

Ian Pearson MP
Minister for Climate Change and the Environment
Department for Environment, Food and Rural Affairs
Nobel House
17 Smith Square
London SW1P 3JR

31 January 2007

Thames Tideway and the Olympics

As you are aware, as a member of the Defra-led Thames Tideway Advisory Group, Ofwat has received a copy of the Options Development report which Thames Water submitted to you on 29 December 2006.

Ofwat's Board has had the opportunity to consider the report and take account of new information that has emerged since its submission. Our views have been further informed by the findings of an independent review we commissioned from Mott MacDonald consultants into the feasibility of a 2012 completion date for a 'first phase' project.

Ofwat summary view

The quality of the Thames Tideway has been much improved in recent years. Much more will be achieved by the substantial programme (around £400 million) to upgrade the sewage treatment works serving London, the programme extending from now until around 2014. In addition, a programme to strengthen Thames Water's ability to minimise environmental and aesthetic problems arising from the discharge of combined sewer outflows has been commissioned. This consists of boats to skim the surface to remove litter to supplement the existing re-oxygenation boats. The first such skimmer boat is due to enter service in March.

All the work done to consider yet further improvements to the Tideway demonstrates that it would not achieve value for money. Indeed, the evidence strongly suggests that the benefits would be very limited from the proposed sewer interceptor, whether in terms of health improvement, nuisance reduction, or environmental improvements. Any such improvements would not in any way be proportionate to the very high cost – well over £2 billion for each of the variants of Option 1. Indeed, the proposed interceptor tunnel raises issues of planning and construction risk which we consider likely to be greater than those associated with water company capital investment programmes generally. This will require discussion with Thames Water of possible changes to the general financing regime to ensure that risk is properly allocated between consumers and the company.

In the interests of consumers Ofwat therefore recommends an approach which would assess the outcome of the improvements already in train before any further major projects are commissioned, in line with the principles of the Water Framework Directive. We note and agree with the broad thrust of the letter to you of 22 January from the Consumer Council for Water.

It appears to us that there are two drivers for possible earlier action. The first, the assessment of compliance with the Urban Waste Water Treatment Directive, is a matter for you. If you conclude that a further project is necessary to fulfil the statutory obligations of the United Kingdom, I offer further comments in the rest of this letter. The Option 1 group appear likely on current evidence, to offer less poor value than the Option 2 group examined.

The second potential driver is the London Olympic Games of 2012. Ofwat has consistently followed, in accordance with our statutory duties, the principle that wherever possible the costs of water and sewerage infrastructure associated with new development should fall on the promoters of that development, and not on water customers. We intend in setting price limits for Thames Water to preserve that principle. We note however that the immediate cost of preserving the Olympics site from possible unsightly discharges should be relatively minor and we are co-operating with that work in hand.

A Thames Tideway scheme

We recognise the stiff challenge that you set Thames to produce the Options Development report in a little over five months. This demanding timetable has undoubtedly meant that the company has been unable to cover aspects of the investigations in as much depth as may have been wished. That said we are disappointed by the numerous gaps in the report and seeming inconsistencies with previous (and very recent) views on the feasibility of an early solution for the Abbey Mills discharge expressed by Thames.

Thames's report does nothing to allay our concerns over a new Thames Tideway scheme as a whole. We expand on these in Annex 1 as well as exposing a number of inadequacies in the Options Development report. None of the options investigated has been shown to represent value for money. The costs of all options are huge – several times that of the London Ring Main, the largest project Thames Water has undertaken in this country. In contrast, the tangible benefits offered by the options are uncertain, marginal at best, and subject to erosion by climate change to the extent that the dissolved oxygen objective will fail to be met at some point within the first 60 years of operation. The cost benefit analysis has not taken climate change into account and has thus produced net present values (NPVs) that are overstated. Even so, all options have been calculated as having negative NPVs when benefits accruing to Thames customers are used.

