14 capital improvement and maintenance plan for water treatment works has now been fully formulated and has been designed to target those sites which have the highest risks of being affected by specific water quality and equipment issues. We are now able to link this to our outage allowance analysis to help assess how the planned risk reduction work will reduce our outage allowance in the longer term. . Our sensitivity testing shows that the outage risk to deployable output in the Strategic Grid zone will reduce by around 9Ml /d by the end of AMP6, and by around 24Ml /d by 2040. We have used this outage reduction profile in the final planning supply / demand scenario published in the accompanying draft WRMP data tables.

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Environment Agency (EA)	Outage is constant throughout the planning period and no change to outage allowance between the baseline and final plan except in the Notts zone due to AMP5 maintenance programme. SvT plan does have options to develop new sources and as such could impact on outage allowance; this will need further investigation The company should also consider the impact new options may have on the outage allowance.	Our wider PR14 investment plans include a major programme of capital maintenance, resilience and water quality improvement work which will improve the condition of our assets, making treatment processes more reliable and lowering the risk of their failure. At the time of publishing our draft WRMP in May 2013, our capital improvement and maintenance plan for AMP6 and beyond was still being formulated. The PR14 capital improvement and maintenance plan for water treatment works has now been fully formulated and has been designed to target those sites which have the highest risks of being affected by specific water quality and equipment issues. We are now able to link this to our outage allowance analysis to help assess how the planned risk reduction work will reduce our outage allowance in the longer term. . Our sensitivity testing shows that the outage risk to deployable output in the Strategic Grid zone will reduce by around 9Ml /d by the end of AMP6, and by around 24Ml /d by 2040. We have used this outage reduction profile in the final planning supply / demand scenario published in the accompanying draft WRMP data tables.
Environment Agency (EA)	No treatment work losses have been included in the supply demand balance for groundwater only water resource zones. We recommend that the company provides more information about treatment work losses at groundwater sources. This information is important to be able to quantify the impact of treatment work losses on the supply demand balance at groundwater sites and the consideration of options to reduce losses if there is a supply demand deficit SvT should provide some evidence of what the impact is on the supply demand balance of treatment work losses at groundwater sites (if any) and the impacts on the supply demand balance.	We recognise that have not fully accounted for potential treatment work losses at groundwater sources in groundwater only water resource zones, and this is an area where we aim to improve understanding in AMP6. However, our early investigations suggest that groundwater treatment works losses are significantly smaller than our surface water treatment works losses, which are accounted for within our Aquator modelling. It should be recognised that DO losses through our groundwater treatment works comprise two components; DO losses where treatment work pumps and infrastructure are less than the

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		pumping capacity of the groundwater source, and hence constrain the overall site DO, and DO losses through process such as backwashing, or wastewater losses to sewer. To be clear, as part of the DO assessment for all our groundwater sources, we have considered the former (treatment works capacities), and where treatment works pumps or infrastructure are a constraint, these are accounted for within the DO figure stated. We have, however, not fully accounted for the latter (process losses), primarily due to the difficulties in calculating accurately these losses due to varying storage both pre and post treatment, complicated backwashing processes, recycling of process waters and meter placement. Since the draft Water Resources Management Plan, we have reviewed a sample of processes at our groundwater treatment works, which indicates that process losses are small in comparison with the groundwater output (generally <1%, but up to 4.5%). For the small number of sites where process losses are applicable, we do not consider such losses to be significant on a zonal scale.
Environment Agency (EA)	The Unified Methodology (2000) requires that as a minimum, water simulation models should be made to replicate reservoir levels over recent years to an acceptable degree of accuracy. The dWRMP contains very little information on how the Aquator (or Hysim) model has been validated. The company should include this information in its plan.	We have undertaken several actions since publishing the draft WRMP to demonstrate to EA and NRW the validity of our modelling. - We produced and circulated an independant review by MWH into the Hysim/ Aquator modelling approach that we take across our region. This concluded that the Hysim flows that we use were generated by using an 'industry standard' approach. - We have produced a validation report for our deployable output (Aquator) modelling that has now been shared with NRW

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		and EA Midlands. This report outlines the methods we have used to validate the deployable output model. Details from this report will be added to the revised dWRMP Appendix A . The report shows the results of the validation for a number of reservoirs and river flow gauges in Aquator when using Hysim inflows against observed reservoir/gauge data. These results show that the model accurately models the observed reservoir levels at Elan Valley for the validation year 2006. 2006 was chosen for the validation year because it is the year used in the model for our demand profiles and baseline demand on the demand centres, therefore this gives a realistic abstraction from the reservoirs and rivers.
Environment Agency (EA)	The reported LoS in the dWRMP for both temporary use bans (TuBs) and non-essential use bans (NEUBs) is the same at no more than one in 30 years. This is consistent with the draft drought plan but does question if SvT are taking an appropriate staged approach to drought management. The company should provide modelling evidence to support these frequencies.	Our company stated level of service is to restrict customers use no more than 3 times in 100 years. This means that the frequency of restrictions can be less than 3 in 100. In table A6.1 we have shown that our modelled frequency of NEUBs is actually closer to 1 in 100 than 3 in 100. This is still consistent with the levels of service that we state to customers and other stakeholders. We have altered the relevant parts of section A6 in Appendix A of our revised draft WRMP. We have done this to make it clearer to see what our stated and modelled levels of service are and to demonstrate that they are consistent with each other and with the approach we took in our 2013 revised draft drought plan. When we talk to customers we do not distinguish between the two types of restriction as we think it may cause confusion.

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Environment Agency (EA)	Confidence grades range from 1 to 5 for schemes in the feasible list. According to the WRPG, (Appendix 15) the company should provide explanation for grades below level 2. Furthermore, the following schemes on the Preferred list have confidence grades below 3: Grade 2: 129 Bromsgrove GW, 122A Raise Dam at Draycote. The company should provide more information on how these have been graded as per the WRPG.	With reference to the WRMP guidance Environment Agency's WRPG a confidence grade for both scope and cost was assigned to each option. • The scope confidence grade makes reference to the company's own experience of delivering a similar scheme. • The cost confidence grade considers whether the estimates are based on the company's own cost data from previous similar projects. Although all the options have been designed to an appropriate level of detail for the WRMP, a confidence grade of 3 or greater requires the company to have recent similar experience. The lower confidence grades are applied where the company is proposing a scheme that it has no recent experience (i.e. within 8 years) of delivering. Typically, it follows that a low scope confidence grade also corresponds to a low cost confidence grade, due to the lack of in-house costing data. It should be noted that we are continuing with further investigations and design work in an effort to reduce risks and uncertainty associated with the options. However, this may not necessarily be reflected by increasing confidence grades. Having given further consideration to the grades and with reference to the ongoing work to inform the Final WRMP, the proposed confidence grades have been revised together with justification.

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Environment Agency (EA)	Section 4.3 of the draft WRMP states (p76) that "Our August 2012 willingness to pay survey incorporated twelve attributes which were considered highest priority in terms of their significance to customers and the potential for choice in our plan. This included hosepipe bans, resilience and river water flow. Over 1600 domestic customers and over 500 business customers took part in the survey." However, there is limited discussion (Section 4.6) of how the WTP values have been used, or what difference they have made to the draft plan or preferred programme. The company should provide clarification on how the WTP values have been applied and whether they have been used to select preferred options.	Our Willingness to Pay survey involved customers being asked to choose between alternative packages of bills and service levels (choice experiments). This included twelve different aspects of service performance, with those most relevant to supply-demand planning being hosepipe ban frequency and low flow rivers. Other aspects of water supply and demand were addressed through separate research. The results of the Willingness to Pay survey were that, on average: • Households were willing to pay £3.06 to reduce rivers affected by low flow resulting from water abstraction from 7% to 5%. • Households were indifferent on hosepipe ban frequency. Since this contradicted the results from PR09 research, we included this issue in further in-depth research before considering whether to implement a change in service level. Chapter 6 of the revised draft WRMP now includes more information on how we used the willingness to pay results along with wider stakeholder feedback to shape the options considered in our plan.

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Group Against Reservoir Development (GARD)	In Severn Trent Water's final Plan, we would like to see more detail of the options for bulk transfers to supply London and the south -east of England. In GARD's response to Thames Water's Plan, we have urged them to consider all the options in Table 1 above as feasible options, and to appraise them to a similar level of detail as other feasible options. Selected options should then be considered both for TW's preferred plan and for sensitivity tests for futures demand scenarios. We would like to see an equivalent level of detail in Severn Trent Water's Plan. This should include: - A list of bulk transfer options for supplying Thames Water - Details of the sources of water for each option – whether using surpluses or requiring new source development - Details of feasible options for new sources required - Justification of selection or rejection of bulk transfer options - recognition of the potential of the bulk transfers to form part of a strategic transfer of water from the North of England to the South. We think Severn Trent Water's Plan should also make reference to studies needed in AMP6 to develop selected options to the point that a decision can be made by 2019 on whether a Severn to Thames transfer, with or without support from Severn Trent Water's sources, should be Thames Water's preferred option for a major new source, if needed.	Discussions with Thames Water following the draft WRMP confirmed that the most feasible of these options would be to provide untreated water to either support a future Thames Water lower Severn abstraction at Deerhurst or to transfer into the Thames region. We continued to develop the potential engineering solutions that could facilitate these transfers. In August 2013 we gave an indicative price to Thames Water for these two options in order that Thames can include them in their cost / benefit appraisal of new supply options.

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Haygrove Ltd	Our main concerns on the proposals in the Water Resource Management Plan are two-fold. Firstly, the reduction in licensed abstraction – whilst we understand and support its underlying aim – must not be allowed to detrimentally affect soft fruit growing, which is a significant industry in Severn Trent's area, and a vital contributor to the local and wider economy. Haygrove Ltd, as an example, currently uses licensed abstraction at 3 sites in the Severn Trent area. It is imperative that adequate alternative supply methods are made available, with no interruption in supply.	The measures set out in our draft WRMP are designed to ensure we continue to maintain current levels of service to our household and commercial customers, despite the future pressures on water resources availability. There should be no increased risk for supply interruptions to customers. Haygrove's comments suggest there may be a misunderstanding of the Restoring Sustainable Abstraction issue. If they hold an abstraction licence then any queries regarding the future sustainability of that licence should be directed to the Environment Agency, who are the licensing authority.
Haygrove Ltd	Our second concern is that work on the proposed Mythe-Bromsberrow link does not adversely affect water supply or road traffic movements in the area. We will welcome more details of the proposed work, its impact and its timing, and of the measures proposed to ensure that business water supply and transport routes will be protected whilst work takes place.	We have been investigating whether abstraction from our Bromsberrow groundwater source south of Malvern is causing environmental harm during low-flow periods on the neighbouring Glynch Brook. At the time of writing the draft WRMP the Environment Agency had indicated that a reduction of 3Ml/d abstraction from the source was likely to be necessary to achieve environmental flow targets. If that licence reduction at Bromsberrow was required, then in order to maintain reliable supplies to customers in the Malvern area in the event of this reduction, an alternative source of supply would be required. Our proposed solution was to transfer additional water from the main part of the Strategic Grid using a new treated water pipeline linking our Mythe treatment works to Bromsberrow. However, since the draft WRMP was published, our environmental impact assessment in the catchment has concluded that reducing the Bromsberrow abstraction would not achieve the desired increase in flows in the Glynch Brook. We have therefore proposed an alternative environmental

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		improvement scheme to provide additional flow support to the Glynch Brook during low flow periods. This solution will achieve the desired environmental improvements while allowing us to retain the existing Bromsberrow abstraction licence. As a result, we are no longer proposing the Mythe to Bromsberrow link main.
Lichfield District Council	The Local Plan: Strategy lists as one of its strategic priorities the protection, enhancement and expansion of the quality and diversity of the natural environment and contains policies to support this. The District Council therefore welcomes the continuing commitment of Severn Trent Water to address the water quality issues and ecological impacts upon the River Mease SAC and its tributaries. I would however also comment that other water bodies are also failing their water quality objectives and we would welcome a continuing dialogue to improve these to meet the requirements of the Water Framework Directive and to protect and enhance the biodiversity of Lichfield District. The quality of our water courses is monitored annually through the annual monitoring report and the Lichfield Local Plan: Strategy identifies the water catchments which are impacted upon by water abstraction and waste water treatment limitations.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Lichfield District Council	In addition some of the villages within Lichfield District are affected by flooding in close proximity to treatment works and a number of Parish Plans are being prepared within the District boundary which may result in pressure and provide opportunities to address localised issues.	Noted

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Lichfield District Council	I can advise you of the latest position with regard to the Local Plan for Lichfield District. Recently during the examination of the Local Plan it became apparent that a major modification was necessary. The modification currently suggested recognises that Birmingham City Council may not be able to accommodate the whole of its new housing requirement for 2011-2031 within its administrative boundary and some provision will need to be made in adjoining areas. Lichfield District have agreed to work collaboratively with Birmingham and the other authorities and with the GBSLEP to resolve this issue which could involve an early review of the Local Plan should Lichfield be required to increase its housing provision to accommodate the needs arising in Birmingham. The modification currently suggested is MM1 and is available to view via the following link, in addition the submitted Lichfield Local Plan: Strategy is also available via the Council website.	For producing our Final WRMP we have updated property projections to use the latest available data at the time of population of our demand forecasts. This is the latest Welsh Government housing projections and local authorities annual monitoring reports for England. It is noted that local authorities are continuing to update their housing projecting and there will be variations in council numbers. We use a central estimate for reporting household projections and variations will be account for in our headroom modelling to account for uncertainty in housing growth numbers through higher and lower bounds.
Natural England	Severn Trent Water has identified a potential large resource deficit from their Elan valley source following the ROC sustainability reduction for the River Wye SAC. Natural England is aware that there are differences in opinion in the conclusions of the modelling between EA, NRW and ST, These organisations are working with others to come to an agreed view about the actual reduction to the deployable output. It is expected that this new model is unlikely to identify a sustainability reduction greater than that identified by the current Severn Trent model. Natural England are therefore satisfied that the plan as it stands represents a worst case scenario for this resource , is suitably precautionary and supports the actions which are currently proposed in the plan. We advise that the new modelling informs the final WRMP We are however concerned that the plan does show a very large leakage reduction in 2020-2025 and question if this size of reduction is possible in such a short time scale (it is nearly 3 times the amount in other plan periods). We would therefore suggest that if a reduction in	Our draft plan was based on a 80Ml/d sustainability reduction in 2024, for the final plan this reduction has been brought forward to 2019 and reduced in size to 40Ml/d. The revised draft WRMP proposes a 6% leakage reduction in AMP6, and brings forward much of the leakage reduction that had been scheduled for AMP7 in the draft WRMP. This leakage reduction ensures we have enough water available to supply and the level of leakage reduction is inline with customers' expectations.

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	deployable output is confirmed by the current work then some of this leakage reduction should be brought forward to the earlier AMP period	
Natural England	Natural England notes that the HRA for the plan considers that there is no likely significant effect either alone or in combination of abstractions from within the Trent catchment on this site. We are aware however that the Yorkshire Water WRMP HRA is not able to conclude no likely significant effect. Given the differences in conclusion of the two companies then Natural England advises that Severn Trent water should review their conclusion in the light of that of Yorkshire Water and whether there may also be an in combination effect with the Yorkshire Water WRMP on the features of interest of the Humber Estuary SAC and SPA. Should they no longer consider that they can assume no likely significant effect then they should complete an Appropriate Assessment in conjunction with Yorkshire Water in time for the completion of the final plan.	The HRA of the draft WRMP concluded that cumulative impacts on the Humber Estuary European Marine Site with other water company Water Resource Management Plans were unlikely given the scale and location of the Severn Trent Water schemes within the River Trent system. Following Natural England's representation and further development of Water Resources Management Plans by all of the water companies that might impact on the Humber Estuary, we have reviewed the cumulative effects as part of the update to the HRA Report. The review has been informed by the revised WRMP programmes for each of the water companies concerned and discussions with Natural England and the Environment Agency. The review has concluded that the cumulative implementation of the Water Resource Management Plans would not lead to any likely significant effects on the Humber Estuary European Marine Site. This reflects both the scale and location of proposed new water resource schemes in the river systems draining to the Humber Estuary (only one minor scheme for Severn Trent Water and one scheme for Yorkshire Water), as well as further discussion on the role of different river systems in relation to dissolved oxygen levels in the lower Yorkshire Ouse (which indicates that abstraction from the River Trent does not have any impact on the Lower Ouse water quality issues).

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Natural England	The European Commission Directive 2001/42/EC "on the assessment of the effects of certain plans and programmes on the environment" is known as the „SEA Directive". It requires "an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment" (EC, 2001; Article 1). The provision is explicitly applied to plans made for "water management". In general we consider the SEA to meet of the requirements of the SEA Directive and it is clear that some schemes have been removed from the least cost plan based on the SEA findings (eg scheme 68 Stourbridge conjunctive use which would have potentially impacted on some SSSI) We do consider that the risk matrix does not fully reflect the sensitivities of the features that may be impacted by the plan as this is not considered in deciding on significance of impact. The SEA assesses significance of impact by the type of designation of the site in question not the features it supports. More detailed work will be required therefore to fully understand option impact at project development stage.	Noted. We agree that further work will be required at project development stage to investigate effects on designated sites and their supported qualifying features. We believe that the level of detail in the assessment undertaken for the SEA and supporting hydrological investigations, WFD assessment and screening, is appropriate for a strategic assessment of a plan of the scale and duration of the WRMP.
Natural England	Section 28G of the Wildlife and Countryside Act 1981, as inserted by section 75 of and Schedule 9 to the Countryside and Rights of Way Act 2000, places a duty on public authorities, including water companies, to take reasonable steps consistent with the proper exercise of their functions to further the conservation and enhancement of SSSIs. These duties are mirrored in the general recreational and environmental duties placed on relevant undertakers in the Water Industry Act (1991) as amended. Section 3.11.1 of the Statement of Obligations (SOO)2 states "where activities are being carried out by undertakers outside the boundaries of SSSIs but which have an impact on the special interest features of that SSSI, they will also need to review that activity and, where	Noted. We are undertaking an assessment of potential impacts on SSSIs of schemes in the Preferred Programme for the final WRMP taking into account the sensitivities of their qualifying interests. This will included within the revised Environmental Report to be submitted with the final Water Resources Management Plan.

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	appropriate, cease or modify that activity in order to fulfil their S28G(2) duty". Section 3.11.5 of the SOO states "....Statutory undertakers, in their business plans, will need to include those actions deemed necessary both to remedy adverse impacts on, and to maintain and enhance the condition of, SSSIs in 2015 –2020 and beyond". While the SEA has successfully identified, through modelling the likely impact on water level and flows to designated sites. It has not used , this data to fully assess the potential impact on the features of interest of each site. The seriousness of the impact will be influenced by the sensitivity of the receiving habitat Some water dependant habitats can be sensitive to very small water level changes especially where there are other pressures already on the site. Currently, the SEA does not give a sufficiently detailed indication of the impact on the sensitive individual features, but an indication of the types of designation impacted. NE advises that the water company completes for the final plan an analysis of the sensitivities of SSSI features which may be potentially impacted	
Natural England	Relevant Authorities (including water companies as a Statutory Undertaker) are to have regard to the purposes of National Parks (Section 11A (2) of the 1949 Act) and the similar duties towards Areas of Outstanding Natural Beauty (AONBs) (Section 85 of the Countryside and Rights of Way Act 2000) and the Broads (Section 17A of the Norfolk and Suffolk Broads Act 1988). Duties to further the natural beauty and rural amenity are also included within the general recreational and environmental duties placed on relevant undertakers in the Water Industry Act (1991) (as amended).	Noted

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	Natural England considers that the SEA identifies appropriately the potential impacts on landscape of the options and provides clear mitigation options	
Natural England	Under Section 40 of the Natural Environment and Rural Communities Act 2006 every public authority, including water companies, must in the exercise of its functions have regard so far as is consistent with the proper exercise of those functions to the purpose of conserving biodiversity. Conserving biodiversity in this context includes restoring or enhancing a population or habitat. Section 4.2.6 of the SOO states "Undertakers will need to take account of the duty under Section 40 of the 2006 Act with respect to existing and proposed abstractions. Defra has published guidance for public authorities entitled Guidance for Public Authorities on Implementing the Biodiversity Duty". The dWRMP and SEA identifies the likely impacts on none designated sites (with the same caveat as with SSSI section 2.1) and takes account of the presence of The Birmingham Black Country Nature Improvement Area. The plan does not, however identify opportunities for enhancing biodiversity in its options. Contributions to river restoration can mitigate for small flow reductions and schemes such as the Draycote water storage expansion 122a, if designed well can deliver significant Biodiversity opportunities.	It is noted that opportunities to implement environmental enhancements should be maximised. In preparing our PR14 investment plan we have sought to maximise these potential benefits by: • Aligning our biodiversity responsibilities with our broader water and waste-water environmental programmes, particularly with regard to WFD. • Including in our PR14 plan a small fund for 'match funding' projects to help third parties to do their bit. The match funding ensures we'll get more benefit for our money, and it will be used for both waste and water catchment management projects. • We have set ourselves a headline Measures of Success for AMP6 that measures the combined water and waste-water programmes of WFD water body improvements. The SEA did include assessment of where there would be opportunities to improve connectivity between fragmented habitats, as well as where there would be opportunities to engage more people in biodiversity issues so that they personally value biodiversity. The WRMP preferred programme includes a number of schemes where such benefits have been identified, such as those associated with increased flows due to river

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	It should be noted that customer research during the PR14 process and views from the water forum show a strong support for the company to spend money on environmental enhancements, this was also registered as a challenge to the company in the Water Forum (eg challenge log for meeting of 28/1/2013) The final plan should include a general statement about how the company will work with partners, not just to minimise environmental damage but to look to opportunities to maximise environmental gain through partnership working. This should be included as part of the executive summary and would reflect their biodiversity obligations and their customers priorities.	augmentation schemes (for example the Lower River Worfe augmentation (Scheme 130)), which provide opportunities to improve habitat connectivity and promote the value of biodiversity. The Draycote Reservoir Storage Expansion Scheme (Scheme 122A) also provides for potential beneficial effects associated with the development of new marginal habitats, as well as the potential for new educational resources, acknowledging that there would already be provision of such services at the site. It should also be noted that the WRMP incorporates and facilitates the delivery of habitat improvements and abstraction modifications at a number of existing abstraction sites ("sustainability reduction" schemes) which also provide opportunity for improved habitat connectivity and engaging more people on biodiversity issues.
Natural England	Natural England Standing Advice for Protected Species is available on our website to help local planning authorities and others including water companies better understand the impact of development on protected or BAP species should they be identified as an issue at particular developments or plans. This also sets out when, following receipt of survey information, the authority (or the undertaker in regards of the exercise of permitted development rights) should undertake further consultation with Natural England.	Noted.