The evidence to hand shows that Thames customers are not willing to pay for the improvements. This is set against the background of likely rapidly rising prices after 2010 to ensure that safe, secure water supplies (customers' number one priority) are maintained.

The Olympics dimension

We are particularly concerned about the Thames Water indication that the Government and Ofwat should give hasty approval to a scheme (part of Option 1c) for improvements that would enable a transfer of storm sewage flows from Abbey Mills to Beckton STW and their treatment before the Olympic Games in 2012. This is a proposition that has been worked up recently, having previously been considered by Thames to be infeasible. It is still only at a preliminary stage. A rushed approval for a project carrying major planning, construction and other risks in order to try to achieve an unrealistic timetable would conflict with good practice developed over many years on how such projects should be approved and managed to minimise risk and deliver value for money.

In any case, we believe the proposal for the early delivery of a first phase project is neither achievable nor necessary. Mott MacDonald's review of the proposal for a first phase only serves to underline the risks to the programme and highlight the optimism of some of the assumptions underpinning it. They consider it "unlikely" that planning approval could be achieved by the target date of April 2008 and that the construction programme is only feasible if no unforeseen difficulties are encountered.

Further discussion of the Olympics dimension is included at Annex 2. The Concluding Opinion from Mott MacDonald's report is reproduced in Annex 4. Financing issues are central to the feasibility of the delivery of the 'first phase' work and these are summarised in the section on financing below and also in more detail in Annex 3.

We also question the necessity for delivering a high cost (over £600 million) improvement scheme in advance of the Olympic Games. The fine screens already installed at Abbey Mills do much to mitigate the aesthetic pollution caused by discharges. But we take this view principally because the water control structure to be built across the Prescott channel of the River Lea will, when coupled with improvements to the Wick Lane combined sewer outflow (CSO), effectively isolate the Olympic Park from the remaining effects of stormwater overflows. Nor would transferring flows to Beckton via a new tunnel do anything to the malodour from the Northern Outfall Sewer and Abbey Mills PS itself.

Financing

Thames Water has suggested that the current financing regime for capital investment would need to be adapted to achieve an acceptable risk/reward balance between customers and the company and allow access to finance in the capital markets. This is because of the risks associated with a very large and complex tunnelling project.

In order to deliver best value for consumers it is crucial that Ofwat has time to develop, evaluate and conclude on the appropriate financing approach. The financing options to be evaluated will include alternative delivery and financing models that may better allocate risk and allow greater competitive pressure on the costs of delivering the project. We have taken advice on the time needed in respect of major schemes in other sectors and conclude that this will take many months, very likely a year or more, from the decision in principle.

We will therefore not be in a position to conclude on an appropriate funding approach when you are expected to announce your decision on the Tideway solution to be implemented. Trying to rush the process would be to the very significant detriment of consumers. Thames Water is due to share with Ofwat consultancy work on delivery and financing options by February, including Private Finance Initiative (PFI) variants. The company has told us that it will then want to have a detailed dialogue with Ofwat before conclusions on financing can be reached but also that funding clarity is on the critical path for delivery of a 2012 completion date for a 'first phase' project. Even if we could provide funding clarity it could take Thames up to a year to award contracts to deliver the project and considerably longer if the delivery model was based on PFI principles. It is our view therefore that funding considerations are key in considering the feasibility of delivery of the Olympic improvements under option 1(c).