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Natural England	Section 82 of the Water Act 2003 places an environmental duty on the water undertakers „to further water conservation", in addition to duties in the Water Industry Act (section 3(2)(a) 1991) to promote efficient use of water by its customers. The plan demonstrates that this duty has been taken into account. Views from customer research however shows a willingness to pay for further work in this area and that that needs to be more clearly reflected in the plan taking increasing supply from the environment.	In response to the findings from our customer feedback on the efficient use of water, we have made the following changes to our plan: • Our AMP6 leakage reduction will be double the amount that was included in our draft WRMP, reflecting the challenge from stakeholders, and the results of customer research, that our leakage reduction plans should be more ambitious. • We have included a target in our measures of success in our business plan for PR19 to fix all reported leaks within 24 hours, where it is safe to do so and will not disrupt customers' supplies. • We have increased the projected take-up of meters, to be achieved by increasing our customers' education and awareness of the potential benefits of having a metered supply.
Natural England	We strongly support the demand management options in the dWRMP . We do feel however that the company has the opportunity to target this work in areas where there are currently pressures on the environment from waste water treatment works. Several SAC rivers in the Severn Trent supply areas (the rivers Mease, Wye, Clun and Lugg) are impacted by high levels of Phosphate with significant contributions from waste water treatment discharges. Water efficiency measures within these catchments would have the double benefit of saving water and reducing P levels in these sensitive rivers.	Although we will make our water efficiency offers available to all customers, we will promote our offers more proactively in those areas which would benefit most from increased water efficiency activity. If we think that an increase in water efficiency activity in the areas suggested would prove beneficial in reducing P levels, we will focus some of our offers in these areas.

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Natural England	The company have been challenged by the Water Forum to look more closely at ways of integrating the WRMP options with pressures on other part of the business to realise environmental efficiencies in their programme not just economic ones.	The PR14 Water Forum challenged us to ensure that our environmental improvement investment programme maximised benefits by ensuring our water and waste investment is aligned. In preparing our PR14 investment plan we have sought to maximise these potential benefits by: • Aligning our biodiversity responsibilities with our broader water and waste-water environmental programmes, particularly with regard to WFD. • Including in our PR14 plan a small fund for 'match funding' projects to help third parties to do their bit. The match funding ensures we'll get more benefit for our money, and it will be used for both waste and water catchment management projects. • We have set ourselves a headline Measures of Success for AMP6 that measures the combined water and waste-water programmes of WFD water body improvements. The SEA did include assessment of where there would be opportunities to improve connectivity between fragmented habitats, as well as where there would be opportunities to engage more people in biodiversity issues so that they personally value biodiversity. The WRMP preferred programme includes a number of schemes where such benefits have been identified, such as those associated with increased flows due to river augmentation schemes (for example the Lower River Worfe augmentation (Scheme 130)), which provide opportunities to improve habitat connectivity and promote the value of biodiversity. The Draycote Reservoir Storage Expansion Scheme (Scheme 122A) also provides for potential beneficial effects associated with the development of new marginal habitats, as

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		well as the potential for new educational resources, acknowledging that there would already be provision of such services at the site. It should also be noted that the WRMP incorporates and facilitates the delivery of habitat improvements and abstraction modifications at a number of existing abstraction sites ("sustainability reduction" schemes) which also provide opportunity for improved habitat connectivity and engaging more people on biodiversity issues.
Natural England	Section 3.4 of Defra‟s strategic policy statement to Ofwat (SEG)3 highlights the expectation that catchment management will form part of Water Company approaches to addressing water quality across their business. Natural England encourages the water company to consider further catchment schemes which may contribute not only to improving water quality at its sources by reducing diffuse pollution, but could also improve the resilience of surface and groundwater sources by storing and retaining water and improving groundwater infiltration rates. Such schemes should seek to include the creation and restoration of wetland habitats, appropriate woodland planting and sustainable drainage systems within a wider catchment. Such schemes can have wider benefits for biodiversity and society as a whole, including through flood risk management and provision of green infrastructure.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.

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Natural England	The Water Company estate and water supply activities can have both a positives and negative impact on Biodiversity. The company through local Nature partnerships, Nature Improvement areas and Biological record centres has the opportunity to contribute to biodiversity at a local level. We would urge the company to take opportunities on their estate to maximise these and to form local partnerships to deliver environment al gain. They should also look at ways in which they record their activity and that of others on their estate and make environmental information available in the future We would welcome if you could share any such plans and eventual progress with implementation with Natural England and if any habitat creation was also logged on the Biodiversity Action Recording System (BARS: http://ukbars.defra.gov.uk). Local Nature Partnerships (LNP) and Biodiversity Action Plan (BAP) Partnerships will be able to give advice on which Priority Habitat creation and restoration would be appropriate in which location	It is noted that opportunities to implement environmental enhancements should be maximised. In preparing our PR14 investment plan we have sought to maximise these potential benefits by: • Aligning our biodiversity responsibilities with our broader water and waste-water environmental programmes, particularly with regard to WFD. • Including in our PR14 plan a small fund for 'match funding' projects to help third parties to do their bit. The match funding ensures we'll get more benefit for our money, and it will be used for both waste and water catchment management projects. • We have set ourselves a headline Measures of Success for AMP6 that measures the combined water and waste-water programmes of WFD water body improvements. The SEA did include assessment of where there would be opportunities to improve connectivity between fragmented habitats, as well as where there would be opportunities to engage more people in biodiversity issues so that they personally value biodiversity. The WRMP preferred programme includes a number of schemes where such benefits have been identified, such as those associated with increased flows due to river augmentation schemes (for example the Lower River Worfe augmentation (Scheme 130)), which provide opportunities to improve habitat connectivity and promote the value of biodiversity. The Draycote Reservoir Storage Expansion Scheme (Scheme 122A) also provides for potential beneficial effects associated with the development of new marginal habitats, as well as the potential for new educational resources,

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		acknowledging that there would already be provision of such services at the site. It should also be noted that the WRMP incorporates and facilitates the delivery of habitat improvements and abstraction modifications at a number of existing abstraction sites ("sustainability reduction" schemes) which also provide opportunity for improved habitat connectivity and engaging more people on biodiversity issues.
Natural Resources Wales	Severn Trent Water has incorporated the changes to its abstraction licences identified through our Habitats Directive Review of Consents on the River Wye. The sustainability reductions on the River Wye and the associated impact on the Elan Valley system are driving a 75 Ml/d deficit in the company's strategic grid. The company plans to address this deficit in AMP7 with significant investment. There is significant uncertainty with the company's modelling of the impact of the proposed licence changes. The results of Severn Trent Water's deployable output modelling are inconsistent with our Review of Consents modelling: based on our modelling work we would expect the impact to be smaller. We welcome that Severn Trent Water is working with Natural Resources Wales and the Environment Agency to resolve these discrepancies. We recommend that the company ascertains the validity of its modelling of the Elan Valley system, and modify if appropriate. This work should be completed in time to inform its final plan.	As we described earlier in response to a similar issue from the Environment Agancy, we have modelled a scenario that has lowered the reduction to our grid DO ~ 75Ml/d to 40 Ml/d. However in this scenario we need to pump more at Trimpley. We have also provided NRW with a model validation report and a report that shows that the Hysim inflows we use are 'industry standard'. We have re run our Aquator model using revised inflows to show the sensitivity of our DO modelling to these different flow series. We produced these revised Hysim flows by calibrating against the naturalised flow sequences provided by the Wye and Usk foundation. We will continue to work with NRW and other stakeholders on the Wye and Usk abstraction group.

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Natural Resources Wales	We recommend that once the further work to review the modelling of the impact of the Habitats Directive licence changes on the Wye has been completed, Severn Trent Water identifies the earliest date that licence changes can be implemented on the Wye. Licences will need to be changed by December 2015 to meet the Water Framework Directive (WFD) deadline for Habitats Directive sites. The company should demonstrate in its final plan if it requires additional time to implement replacement supply-demand schemes to maintain a secure public supply. Any extension beyond this date would need to be as short as possible, and we would want to explore short-term management arrangements with the company to protect the designated site over the period until the licence change becomes effective.	Since we published the draft WRMP, we have continued to work with Natural Resources Wales (NRW) to identify ways to minimise the impacts of these changes to the River Wye and Elan Valley operation. Through this work we have reduced the impacts of these changes to around 40Ml/d loss of deployable output. At the same time, NRW have confirmed their preference that these abstraction licence changes be implemented before the end of AMP6. As a result, our final investment plan assumes that the loss of deployable output will be seen sooner than in the draft plan, but the overall impacts will be less.
Natural Resources Wales	We recommend the company improves the validation of its rainfall runoff model (HYSIM). For example, by comparing modelled reservoir drawdown based on HYSIM inflows against observed reservoir inflows/storage for key dry years. The company should also use hydrographs in addition to flow duration curves to validate HYSIM flows as only using flow duration curves can mask significant over and under simulation of flows.	We have produced and circulated to the EA and NRW a review by MWH into the Hysim modelling approach that we take across our region. This concluded that the Hysim flows that we use were generated by using an 'industry standard' approach. -We have received comments from NRW on the MWH report and have begun to address these with NRW. -We will include further information about how the Hysim flow series are calibrated in the revised dWRMP appendices (Appendix G, section A8). -As mentioned in response to issue 14, we have validated the Hysim inflow series in Aquator using recent observed reservoir level data for 2006, which shows a good degree of equivalence between the modelled and observed reservoir level and river gauge data. -We take onboard the suggestion to use hydrographs as well as flow duration curves in calibrating the Hysim data, and will ensure that this method is used for future updates of the Hysim

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		flow series.
Natural Resources Wales	We recommend that Severn Trent Water improves how it validates its deployable output model (Aquator). We have concerns that the model has not been validated properly using recent actual data to test if the model is capable of replicating what has actually occurred. We recommend that the company carries out further testing to show its model is working from a hydrological perspective. We would like the company to demonstrate in its final plan that it has validated inflow sequences against reservoir storage in Aquator, using observed regulation releases, compensation and abstraction where applicable, for recent dry years. This is particularly important for the Elan Valley system where associated sustainability reductions are driving major investment in the Strategic Grid. This recommendation is consistent with UK Water Industry Research methodology which identifies that testing the validity of surface water simulation models is a minimum consideration for water companies to demonstrate in their plans.	We have undertaken several actions to demonstrate the validity of our modelling. These include: - We have produced and circulated a review by MWH into the Hysim/ Aquator modelling approach that we take across our region. This concluded that the Hysim flows that we use were generated by using an 'industry standard' approach - We have produced a validation report for our deployable output (Aquator) modelling that has now been shared with NRW and EA Midlands. This report outlines the methods we have used to validate the deployable output model. Details from this report will be added to the revised dWRMP Appendices (Section ##). The report shows the results of the validation for a number of reservoirs and river flow gauges in Aquator when using Hysim inflows against observed reservoir/gauge data. These results show that the model accurately models the observed reservoir levels at Elan Valley for the validation year 2006. -2006 was chosen for the validation year because it is the year used in the model for our demand profiles and baseline demand on the demand centres, therefore this gives a realistic abstraction from the reservoirs and rivers. -2006 also had a strong peak demand in the summer, which had the effect of drawing down the reservoirs. In future Amps we will extend this validation process out to validate against other years. Particularly for PR19, once we have extended our flow series to include data to 2014, we will be able to validate against the extended dry period between 2010 and early 2012.

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Natural Resources Wales	We recommend that the company optimises its modelling of the strategic grid zone in Aquator following the incorporation of the sustainability reductions. This should include reviewing the Trimpley operational control curve that triggers a reduction in abstraction from Elan. The licence changes on the River Wye alter how the Elan reservoirs are operated and the current Trimpley control curve should be reviewed to ensure that this curve is not constraining deployable output unnecessarily.	We have carried out further Aquator modelling following publication of the dWRMP, to ensure that the control curves at Elan that effect the abstraction at Trimpley are optimised, we have added code to the model which reduces the flow from Elan to Birmingham earlier in the summer during dry years based on the reservoir level at Elan This has had the effect of changing the reduction in DO caused by the Wye ROC on the strategic grid zone from -75Ml/d to -40Ml/d. These updated results will be included in the WRP tables. However this change increases the use of River Severn water (Trimpley Abstraction) which will have an Opex cost implication due to the extra pumping required from Trimpley to Frankley. We are currently investigating the likely increase in costs.
Natural Resources Wales	We recommend that Severn Trent Water re-runs its climate change modelling for the strategic grid zone following the reassessment of the impact on deployable output due to the Review of Consents. This should be done for both the supply forecast and the calculation of target headroom.	Since we published our draft WRMP we have continued to refine our modelling, the most notable change being to the baseline groundwater yields for some sources in our conjunctive use zones. We have re-modelled all the zones and have included revised figures in the accompanying draft WRMP data tables.
Natural Resources Wales	We recommend that the company provides more information about reservoir emergency storage, when it was last calculated and how it was calculated. The amount of emergency storage will affect deployable output. It is important that the company revises its emergency storage in the strategic grid after incorporating the sustainability reductions that change how the Elan reservoirs are operated. This may affect the amount of deficit in this zone.	The dead and emergency storage values that we currently use in our Aquator model are consistent with those shown in previous WRMPs and drought plans. For example, our estimates have not changed since our 2006 drought plan. Although these were values are our best current estimates and used the information available to us at the time we do not have a full audit trail. As a result we have started a review of the dead and emergency storage in all of our strategic raw water reservoirs. This review will tell us whether our current estimates are accurate or if we can improve them. However this is not a quick process .We think

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		that the most accurate and thorough way to do this is to try to quantify whether water at different depths is treatable. However, as parameters such as dissolved oxygen will vary depending on how full the reservoir is a single survey will not give us a full picture. As DCWW own the Elan reservoirs we will need to work with them in order to update the emergency storage here. Once we have completed our review of dead and emergency storage in all of our strategic raw water reservoirs we will assess what the impact of this is on DO in our strategic grid. Although we are aware of that '30 days storage' has been used as an estimate for emergency storage we are not aware of any specific guidance or UKWIR good practice for estimating dead storage. We need to know the proportion of dead storage so that we can add '30 days storage' on top on this. We don't think that this issue requires us to alter our draft WRMP.
Natural Resources Wales	The Strategic Grid zone has the highest relative outage of all water company water resource zones of 158 Ml/d, which is 10 per cent of deployable output for that zone. We recommend that the company explains why outage is so high and provides supporting evidence. The company should also consider options to reduce outage in this zone which has the largest deficit. We also recommend that the company revises its outage figures after taking account of the sustainability reductions in the strategic grid zone which reduce deployable output by 80 Ml/d. Outage remains at 158 Ml/d over the planning period even though deployable output reduces by 144 Ml/d by 2040 due to sustainability reductions and climate change. The company should provide supporting evidence for any revision to outage figures.	In Appendix A4 we have described the method we have used to derive the outage allowance for each of our water resource zones. Since publishing our draft WRMP, we have continued to refine our modelling. Our wider PR14 investment plans include a major programme of capital maintenance, resilience and water quality improvement work which will improve the condition of our assets, making treatment processes more reliable and lowering the risk of their failure. At the time of publishing our draft WRMP in May 2013, our capital improvement and maintenance plan for AMP6 and beyond was still being formulated. The PR14 capital improvement and maintenance plan for water treatment works has now been fully formulated and has been designed to target those sites which have the highest risks of being affected by specific water quality and equipment issues. We are now able to link this to our outage

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		allowance analysis to help assess how the planned risk reduction work will reduce our outage allowance in the longer term. . Our sensitivity testing shows that the outage risk to deployable output in the Strategic Grid zone will reduce by around 9Ml /d by the end of AMP6, and by around 24Ml /d by 2040. We have used this outage reduction profile in the final planning supply / demand scenario published in the accompanying draft WRMP data tables. As it is based on actual event data, our outage allowance assessment is dominated by actual outage events experienced at our surface water treatment works, particularly in the Strategic Grid zone. We have re-assessed the impact of the Wye RoC on our deployable output (DO). By changing the way we operate our offtake from the Elan Valley reservoirs and the other sources that supply Birmingham and the surrounding area we have reduced the overall impact of the licence change on our DO to 40Ml/d. Under this revised Wye RoC scenario, our Frankley water treatment works sees the biggest reduction in deployable output (about 15Ml/d) as other sources are utilised to help make up the shortfall resulting from changes to the Elan Valley reservoirs compensation and regulation regime. Frankley water treatment works has experienced few outage events which qualify for inclusion in our outage allowance assessment, meaning that the reduction in DO at Frankley under the Wye RoC will have no impact on our outage allowance. The sources with the largest contribution to our outage allowance are Church Wilne (31%) and Bamford (25%), which have experienced numerous water quality and maintenance issues over the past 5 years. Under the Wye RoC scenario the DO of these 2 sources

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		changes by less than 0.2Ml/d. Although the DO of our other water treatment works reduce slightly, the frequency and duration of the events does not change. This means that under the Wye RoC scenario there is no material change in the baseline outage allowance.
Natural Resources Wales	The company has stated that the planned frequency for imposing Temporary Use Bans (TUBS) and Non-Essential Use Bans (NEUB) is the same, at 1 in 33 years. This is consistent with the company's drought plan, however, the company's drought triggers show that there would be a staged approach to imposing these different types of restriction when reservoir levels fall below two distinct thresholds. We would, therefore, expect a lower planned frequency for NEUB compared to TUBS. The company has not explained why the stated planned frequency for both is the same, at 1 in 33 years, and should provide further evidence to explain or reconcile this apparent contradiction.	This is a very similar issue to that raised by the Environment Agency and we have described how we have addressed it earlier in this table. In summary, table A 6.1 shows that our modelled frequency of NEUBs is different to our modelled frequency of TUBs. Despite this level of service that we state to customers is still 3 in 100 or less. We do not distinguish between TUBs and NEUBs when communicating with our customers. We think that trying to distinguish between different types of restriction would cause unnecessary confusion
Natural Resources Wales	We recommend that the company provides more information about treatment work losses at groundwater sources. This information is important to be able to quantify the impact of treatment work losses on the supply demand balance at groundwater sites and the consideration of options to reduce losses if there is a supply demand deficit.	We recognise that have not fully accounted for potential treatment work losses at groundwater sources in groundwater only water resource zones, and this is an area where we aim to improve understanding in AMP6. However, our early investigations suggest that groundwater treatment works losses are significantly smaller than our surface water treatment works losses, which are accounted for within our Aquator modelling. It should be recognised that DO losses through our groundwater treatment works comprise two components; DO losses where treatment work pumps and infrastructure are less than the pumping capacity of the groundwater source, and hence constrain the overall site DO, and DO losses through process such as backwashing, or wastewater losses to sewer. To be clear, as

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		part of the DO assessment for all our groundwater sources, we have considered the former (treatment works capacities), and where treatment works pumps or infrastructure are a constraint, these are accounted for within the DO figure stated. We have, however, not fully accounted for the latter (process losses), primarily due to the difficulties in calculating accurately these losses due to varying storage both pre and post treatment, complicated backwashing processes, recycling of process waters and meter placement. Since the draft Water Resources Management Plan, we have reviewed a sample of processes at our groundwater treatment works, which indicates that process losses are small in comparison with the groundwater output (generally <1%, but up to 4.5%). For the small number of sites where process losses are applicable, we do not consider such losses to be significant on a zonal scale.
Natural Resources Wales	We recommend Severn Trent Water considers options to reduce uncertainty in the components of headroom for the final plan. Uncertainties are inevitable in planning but it is important to reduce them as far as possible. The headroom assessment in a company's plan should identify the greatest sources of uncertainty and consider options for reducing this uncertainty.	This point is similar to an earlier issue from the Environment Agency so our response to that point also applies here. The main difference between this issue and issue 4 is that NRW ask us to consider "options to reduce uncertainty in the components of headroom for the final plan." As we described earlier we have considered the options to reduce uncertainty. We have also committed to reviewing and improving several relevant headroom components during the remainder of AMP5 and during AMP6.
Natural Resources Wales	3 (i) full details of the likely effect of what is forecast pursuant to sub-paragraphs (f) to (h) on demand for water in its area The company must include in its plan a description of the likely effects	Section B2.7 of Appendix B describes the assumption for the metering effect on demand for free meter optant households. We have assumed the same effect for other types of metering (8% post metering reduction in consumption).

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	of metering on demand for water in its area. The company has included this information for compulsory metering but must include information for other types of metering.	
Natural Resources Wales	3 (j) the estimated cost to it in relation to the installation and operation of water meters to meet what is forecasted pursuant to sub-paragraphs (f) to (h) and a comparison of that cost with the other measures which it might take to manage demand for water, or increase supplies of water, in its area to meet its obligations under Part III of the Water Industry Act 1991. The company must include in its plan an estimated cost of optant and selective metering. The company has included costs for compulsory metering only.	We have tested costs/benefits of compulsory metering and the total cost of converting all unmeasured household properties in water resource zones of supply/demand risk is £329.09m, with an AIC in the range 220 to 274 p/m^3. The total cost of the FrOpt forecast to 2040 is £156.95m, with an AIC of 384 to 597 p/m^3. Our experience of selective metering during AMP5 shows that this is not what customers want, and so we have not assessed selective metering as an option for our draft WRMP.
Natural Resources Wales	3 (h) its estimate of the increase in the number of domestic premises in its area (excluding any domestic premises which are included in the estimate referred to in 3(g)), over the planning period, in respect of which section 144B(2) will not apply because the conditions referred to in section 144B(1)(c) are not satisfied and in respect of which it will fix charges by reference to volume of water supplied to those premises. To satisfy this Direction the company must include information on the number of households it plans to meter for reasons of high discretionary use.	Our scheme of charges details the company's policy requiring high discretionary users to pay by meter. Our internal customer billing system records the number of meters fitted to high discretionary users via the same process that is used to record Free Meter Optant customers. Historic FrOpts penetration data is used to inform our forecasting assumptions for meter uptake, and as customers metered due to high discretionary use are not separately flagged in our billing systems, our FrOpt forecast will already include a proportion of high discretionary users.

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Natural Resources Wales	1.3 and 2: We note the proposal to only consider 'in combination' effects for the Preferred Programme options. The intention to undertake 'in combination' effects for constrained list options that are brought back into consideration is noted and supported however, we would stress that in such cases, timing will be crucial. If constrained options are reconsidered for inclusion within the final version of the WRMP, all relevant 'appropriate assessments', including 'in combination effects' must be completed (and outstanding issues resolved).	Noted. We recognise the timing issue and we will update the HRA to reflect the changes to the Preferred Programme.
Natural Resources Wales	2.2.1 and 4.1: We note and welcome the consideration of hydrological connectivity between options and European sites, however, additional consideration may need to be given to 'mobile species' which are features of interest on given European Sites but are not necessarily confined to site designation e.g otters.	Noted. Mobile species (e.g. otter and fish species) have been considered on a scheme by scheme basis, where appropriate, and we will ensure this is identified clearly in the Sections 2.2.1 and 4.1.