Conclusion

Should it be accepted that action is necessary to meet the requirements of the Urban Waste Water Treatment Directive then we would look to Government to approve a programme that recognised the:

- i) opportunity to optimise investment by first assessing the impact of the measures already planned at part-funded at PR04,
- ii) affordability issues raised by such a project; (Our latest estimate is of a marginal bill impact peaking at £36 or £37 in 2017-18 for Options 1a and 1c respectively. Very recent modelling by Thames suggests that when housing costs are considered, even under a baseline case (with no Tideway scheme) more than a fifth of their customers would be paying over 3% of disposable household income on water bills between 2014/15 and 2018/19. This proportion and the period of this level of impact is obviously longer for any of the Tideway options. This should not be treated as a forecast. Many other issues need be considered before price limits are set in 2009. Ofwat will ensure that consumers' interests are properly protected.)
- iii) higher priority accorded by Thames Water and its customers to its security of supply and mains replacement programmes,
- iv) the need for Ofwat to have time to properly evaluate financing options in order to deliver overall best value to customers.
- v) the implications for construction activity and prices in East London in the period up to the opening of the Games, of the carbon footprint of a new scheme in relation to global warming, and the limited benefits arising from the proposals.

A copy of this letter goes to members of the Thames Tideway Advisory Group. I shall also be posting it on the Ofwat website at the end of this week.

Philip Fletcher
Chairman

Deficiencies in the Thames Tideway Options Development report, (Thames Water, December 2006)

It has been widely acknowledged that the timetable for the further work undertaken by Thames Water to develop two shortlisted options and a number of sub-options has been demanding. It has meant that Thames has been unable to cover aspects of the investigations in much depth. In addition, certain activities which, owing to dependencies, might have best been conducted sequentially have had to be carried out in parallel.

It is therefore not surprising that a number of gaps and inadequacies in the report are evident. A number of these represent, we believe, serious flaws. While we do not intend that this annex should be a detailed critique of the report, the following examples will serve to make the point.

- Firstly, the capital costs of the options presented in the report differ from those used by Thames's consultants (NERA) who undertook the cost benefit analysis. Furthermore, both sets of costs are inconsistent with the cost profiles provided to Ofwat and used as inputs to the financial model in the calculation of bill impacts. The difference between the total costs in the report and those derived from the inputs to the financial modelling are small (3 to 4%) for the Option 1 variants but much larger (around 15%) for the Option 2 variants.
- Secondly, benefits of the options were assessed without reference to any possible effects of climate change over time. The modelling presented in the final report makes it plain that improvements in water quality (specifically, dissolved oxygen levels) will be eroded by climate change (assuming the latest UKCIP04 scenarios). Water quality will deteriorate to the extent that at some point before 2080 all options will fail to deliver compliance with the target dissolved oxygen standard. This will impact fish populations in the river and since a reduction in threats to fish populations was one aspect of the scenario of improvements presented to survey respondents it follows that the value that respondents placed on this aspect will also be eroded over time. Since we cannot disaggregate the value that respondents placed on protecting fish from other aspects of the valuation scenario (ie reduction in sewage litter and reduction in health risk) it is not possible to say with any certainty how much benefits will be reduced.

Correcting for these errors, if it were possible, would depress net present values. These are already negative for the Thames region 'jurisdiction' and positive only for Option 1 schemes if the wider 'All England jurisdiction' is considered.

Nevertheless, irrespective of what respondents from outside the Thames customer base may state they are willing to pay for them, the tangible benefits of a Tideway scheme over and above those resulting from the improvements already planned and part-funded, appear to us to be uncertain and marginal at best. For example, a small

number of recreational users such as rowers might (or not) be slightly less likely to suffer from gastrointestinal illness. However, none of the options would do anything to reduce the health risk posed by the poor background water quality in the Thames, where counts of indicator organisms, even under dry conditions, exceed World Health Organisation 'safe' levels for bathing.

- Thames's report completely ignores some major risks. There are, for example, other high priority and very large Thames investment projects designed to achieve essential improvements to London's security of supply and sewage treatment facilities. The desalination plant, Victorian water mains replacement, the Abingdon reservoir and the existing programme for upgrading London's sewage treatment works each represents a project costing hundreds of millions of pounds or more, each with a degree of complexity that is unusual or unprecedented over the last 20 years across the industry. We have reservations about the ability of any one water and sewerage company to complete successfully such a demanding programme.
- A 'first phase' project would add to the already over-heated construction market in London and the south east, which seems certain to continue at least until 2012: commercial property booming, very large rail and tube schemes including the prospect of Crossrail (around £10 billion) and Thameslink (around £3.5 billion), and the Olympics itself. No consideration is given to the risk of labour disputes offered by tight and immovable construction deadlines.