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Natural Resources Wales	2.3, 4.3.2, 4.3.6, 5 and Table B1 and B3 – 'In combination' effects: We welcome the consideration of Regional Spatial Strategies within the review of potential 'in combination' effects. At the time of writing this response, the West Midlands RSS, North West RSS and South West RSS have now been formally revoked. It is unfortunate that, in the context of HRA, the revocation of policies contained within the Regional Spatial Strategies (and the West Midlands RSS Phase II in particular) has led to a loss in the ability to strategically consider the potential effect of housing allocations on European Sites including those that are spatially distant from water sources. The loss of this spatial context means that potential 'in combination' effects derived from the local development framework, particularly in England, will need to be considered carefully. It should be noted that a number of Regional Spatial Strategies in England were found to have the potential to have significant effects on European Sites in Wales including the Severn Estuary SAC/SPA/Ramsar and the Wye SAC. The West Midlands RSS was found in its HRA (including the Phase II RSS) to have the potential for significant effects on the Wye SAC and not just to the Severn Corridor as suggested. It should also be noted that the presumption in favour of sustainable development included within the National Planning Policy Framework in England does not apply in the context of potential adverse effects on European Sites. Clarification is required regarding the references to an RSS in Wales. Regional Spatial Strategies were not produced in Wales. The HRA should refer to the 'Wales Spatial Plan' instead, which needs to be included in the 'in combination' effects assessment. At the time of writing this response, the draft WRMPs (with their SEAs and HRAs) for Thames Water, Dwr Cymru and United Utilities are open to consultation and are therefore now available for consideration in terms of potential 'in combination' effects. terms of potential 'in combination' effects.	Noted. Clarifications will be made to the HRA which accompanies the final WRMP. In combination effects will be updated now that dWRMPs for other companies are available.

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Natural Resources Wales	4.3.1 and 4.3.7: Although we agree that any impacts upon the Severn Estuary would result directly from the company's drought plan options with no 'in-combination' effects from the draft WRMP, we recommend the company explains this more clearly as the current section can be mis-interpreted. The company should also make a commitment to carry out the 'in-combination' assessment for its drought plan and WRMP in the HRA for its drought plan once the environment assessment reports have been completed for both the Trimpley drought permit/order on the Severn and the Wyelands drought order on the Wye.	Noted. The wording of this section will be revised to aid clarity. We will ensure that we consider the full range of 'in combination effects in the updated Drought Plan HRA following completion of the environmental assessment reports for the Trimpley and Wyelands Drought Orders.
Natural Resources Wales	Table B.4: We are surprised that 'details for a HRA' of Hinkley Point Power Station and Brierley Hill to Wednesbury Metro Extension 'could not be found'. These should be available in the public domain.	Noted. Further attempts to source these documents will be made for the HRA to accompany the final WRMP.
Natural Resources Wales	Comment re Water Framework Directive baseline data (page 90): We note that page 90 refers to the "final" versions of all River Basin Management Plans. Please be aware that we are now developing the second round of River Basin Management Plans (RBMPs) which cover 2015-21. Our "Challenges and Choices" consultation on this second round of RBMPs was launched on 22 June 2013. These consultations contain more up-to-date information on the issues for each River Basin District. Hence, we recommend that you check whether this most up-to date information has any impact on the outcome of the SEA's assessment of options. The consultation documents are available under the "consultations" section of our website: http://naturalresourceswales.gov.uk/ourwork/consultations/list-of-current-consultations/?lang=en	Noted. We will check these recently published documents for any potential implications.

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Natural Resources Wales	Potential impacts on Wales: We note that the SEA assesses the impacts on two water resources zones which potentially have a deficit, and that one of these, the Strategic Grid Water Resources Zone, has the potential to impact on Wales, including receptors such as the Severn Estuary and the River Wye. We note that the preferred programme for the Strategic Grid Zone contains a number of feasible Schemes, as set out in Table 2.1 (page 21). Whilst we are aware which feasible schemes could affect Wales, including the Severn Estuary, this is not clear from Table 2. We recommend this is clarified in the SEA Post-Adoption Statement or any future revisions to the SEA. We also advise that any future SEAs you may produce for Drought or Water Resources Management Plans are clear on which of the feasible schemes impact on Wales.	Noted. Clarifications will be provided in the revised Environmental Report to accompany the final WRMP and in the SEA Post Adoption Statement to convey any likely effects within Wales.
Notts County Council	Nottingham City, in partnership with councils of Broxtowe, Erewash, Gedling and Rushcliffe, have all closely engaged with Severn Trent Water (via Peter Davies) in preparing an Infrastructure Delivery Plan. Severn Trent Water should ensure that water resource plans consider and incorporate housing numbers currently proposed up to 2028, as detailed in the Aligned Core Strategy Housing Background Paper Addendum May 2013 (click to view). The table below is an extract from this paper and details the objectively assessed housing need of the Housing Market Area.	For producing our Final WRMP we have updated property projections to use the latest available data at the time of population of our demand forecasts. This is the latest Welsh Government housing projections and local authorities annual monitoring reports for England. It is noted that local authorities are continuing to update their housing projecting and there will be variations in council numbers. We use a central estimate for reporting household projections and variations will be account for in our headroom modelling to account for uncertainty in housing growth numbers through higher and lower bounds.
Ofwat	In developing its dWRMP, Severn Trent Water has consulted its customers regarding their preferences towards the levels of service (temporary use ban frequency, etc.) that underpin the plan. While the majority of customers consulted were willing to accept a lower level of service, the company decided against a relaxation of its planned level of service. This was because evidence from past consultations	We have now carried out further research, which used a new approach to enable customer to make trade-offs between the options for balancing supply and demand. This established that, given the impact on the supply-demand balance of changing hosepipe ban frequency, customers did not support a change from current policy. Chapter 6 of the revised draft WRMP now

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	contradicted this view and the company was concerned about the validity of the latest consultation results. We note and support Severn Trent Water carrying out further customer research to establish the position on levels of service in time to inform its final plan.	includes more information on how we used the results of the study into supply / demand trade offs along with wider stakeholder feedback to shape the options considered in our plan.
Ofwat	We have not identified any particular concerns in relation to this section of the draft plan.	Noted
Ofwat	The dWRMP does not appear to include a description of the methods used for the calculation of monetised social and environmental costs. Severn Trent Water should address this in its final plan and should clarify that these impacts are not already included in the SEA assessment.	Noted. A description of the methodology has been added to Appendix D. Section 7 of the Environmental Report which accompanied the dWRMP explains that effects which have also been considered through the assessment of environmental and social costs are excluded from consideration when the outputs of the SEA are used for the programme appraisal. We can confirm that, in line with WRMP Guidance and best practice, only those environmental effects from the SEA which have NOT been monetised are taken into account in programme appraisal, in order to avoid double counting of effects.
Ofwat	The dWRMP does not contain sufficient information on feasible options, and we cannot determine the extent to which the company has considered the range of options available to it. Appendix D2 (options screening) states that a description of each feasible option is provided in appendix D4, but the information does not appear to be present there or elsewhere in the dWRMP.	We have contacted Ofwat to inform them Appendix D includes all the options.
Ofwat	Severn Trent Water has not included third party options and transfers from neighbouring water companies in its feasible options list for least-cost modelling. The company states that this is because there is insufficient information on the costs and benefits of these options to	Since the draft WRMP was published, we have continued to explore the new trading options with neighbouring water companies. We have agreed which of the options should be developed further, and we have agreed the ambition that we

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	allow it to consider them in the options appraisal process. The company states that it will explore these options further, and we expect it to fulfil this commitment and explain how it has taken account of these options in its final plan.	should work these up to sufficient detail that they can be named as feasible options with outline costs and benefits in the final WRMP. We have continued to work on the engineering feasibility assessments for these options to determine the associated capital and operating costs. Our intention is that we and the donor / receiving companies should have sufficient confidence around costs, benefits and impacts of these options that they can be included as named feasible options when the final WRMPs are published.
Ofwat	The company should provide more information on the carbon costs for each feasible option in its final plan and justify its conclusion that the approach used does not double count the impact of carbon.	The response to Issue Ref 20 above is equally valid here. Because carbon impacts have been assigned a monetary value for each scheme, we do not use the carbon effects set out in the SEA for the programme appraisal in order to avoid double-counting of effects. Carbon costs for all feasible options have been estimated using the company's Gate 2 Carbon Calculator. The tool calculates the carbon emissions in the construction of an asset (embodied carbon emissions) and the emissions associated with annual operation. Carbon emissions are calculated from carbon curves, which derived from a best fit line through an existing data set of emissions and capacity. Since our last business plan, the Department of Energy & Climate Change (DECC) have released new guidance on using values of carbon in policy appraisal. This superseded previous guidance on the shadow price of carbon, on which our 2009 business plan carbon calculations were based. As set out in the latest DECC guidance for valuing carbon in policy appraisal, there are two potential prices to use in cost benefit assessment; the traded and

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		non-traded price of carbon. We have elected to apply the central traded price of carbon for our cost benefit analysis, averaged out over 25 years. This approach has the merits of being simple (there is no need to distinguish between traded and non-traded emissions sources, which at this stage of planning is technically impossible to do with any degree of accuracy) and transparent. UKWIR guidelines suggest that because the CRC, CCL and EUETS will be passed through in the future costs of most goods and services (such as electricity), financial or non-financial evaluations may need to be reduced to avoid double-counting. We have chosen not to adjust the carbon value in the non-financial evaluation on the basis that, in the optimiser, our forecasts of operational expenditure unit rates do not include upwards pressures to account for additional CCL and EUETS costs. Applying the traded price in all cases (instead of the non-traded price), which is the lower of the two values, also partly offsets the risk of double counting. Note that for calculating operational carbon emissions for use in the optimiser, we used the forecast electricity grid emissions conversion factors up to 2040 provided by DECC. As we found during the 2009 business planning process, the materiality of carbon values, using the Government's traded price of carbon, relative to the financial cost is low for all infrastructure and non-infrastructure capital projects we have looked at. We have not found an example where including a carbon value makes a noticeable difference to the cost benefit ratio of a scheme relative to the other feasible options necessary to satisfy

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		our company objectives which have been scoped.
Ofwat	It is not clear how Severn Trent Water has used the concept of 'utilisation' in the appraisal of options. Utilisation is an important concept in determining a best value solution for customers and the environment. The company should clarify how it has taken account of utilisation in its final plan.	For our utilisation assessment, we have estimated the likely frequency of normal and dry years. This has been done using our distribution input records from 1990/91 to 2011/12, a period which includes a variety different summer and winter weather experiences and associated demands. As explained in Chapter B2, to derive the dry year uplift factors we use 2003/04 as the reference dry year for household demand. We have assessed how many years in the 1990/91 to 2011/12 record saw a summer / winter DI factor higher than recorded in 2003-04. Based on this analysis, we estimate 30% of years would expect to have relatively high demand due to weather related issues. Hence, our weighted average demand projections use a weighting of 70% average demand (normal year) - 30% high demand (dry year). We have used this proportion of high demand years to calculate the average annual utilisation costs associated with our new supply options. To calculate the weighted average variable opex used in tables WRP3b and c, we have assumed that the supply-side schemes will be used only for a typical critical period in a dry year (6 months in the Grid WRZ and 12 months in the Notts WRZ) and that the dry years will occur in 30% of all years.
Ofwat	Severn Trent Water does not appear to have considered the potential operating cost savings of new sources of water when compared to existing sources. The company should also clarify the discount rate it has used to appraise options.	We have used a whole life costing tool (WISDM) to derive a least cost plan. The tool takes in to account the cost of construction and operation of any new sources of supply, as well as the marginal cost of producing and abstracting water from existing

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		sources. When the model calculates the economic level of leakage, the calculation seeks to minimise the whole life cost solution by reducing output from those sources of supply with the highest marginal cost of water if it is higher than the marginal cost of leakage reduction.
Ofwat	Severn Trent Water does not appear to have integrated the SEA and HRA well into its dWRMP. We can find no discussion of how the company has used the assessments to influence the development of its plan, only statements that it has assessed all feasible options. The company should demonstrate how it has used the SEA and HRA in the assessment of feasible options, and the development of its preferred solution, in its final plan.	The SEA and HRA (and WFD assessments) were undertaken as integral components of the development of the dWRMP in line with the UKWIR best practice guidance for SEA and HRA. The process commenced from the outset of the plan development with environmental screening of the unconstrained list of options. The feasible list was continually refined throughout the process of dWRMP development to reject schemes which would cause significant environmental impacts as informed by discussions with the Environment Agency and consultation with Natural England/Countryside Council for Wales and English Heritage. For example, Scheme 68 Stourbridge BH Conjunctive Use was removed from the Feasible List during the Programme Appraisal process on account of environmental impacts identified from the SEA, as documented in Section 7.1 of the Environmental Report accompanying the dWRMP.
Ofwat	The approach Severn Trent Water has taken for the selection of its preferred solution is not clear. The company should set out the approach it has taken to develop its preferred solution from the least-cost solution in its final plan, and provide details of alternative programmes that it has considered for comparison.	Chapter 5 of the revised draft WRMP now contains a summary of the approach detailed in Appendix D.

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Powys County Council	The County Council notes the reference to the Preferred Strategy in Appendix B of the draft Water Resources Management Plan (WRMP) citing, 'for Wales we supply an area covered by Powys local authority and we have collected housing projections from their Unitary Development Plan Preferred Option 2011.'2 For accuracy, this should refer to the LDP Preferred Strategy 2012.	Based on the WRMP guidelines, Welsh area housing growth needs to align with Welsh Government's housing projections and therefore we have updated our data. For our updated plan we are using Welsh Assembly Government housing projections for Wales Summary Report (2008 based)
Powys County Council	The Preferred Strategy document3, which went to public consultation in March 2012, was prepared based on Welsh Government's 2008-based population and household projections. The Preferred Strategy document proposed 42 ha of employment land and 7,700 dwellings across Powys (excluding the Brecon Beacons National Park Authority). The household projection proposed in the Preferred Strategy was based on Welsh Government's lower variant projection and Welsh Government has objected to this level of growth as too low, instead favouring the Principle projection of 10,010 households over the plan period. The most up to date population and household projections based on the 2011 census which are due to be published by Welsh Government later in 2013, and the Council will have regard to these in drawing up it's deposit draft LDP which is due to be published in June 2014. It is yet to be determined where the dwelling requirement will be distributed but a significant proportion is likely to be directed to settlements served by Severn Trent. At present, it is unclear whether amendments to the Water Resource Management Plan are required although, changes may be necessary in light of new evidence. Given the present ongoing work on growth and where this growth is to occur within Powys, the County Council would welcome further discussion on this point in the near future.	For producing our Final WRMP we have updated property projections to use the latest available data at the time of population of our demand forecasts. This is the latest Welsh Government housing projections and local authorities annual monitoring reports for England. It is noted that local authorities are continuing to update their housing projecting and there will be variations in council numbers. We use a central estimate for reporting household projections and variations will be account for in our headroom modelling to account for uncertainty in housing growth numbers through higher and lower bounds.

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South Staffs Water	The proposed plan includes outline proposals for a number of supply schemes associated with changes to abstraction from the River Severn at Trimpley. The current Trimpley abstraction licence is linked to South Staffs abstraction licence for the River Severn at Hampton Loade. The Company is unable to determine from the level of detail within the plan what impact if any these proposed schemes might have on its own water abstraction rights or indeed the joint abstraction rights at Hampton Loade. The Company wishes to be involved in detailed discussions regarding proposed licence variations for the River Severn and operational changes at the appropriate time.	Since the draft WRMP we have met with South Staffs Water and shared with them the concept of our draft WRMP proposal to support additional abstraction at our Trimpley source using flow compensation releases into the River Worfe catchment. We have confirmed that there will be no impact on South Staffs' existing abstraction licence at Hampton Loade.
South Staffs Water	The plan does not include any proposed water trades with neighbouring water companies in the preferred list of options as full scheme details and commercial terms are not available. South Staffs Water agrees that it has not been possible to conclude all details for inclusion in the dWRMP but feels that now would be an appropriate point to move on to the next stage of exploring the real potential for water trading between the two organisations and would welcome further discussions.	Discussions with South Staffordshire Water since the draft WRMP have confirmed that they have a supply / demand surplus that could be used to supply into our Strategic Grid zone. We have confirmed that the most feasible option is to use existing assets to link into our Elan Valley Aqueduct to provide 10-20Ml/d of treated water supply. South Staffs have agreed to provide us with an indicative price for providing this supply, and in the final WRMP we will compare it with the costs / benefits of the other new supply options available for this zone.

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The Trent Rivers Trust	STW Resource proposals: We do not have any specific comments to make about any of the proposals. Very few of them are close to areas that we work and therefore we are not able to directly comment. We are working on fish passage across weirs in the River Derwent, but I don't see that your proposals for the Derwent at Little Eaton should pose any specific risks I'm aware. of. Catchment management: TRT is currently working closely with STW in the catchment area of Tittesworth Reservoir to reduce the amount of pesticides being applied to land and flowing downstream. In the main this project has proved extremely successful and has had a high level of uptake from farmers and land managers. We feel our independent and farmer based approach works well with the farming community. We have been in discussion with STW about other areas to target using a similar land management approach, this is something we are keen to pursue. There are other opportunity to promote the wise use of water in rural areas, for example promoting water irrigation reservoirs and rainwater harvesting. In urban areas also there are opportunities to be more sustainable in how we manage our water resources, for example promoting the the use of SUDs. Water efficient and education: We are keen to promote the importance and value of reducing water consumption in both rural and urban settings. We have recently started a community engagement project in a rural part of Staffordshire aimed at improving their level of waste water treatment and reducing water consumption, ie water meters, water butts etc.. We are keen to explore	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.

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	other opportunities and be involved in partnerships to promote these techniques through education and community measures, where possible. Restoring sustainable abstraction: We would wish to see as close to natural flows as far as possible across the catchment of the River Trent, and would support the EA in the mitigation proposals they suggest. Water transfer: We recognize that this may be necessary at some point in the future, particular as the Trent is currently classified as having some water 'spare'. We would not wish to see the Trent system left with low flows due to any abstraction, particularly those that go out of the catchment. We would also be wary of the risks involved with water transfer in terms of changing water quality and the possible spread of invasive species. As a Charitable trust we operate across the Trent and would welcome the opportunity to work more closely with Severn Trent to promote the sustainable management of our clean and waste water where the opportunity may arise. This includes working with STW and others on the catchment partnership initiative where the opportunity may arise.	

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Wildfowl & Wetlands Trust	We welcome the aims of the WRMP to prioritise demand management measures over supply. This is in line with the preference of Government, customer consultation and other stakeholders. However, we feel that the lack of ambition in increasing customer water efficiency, the uptake of water meters, and reducing leakage within the WRMP does not reflect such a prioritisation and we are keen to see more emphasis on these areas. STW suggest that demand management proposals have a low long term certainty of success, for example claiming that although metering currently saves 8% on household consumption annually, this saving cannot be guaranteed to continue for 25 years. Conversely, STW are more confident in the long term security of the additional water provided by supply options in the feasible plan, such as flow augmentation in the Upper and Lower Worfe and Norton artificial recharge, but concede that they are more costly. As a result all metering options other than voluntary metering have been ruled out in the WRMP. However, we believe that success in decreasing demand will be maintained in the long term as people will not want to pay more for their bills and because of the continued awareness of climate change and water scarcity. As such we would like to see the metering options revised.	Our metering assumption has been updated to reflect current higher metering levels, and now includes higher numbers of future free meter option uptake resulting from a vulnerable customer proactive metering campaign planned for the next AMP. Given the anticipated level of metering for the remainder of AMP5, we have uplifted the AMP 6 household FrOpts volume to current levels, increasing FrOpts by 3,000 pa. Additionally, we forecast a further 2,000 FrOpt meters per annum in AMP6 resulting from a pro-active metering programme designed to help vulnerable customers understand how they can save money by opting for a metered supply. We are projecting an additional 25,000 meters over AMP 6. Current legislation allows compulsory metered of unmeasured households in areas of water stress (as defined by the Environment Agency). We are not designated an area of water stress and are therefore unable to compulsory meter customers due to legislation.

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Wildfowl & Wetlands Trust	We are concerned at the large amount of water currently lost from DO into supply (an estimated 24% of water put into supply is lost (2015), with proposals to reduce this to just above 20% by 2040 compared with an English average of 20% in 2015). We would like to see measures to decrease this further and also seek clarification as to why it is so high, and why there are no proposals to tackle the causes within the WRMP.	Water resource efficiency is the total of consumption and leakage and represents the totality of what we extract from the environment for our customers to use. On this measure, we're already the most water resource efficient UK water company, taking the least water per customer from the environment. We've done this by reducing leakage and through delivering a successful water efficiency programmes; both of which we'll continue to drive forwards into AMP6 We have delivered a 9 % reduction in leakage during the period 2010-15 and in 2012-13, we achieved our lowest ever leakage levels. We were partly helped by favourable weather conditions but also found innovative ways to drive down the costs of finding and fixing leaks. We'll continue this approach, challenging ourselves to reduce leakage and be even more efficient. Our customers gave us clear feedback that this is an area they expect us to focus on and our plan reflects this. We originally planned a further 3% reduction in the period 2015-20. However, following consultation (Your Water Your Choices) our customers clearly told us that they wanted us to go even further and faster on leakage than this. So we reconsidered and we have doubled this to a 6% total reduction in leakage and also committed to fixing leaks in 24 hours. This will be challenging but we believe that we can do it effectively and efficiently. Thus our plan will deliver a leakage reduction of 15% over the period 2010-2020. We'll also continue to engage customers with our water efficiency programme, which has delivered the industry's largest volume savings at one of the lowest unit costs..

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Wildfowl & Wetlands Trust	Current estimated outage at a company level is stated as 8% of the deployable output (DO). The Strategic Zone has the highest relative outage at 10% of DO, which results in a loss of 157.98Ml per day. We feel that there would be overall benefits to reducing outage and would like to see proposals to do so within the WRMP. Otherwise we would seek clarification as to why STW is not looking to reduce outage.	Our wider PR14 investment plans include a major programme of capital maintenance, resilience and water quality improvement work which will improve the condition of our assets, making treatment processes more reliable and lowering the risk of their failure. At the time of publishing our draft WRMP in May 2013, our capital improvement and maintenance plan for AMP6 and beyond was still being formulated. The PR14 capital improvement and maintenance plan for water treatment works has now been fully formulated and has been designed to target those sites which have the highest risks of being affected by specific water quality and equipment issues. We are now able to link this to our outage allowance analysis to help assess how the planned risk reduction work will reduce our outage allowance in the longer term. . Our sensitivity testing shows that the outage risk to deployable output in the Strategic Grid zone will reduce by around 9Ml/d by the end of AMP6, and by around 24Ml/d by 2040. We have used this outage reduction profile in the final planning supply / demand scenario published in the accompanying draft WRMP data tables.
Wildfowl & Wetlands Trust	We understand that some innovative ideas such as grey/rainwater recycling initiatives did not make it to the final feasible plan, and we would like to see such initiatives revisited in the future. There is, nonetheless, scope for Severn Trent Water to promote green infrastructure and allied proposals with a range of partners and through different opportunities as they arise and we would encourage this.	Rainwater and greywater recovery and reuse systems were considered as part of our unconstrained plans, however current technologies, certainty of sustainable demand reduction and economics meant these were not chosen as demand reduction options. We do think that these technologies offer potential so have commenced a number of trials in AMP5 that will continue into AMP 6 for both rain water and greywater reuse systems. We are sponsoring an EngD at the University of Exeter to assess and develop low cost, sustainable rainwater retrofit systems; we are also working with a housing provider to test domestic greywater reuse systems.