Discussion of the achievability and need for a 'first phase' scheme to protect the 2012 Olympics

The independent review by Mott MacDonald (MM) into the proposed programme for the first phase of Option 1c gives little comfort that there is a realistic prospect of achieving a delivery date in the first half of 2012. While their report comments that the programme is *just* achievable in theory, the risks identified are so substantial and numerous that in practice there is a very high likelihood of overruns. MM's analysis only serves to underline the risks to the programme and highlight the optimism of some of the assumptions underpinning it. Take, for instance, the tunnelling rates assumed by Thames which are considerably in excess of typical rates for tube tunnels and faster too than the bores of the recently completed Thames tunnel on the CTRL. MM have calculated that less ambitious (but not overly cautious) assumptions might still just enable the required deadline to be met, but what little float exists in the programme would disappear. Timely delivery would then be totally dependent on there being no unforeseen construction or other difficulties either in the sinking of the shafts or the tunnel drive. (MM take no account of the time required for agreeing financial arrangements – see cover letter and Annex 3.)

As doubtful as Thames's programme for construction of the Abbey Mills – Beckton link may be, Mott MacDonald consider that the delivery of the treatment process extensions at Beckton STW are probably on the critical path. This does not surprise us as Thames is proposing to accommodate a far larger increase in the flow to full secondary treatment at Beckton than was proposed in its 2004 business plan, yet with no change to the original March 2012 completion date.

The Concluding Opinion from Mott MacDonald's report is included here as Annex 4.

Questions of achievability aside, we believe a compelling case for delivering a first phase scheme in time for the Olympics has not been made. Construction of the planned water control structure across the Prescott channel of the River Lee coupled with relatively low cost improvements at Wick Lane CSO will isolate the Olympic Park from the effects of storm sewage discharges from CSOs. The remaining concern related to the 2012 Games appears to be the potential for offence and bad publicity caused by a discharge from Abbey Mills to visitors accessing the Park via the Greenway.

While modelling carried out by Thames has indicated a high probability of a discharge occurring during the Games (and a near certainty (99.5%) of one during the July-August period), we are unsighted on the possible number, size, duration and timing of discharges and consequently on the magnitude of the risk of complaint, adverse press coverage or 'reputational' damage. While we do not wish to make light of these risks, information held by Ofwat shows that spill frequency can be very variable. For example, in 2003, a dry year, there was just one spill event in the whole of August (on the 28th).

Anyone who walks or cycles along the Greenway (the raised embankment over the four large barrels comprising the Northern Outfall Sewer) will notice the localised but distinctive malodour emanating from vents to the sewer and from Abbey Mills PS itself. Unlike the intermittent discharges from Abbey Mills, this malodour is ever present and would not be affected in the slightest by any Thames Tideway scheme. Thames staff at Abbey Mills have remarked to us that this smell is no worse in wet weather when there is a discharge from the pumping station.

Regarding the aesthetic pollution caused by storm sewage spills, the fine screens installed at Abbey Mills in AMP3 are designed to prevent sewage solids any larger than 6mm in two directions from being discharged to the Channelsea Creek. The tidal creek itself is visually unattractive with a considerable quantity of rubbish, eg car tyres, exposed at low water, but, as long as the fine screens are working effectively, it is unlikely that sewage litter would be noticeable from the Greenway. Finally, from our participation in the Defra-led Olympics Measures Group, we are aware there is probably some scope to increase flows through the Northern Outfall Sewer and thereby contribute to a (small) reduction in discharges from Abbey Mills, through optimising the operation of the sewerage network.