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Wildfowl & Wetlands Trust	We applaud STW for having one of the lowest average per capita consumption (PCC) in England, and believe that this should be built on further. The water efficiency options suggested within this WRMP do not seem to add anything to those from AMP5, instead offering a "business as usual" scenario, proposing only 5Ml/d savings in water efficiency measures for AMP6. There are also no proposals for further water efficiency measures for AMP 8 or beyond. We believe that water efficiency measures should be continually employed. Some Water Resource Zones (WRZs) have a higher than UK average PCC and we would encourage STW to, at a minimum, target reduction of PCC in these zones to below the DEFRA aspiration of 130l/p/d by 2030, preferably for both measured and unmeasured households.	As you point out, we already have relatively low per capita consumption. Despite this, in AMP6 we are proposing to increase the level of water efficiency activity by a minimum of 8.8 Ml/d compared to AMP5 to 25.15 Ml/d. We also currently plan to maintain water efficiency activity of around 17 Ml/d per AMP during AMP7 to AMP10. We anticipate that beyond AMP 6 the scope to carry out water efficiency activity may become more limited as customers replace existing fittings and appliances with more water efficient ones, and that it will be increasingly costly to deliver as we will need to target the harder to reach customers. If we think there is scope to deliver higher levels of water efficiency activity in future AMP periods and customers support an increase in activity compared to that currently planned, we would subsequently increase the level of planned activity.
Wildfowl & Wetlands Trust	It can be seen from the dry year baseline graphs in Appendix B that by 2040 Bishops Castle WRZ is predicted to have a dry year baseline PCC average of ~100l/p/d. We would like to see STW embrace the challenge of reducing average PCC further in other zones to match that at Bishops Castle. The fact that this low PCC already exists in some zones indicates the potential in other zones. Currently the WRMP assumes that all measured PCC will remain relatively constant to 2040, however, we would expect STW to be driving PCC downwards, in measured as well as unmeasured households. There are many zones where the baseline demand projections indicate that by 2040 differences of 20l/p/d or more will still exist between measured and unmeasured households (e.g. Wolverhampton and Mardy) whereas in other zones, the gap is negligible e.g. Shelton and Whitchurch & Wem. We would like to see investigations made into the reasons behind variations in PCC by WRZ and gaps in measured and unmeasured PCC so that differences can	Variations in demographics, household occupancy across water resources zones and between measured and unmeasured customers gives rise to differing PCC across our region. Historically customers opting for a meter have tended to be below average users leading to measured customers having a lower PCC. As more customers move to meters and new home are metered this gap will between measured and unmeasured will start to reduce. Severn Trent has the lowest PCC across water companies and we aim to reduce pcc by as much as we can. Water efficiency is a key component of our demand management strategy and we try to target all of our customers with water efficiency messages and offers. To this end, we are increasingly using social norms and customer segmentation techniques to enable the better targeting of messages and offers to our customers, and to try to understand how best to reach those

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	begin to be addressed to reduce this variation, rather than assuming that they are unchangeable. We understand that there are differences in average type of household, but efficiency measures can be undertaken by everyone.	customers who we find it more difficult to engage with. During AMP5 we have already outperformed the water efficiency targets set by Ofwat having delivered 13.2Mld of water savings by the end of the reporting year 2012-13 against an AMP5 target of 7.95Ml/d, but will continue to deliver high levels of water efficiency activity during AMP5. We are proposing that in AMP6 we will increase our activity compared to AMP5. We are also active in research on understanding the impact of water efficiency interventions, and how we can better target customers. This includes an active role in the water industry collaborative research fund projects. We also undertake innovative research, such as, our grey water reuse pilot study, supporting research and development of new rainwater reuse systems.
Wildfowl & Wetlands Trust	We welcome the proposal to work more with business customers to increase water efficiency. The figures in Appendix B indicate the strongest growth in water demand is expected in hotels and catering, financial & business services and the public administration sectors both due to higher levels of economic activity but also due to a higher water demand independent of economic conditions. As such we would recommend STW target business efficiency measures in those areas where they are most likely to make a difference.	We will target our water efficiency offers to areas where we think they will have greatest impact, and have already begun to target these sectors with water efficiency offers and will continue to do so. For example, we are working with hotels and catering to establish the potential water savings achievable through the installation of water efficient fittings. We are currently seeing reductions in water consumption of around 30% in hotels. There are also significant reductions in energy consumption for hotels where they are installing water efficient shower heads. In partnership with local councils, in 2008/09 we ran a retrofit programme with more than 600 schools in our area which resulted in a 23% reduction in water consumption. Where appropriate we supply water saving devices. We are currently particularly targeting accommodation blocks in

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		universities. We continue to look for opportunities to work with non domestic s customers of all types and are currently meeting with a number of local councils to understand how we can help them to reduce their water consumption.
Wildfowl & Wetlands Trust	We also welcome the proposal to carry out education measures to improve water efficiency. We are keen to see more information on the extent of these education measures. For example, do they include developing relationships with schools and teaching children, or talking to staff of large companies, including local councils, about both corporate and household efficiency improvements? We would encourage STW to engage in a varied education program reaching all areas of society.	We target the education sector providing an extensive education programme aimed at behaviour change though our team of education coordinators. More information is available on our website http://www.stwater.co.uk/daysout We also provide talks for businesses, attend shows and events, and work closely with the social housing sector through our Plugin programme which we run in partnership with the Environment Agency. We have made provision to continue with our extensive and varied education programme through to AMP10.
Wildfowl & Wetlands Trust	We applaud STW for having one of the lowest leakage levels in the country and that the aims of the WRMP are to maintain this, but believe that this success could be built upon. We welcome the continuation of the 'Bursts on Private' policy to mend supply pipe leakages for free. However, the WRMP assumes that the amount of supply pipe leakage will remain constant through to 2040 at around 30l per property per day. We would hope that this large amount of water could be reduced through further customer education about how to detect leaks, and through a metering programme.	STW have recently adopted a new approach to repairing customer supply pipe leaks, which is expected to shorten run times and help drive down leakage, and mitigate against chase calls by customers. The process is known as One Contact/ One Visit, whereby the leak is detected by STW, contact with the customer to allow the repair, which is followed by a fix team for the repair. The repair team have the ability to locate the leak should the location marked on the first contact was incorrect. The fix criteria would still apply e.g. the leak must not be under a building, or under reinforced concrete etc.

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Wildfowl & Wetlands Trust	There is a significant lack of ambition relating to the promotion of metering. The England average meter uptake is predicted to be 80% by 2040, however, STW does not aim to meet this average. The key insights from engagement suggest willingness for an increase in metering, though not in isolation of affordability consequences; WWT believe a robust metering programme which assists the vulnerable through social tariffs within the WRMP would reflect the willingness for an increase in metering whilst taking into account affordability concerns. We consider an average uptake of 1.73% from 2005-2012 to be very low; it is one of the lowest in the country. The overall relatively low PCC indicates that there are many customers who would benefit from a meter and would be likely to opt in if they became fully aware of the benefits they could gain. We consider that there are large benefits to be obtained through the improved efficiencies that come from metering, especially when deployed in combination with tariffs that adequately reflect water use, such as increasing tariffs when households use above a certain threshold of water. The information within the appendices indicates that the trial to install meters when occupier status changed saved 8% on 130l/p/d – this equates to around 42Ml/d for 100% metering. The consultation says that this is "not the most cost effective means of demand management, for example when compared to water efficiency and leakage management, and has therefore been excluded from the baseline forecast." However, we would argue that a metering programme should be used together with water efficiency and leakage management to deliver overall demand management savings. This would also potentially result in a further decrease in the need for supply side options and embraces the aim to prioritise demand side options.	Our metering assumption has been updated to reflect current higher metering levels, and now includes enhanced FrOpt metering resulting from a vulnerable customer proactive metering campaign planned for the next AMP. Given the anticipated level of metering for the remainder of AMP5, we have uplifted the AMP 6 household FrOpts volume to current levels, increasing FrOpts by 3,000 pa. Additionally, we forecast a further 2,000 FrOpt meters per annum in AMP6 resulting from a pro-active vulnerable customers metering programme. We are projecting an additional 25,000 meters over AMP 6. Current legislation allows compulsory metered of unmeasured households in areas of water stress (as defined by the Environment Agency). We are not designated an area of water stress and are therefore unable to compulsory meter customers due to legislation.

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Wildfowl & Wetlands Trust	We are concerned about the transfer of water between hydrologically distinct watercourses and regions. The consultation mentions the transfer of water for a number of schemes. Although in many cases this is likely to take place through pipelines to treatment works, there is a suggestion that discussions are taking place looking at the possible transfer of water with other water companies. There are many issues associated with transferring water including possible alteration of flows and possible impacts on recreational pursuits. In addition there is a real concern that transferring water could lead to the transport and spread of invasive non-native species. We would therefore suggest that the transfer of water between watercourses and regions is avoided as far as possible. If the transfer cannot be avoided, due diligence must be ensured to reduce impacts.	In the Water Resources Planning Guidelines, Government sets out the requirements that in their WRMPs companies must consider: 1. interconnections between its own water resources zones - Increasing interconnection between a company's own resource zones where it is cost effective will mean companies can use water resources more flexibly, efficiently and reduce the need for new resources and infrastructure; 2. water trading - through bulk supplies between water companies (neighbouring or not); 3. Abstraction licence trading within catchments - This provides a water company with an option to purchase or sell licences to help meet its supply needs or to sell surplus water to other abstractors; 4. Supply/demand options provided by other water companies or by third parties - allowing others to provide demand and/or supply options in the plan increases the scope for lower costs and innovative solutions. Options proposed/provided by other water companies or third parties will need to be included in the options appraisal alongside other feasible options. As explained in our draft WRMP we are considering such options. However, as part of our normal approach to understanding the feasibility of implementing new supply options, we will assess the potential environmental impacts, and ensure that they do not contribute to deterioration of WFD status.

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Wildfowl & Wetlands Trust	As supporters of the catchment management approach we are pleased to see the proposal to employ catchment management techniques to achieve water quality targets within the Hatton conjunctive use proposal. However, this is the only option in the WRMP which suggests this. We encourage the promotion of catchment management and constructed wetlands in other options, for example there may be potential within the re-commissioning of the Belper Meadows site which requires upgrading on-site treatment works and the Kenilworth groundwater scheme.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Wildfowl & Wetlands Trust	We are pleased that STW have undertaken an SEA and recommend that for all engineering work undertaken that STW formally consider their effect on the wider catchment. Although there is mention of STW working at a catchment level, there is no detail as to what this entails or what degree of engagement is envisaged with the local community. In addition there is no mention within the WRMP about being involved in Catchment Management Plans (CMPs). We would like to see STW's commitment to catchment scale partnership working through CMPs.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise

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		carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Wildfowl & Wetlands Trust	We understand that there is no predicted supply/demand deficit for Shelton WRZ. However, it is not clear how the "likely" sustainability measures of 31.4Ml/d have been tackled within the plan as all supply options are for the Strategic grid and Nottinghamshire WRZ. This is especially valid given that the sensitivity testing suggests Shelton WRZ is not robust to additional licence changes.	Sections 4.1 and section 4.5 of the draft WRMP explain that we have a need to reduce abstraction in the River Worfe catchment, and we will be converting existing public water supply boreholes to providing low flow river support. Our strategy for the Strategic Grid zone involves recapturing these compensation discharges further downstream at our Trimpley abstraction on the River Severn. Before we can give up the existing public water supply groundwater sources and convert them to sources of low river flow support, we will need to provide an alternative source of supply to customers in Telford. Our proposed alternative source of supply is the expansion of output from our Uckington source near Telford, up to full licensed quantity (10Ml/d average, 12Ml/d peak) together with pipeline upgrades to transfer additional water from the west part of the Shelton zone to the east. This would require variation of the Uckington abstraction licence.
Wildfowl & Wetlands Trust	We welcome the decision of STW to carry out an SEA; however we note that within both the SEA and the HRA there is no mention of the European Eel Regulations (2007); the HRA covers maintaining flows for migration of Shad and Lamprey and the SEA covers fish passes. We would like to clarification on how the eel regulations are taken into account.	Noted. The Eel Regulations will be considered explicitly in the revised Environmental Report to accompany the Final Water Resources Management Plan. The SEA biodiversity, flora and fauna objective did consider effects around habitat fragmentation and linking of already fragmented habitats, including to enable fish passage - this included consideration of eel migration where appropriate, but we will ensure that this is

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		made more explicit in the revised Environmental Report.
Wildfowl & Wetlands Trust	We welcome that the preferred schemes do not include any schemes with a major negative impact on the environment and the proposal to carry out further investigation into mitigation of those schemes showing moderate adverse effects. We recommend that any further investigations should include thorough investigation into any possible cumulative effects; catchment level effects and local impacts. We would like any mitigation measures to assess all viable options for any scheme which cannot avoid negatively impacting the environment or biodiversity, and for decision making to be transparent. The SEA indicates that Scheme 129 (Bromsgrove groundwater) could affect low flows in the local Sugar Brook and River Salwarpe, and may have potential effects on a local SSSI. However there is no mention of further investigation or mitigation measures, or of mitigation for cumulative effects. The reason given is that the scheme would replace existing licences that have greater effects and that therefore there would be some local benefit to biodiversity arising from the relocation of the abstraction. We would like to see how this has been calculated, especially as biodiversity composition and the impact on biodiversity in the two areas could be different. We also consider that mitigation measures to reduce impact further should be investigated. The key sustainability issues arising from the baseline assessment for biodiversity are stated as: - The need to protect or enhance the region's biodiversity, particularly protected sites designated for nature conservation. - The need to avoid activities likely to cause irreversible damage to natural heritage.	The effects of Scheme 129 Bromsgrove Groundwater on the SSSI will be explored further and reported in the revised Environmental Report. This scheme could bring localised benefits to biodiversity as it would replace existing licences abstracting from an unconfined zone of the Sherwood Sandstone aquifer. Groundwater models show that this would enable increased flows in the Upper Battlefield Brook and in the Spadesbourne Brook, and increased flows at flows greater than Q95 in the Sugar Brook. The model also shows that low flows in Sugar Brook and the River Salwarpe could be marginally lower than under the current operating regime. It is acknowledged that biodiversity composition in different reaches of the impacts streams may vary. It is noted that the detailed assessment table for this scheme in Appendix F of the Environmental Report (Table F39) clarifies that effects of the scheme would require further investigation. Further investigation is also advised in Section 9 (WFD Status Assessment) in relation to this scheme, and also potential cumulative effects with other schemes which affect the same aquifer. This investigation would potentially lead to mitigation or avoidance of adverse effects. As noted, the SEA assessed where there would be opportunities to improve connectivity between fragmented habitats, as well as where there would be opportunities to engage more people in biodiversity issues so that they personally value biodiversity.

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	- The need to take opportunities to improve connectivity between fragmented habitats. - The need to engage more people in biodiversity issues so that they personally value biodiversity and know what they can do to help. We believe that the WRMP and associated SEA/HRA cover the first two points but that the WRMP does not contribute to the delivery of the last two points.	The WRMP preferred programme includes a number of schemes where such benefits have been identified, such as those associated with increased flows due to river augmentation schemes (for example the Lower River Worfe augmentation (Scheme 130)), which provide opportunities to improve habitat connectivity and promote the value of biodiversity. The Draycote Reservoir Storage Expansion Scheme (Scheme 122A) also provides for potential beneficial effects associated with the development of new marginal habitats, as well as the potential for new educational resources, acknowledging that there would already be provision of such services at the site. It should also be noted that the WRMP incorporates and facilitates the delivery of habitat improvements and abstraction modifications at a number of existing abstraction sites ("sustainability reduction" schemes) which also provide opportunity for improved habitat connectivity and engaging more people on biodiversity issues.
Wildfowl & Wetlands Trust	It is mentioned in the vulnerability to climate change assessment that seven of the water resource zones are in a designated Catchment Abstraction Management Strategies (CAMS) area as having “no water available”. It is not clear how STW are helping to change this situation via this WRMP towards a more sustainable one; we assume that this is being tackled through sustainability measures but this is unclear.	The AMP5 low flow river investigations have played a key part in the decisions taken around our wider PR14 supply / demand, water quality and capital maintenance investment programmes. As a result, we are not proposing AMP6 investment in refurbishing or increasing output from sources that would have a damaging environmental impact. Our holistic water supply investment planning approach means that we are confident that we will improve the status of water bodies failing WFD flow targets, and we will not cause future deterioration of WFD status in those water bodies that current comply.
Wildfowl & Wetlands Trust	We do not believe that a predicted increase of 3% carbon production over the 25 year period is acceptable in the context of UK climate change policy. We accept that STW are putting resources into more supply development/capital schemes, however we believe that carbon	We estimate that the schemes in our plan will increase the carbon emissions in the clean water side of our business by about 3%. Some impact is an unfortunate but inevitable consequence of the fact that more activity to abstract water and distribute it

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	efficiency measures need to be made to accommodate these increases.	across our region requires more energy. However, this is not a projection for the trajectory of our carbon emissions as a company. As a company, we expect our emissions to decrease, despite the upwards pressures we face. The 3% increase represents a sort of 'worst case' impact because it takes no account of the wider business improvements we plan to make which drive carbon emissions down. Improvements to the energy efficiency of our operations and increases in the amount of renewable energy we generate are not included in the forecast, nor are technological and process improvements which might enable us to deliver schemes with lower carbon impacts in the future. As we will set out in our overall PR14 business plan, we will continue to invest in these things over the next 25 years. Our strategy on carbon is to reduce emissions in a way which represents good value for our customers. This is based on what we have heard from our customers and stakeholders. As a result of Government policy, there is an increasingly close link between carbon and cost; and this gives us clear incentives to reduce emissions. This is something we've been succeeding at over the last decade. Finally, as the UK reduces the carbon intensity of its electricity production, the carbon impact of our operations will decrease further. We deliberately excluded the impact of this in our 3% projection, as we want to be clear about the impact we are making as a company.

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Wildlife Trust Wales	WTW believe that STW should support catchment scale schemes within its area such as the Wildlife Trust Living Landscapes and those listed in Wales Environment Link's 'Valuing Our Freshwater' report5.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Wildlife Trust Wales	WTW believe that STW should increase the Water Framework Directive fund so that environmental organizations, landowners and communities can undertake work to reduce impact on freshwater ecosystems which are failing or at risk of failing WFD targets.	Our wider PR14 investment plan includes planned match funding expenditure to support WFD projects led by other partner organisations where we believe we can add value. It is envisaged that this funding could be used to help to support complementary initiatives that are 3rd party led and where we are also planning WFD or biodiversity improvements. Our plan would be to provide a degree of match funding to initiatives that may promote biodiversity, address additional reasons for failure in a waterbody or will help to sustain improvements. As a business we need to develop our criteria for relevant initiatives and assessment of funding requests. This funding supports our desire to deliver a broader set of benefits associated with our investment

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Wildlife Trust Wales	WTW believe that STW should work with WG and the Wildlife Trusts to develop a Catchment Sensitive Farming and WFD Compliance approach to Pillar 1 payments under CAP.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Wildlife Trust Wales	WTW believe that STW should work in long term partnership agreements with organisations like the Wildlife Trusts. Such long term partnership agreements will allow partner organisations with their long term business plans.	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise

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		carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.
Wildlife Trust Wales	WTW believe that STW should work in partnership with Wildlife Trusts and others to - educate your customers on the importance of land management creating healthy freshwater ecosystems, - communicate the benefits of an ecosystem approach based approach and its multiple benefits to Welsh Water customers. - To work with landowners to reduce pollution issues or restore habitats	Chapter 4 of the revised draft WRMP now includes an overview of our catchment management strategy. Our catchment management strategy complements our long term water supply, treatment, and capital maintenance strategies. The strategy is outcome based and will allow us to be flexible and innovative in delivering the right catchment solutions. Our catchment strategy will also help us achieved a number of our external obligations and stakeholder expectations. This will be achieved through collaboration with Environment Agency (EA), Drinking Water Inspectorate (DWI) and OFWAT along with other key stakeholders and catchment partnerships. It will also deliver our obligations under the WFD, further enhance catchment risk assessments that support our DWSPs and seek to minimise carbon usage. Stakeholder engagement is essential for the implementation of our catchment management strategy and we see the Catchment Based Approach (CaBA) partnerships as key in aiding the delivery of our strategy.

Table A1 English Heritage SEA comments:

Scheme Reference (SEA Report)	Scheme	Comment	Recommendations
F42	Mythe to Bromsberrow Link	Proximity to scheduled monument	English Heritage would like early consultation on the identified scheme. The initial point contact for this is the South West locality (Bristol office, Business Team).
130	Lower Wolfe Flow Augmentation	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains.
62	Convert Short Heath Groundwater Supply	Proximity to scheduled monument and potential hydrological changes (subject to further investigation)	English Heritage agrees that further investigation is needed with regard to potential impacts on the Sutton Park Scheduled Monument and Registered Park and Garden. We are aware that a Palaeo-environmental Assessment for Sutton Park has been undertaken for Birmingham City Council to build on the HER (for further information contact Mike Hodder, Birmingham City Council). English Heritage would also wish to be involved in any ongoing investigation and discussions. The initial point contact for this is the West Midlands locality (Birmingham office, Business Team).
3	Trimpley and Worcester Groundwater Conjuncture	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains in order to fully understand any potential impacts of short term / intermittent changes in the hydrological conditions.
122A	Draycote Reservoir	Expansion footprint and the potential for undesignated heritage assets.	English Heritage recommends that the local HER is checked for any non-designated within and in the vicinity of the expansion footprint, including any water dependent heritage assets.

Scheme Reference (SEA Report)	Scheme	Comment	Recommendations
129	Bromsgrove Groundwater Licence Transfer	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains.
11	Belper Meadows Recommissioning	Location within World Heritage Site and numerous designated heritage assets and hydrological changes during operation	English Heritage would like early consultation on the identified scheme. The initial point contact for this is the East Midlands locality (Northampton office, Business Team). English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains.
47	Norton Artificial Recharge	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains in order to fully understand any potential impacts of seasonal / intermittent changes in the hydrological conditions.
27	Hatton Conjunctive Use	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains
35	Kenilworth Borehole Scheme	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains.
55	Bellington to Frankley Conjunctive Use	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains.

Scheme Reference (SEA Report)	Scheme	Comment	Recommendations
64	Stanton and Milton Groundwater Supply	Hydrological changes during operation	English Heritage recommends that the local HER is checked for any non-designated water dependent heritage assets, including water logged remains in order to fully understand any potential impacts of seasonal / intermittent changes in the hydrological conditions.
16	Derwent Valley Aqueduct to Nottingham Pipeline Enhancement	Pipeline construction and non-designated heritage assets	English Heritage would like early consultation on the identified scheme. The initial point contact for this is the East Midlands locality (Northampton office, Business Team).