In short, no case is argued that the Abbey Mills – Beckton link is necessary to the success of the Olympics. The mitigating measures already in hand will offer far better value for money at a fraction of the cost.

Financing

Thames and Ofwat have undertaken preliminary work on the financial aspects of delivering the Tideway solution. The characteristics of the options considered seem to be such that we are presented with a different risk profile compared to that for existing capital programmes. For example, the construction and estimating risk associated with the project could be very different and on current timescale delivery will span at least three regulatory periods. Thames has suggested that the current regulatory approach to financing investment would need to be adapted to achieve an acceptable risk/reward balance. Ofwat is obliged by its statutory duties to enable an efficient company to carry out and to finance its functions. We must therefore examine carefully Thames Water's claim and assess for ourselves the cost of access to finance in the capital markets. If the risks mean an increase in the cost of capital with a consequential impact on the cost of delivering the whole of Thames' capital programme, customers might need to pay significantly more than modelled in the bill impact work to date.

In order to ensure best value to consumers it is absolutely crucial that adequate time is available to develop, evaluate and conclude on alternative delivery and financing options. The chosen model should be underpinned by an appropriate sharing of risk between shareholders (and its contractors) and consumers.

It is possible for example that the PFI model might better allocate risk and allow greater competitive pressure on the costs of delivering the project than might be the case if Thames Water delivered the project under the current financing regime. But the evaluation of alternative approaches will raise issues that will take time to consider properly. Furthermore if a PFI option emerges as the best delivery model following this evaluation implementation of what are likely to be complex delivery structures and contracting arrangements would take a further period of time to get right. Even if the Tideway solution were to be delivered under the current regulatory regime or as adapted, if appropriate, to better allocate risks, the complexity of the likely contracting arrangements would also require time to put in place. Our very provisional view is that given the complexity of the project from the time the financing framework was agreed it could take Thames up to a year to award contracts to deliver the project and considerably longer if the delivery model was based on PFI principles.

Thames is due to share with Ofwat consultancy work on financing options by February. They have told us that they will then want to have a detailed dialogue with Ofwat before conclusions on financing can be reached. This means that once the Minister announces his decision Ofwat will if appropriate take forward its work on the financing. Even then the capital markets are unlikely to commit finance until the delivery structures and detailed contracting arrangements have been put in place.

'first phase' scheme to protect the 2012 Olympics

Despite only expecting to be in a position to start to discuss financing options later in February, Thames has indicated that funding clarity is on the critical path for the phased implementation of the Abbey Mills/Beckton tunnel required to deliver improvements to the Olympic site by 2012. It is absolutely clear to Ofwat that if we are to protect consumers we have to evaluate and conclude on alternative funding approaches. This will take time and we will take this forward with Thames once its consultancy work had been completed. A premature decision on funding in order to enable the demanding timetable for delivery of this early phase of work would result in a sub optimal approach to the very significant detriment to consumers. It is our view therefore that funding considerations are key in considering the feasibility of delivery of the Olympic improvements under Option 1(c).

**Thames Tideway Tunnel and Treatment Scheme
Abbey Mills Pumping Station to Beckton WwTW – Option 1c First Phase –
Deliverability Review
Mott MacDonald – January 2007**

Concluding Opinion

The identified First Phase works of Option 1c for the Thames Tideway Tunnel and Treatment scheme comprise a 7.2 m internal diameter, 5.7 km long gravity transfer tunnel from Abbey Mills to Beckton WwTW, together with a major extension of the treatment works (increasing flow to full treatment from 1,800 Ml/d to 2,336 Ml/d) to provide *inter alia* secondary treatment to the tunnel flows.

Thames Water (TW) has opined that this First Phase works could be completed in time for the start of the 2012 Olympics, if there is an immediate instruction to progress the scheme and a planning permission for construction of the works is obtained by a target date of April 2008. TW is of the view that such a fast-track determination is only possible if the planning application is handled at a local level (by the London Borough of Newham (LBN)) with the cooperation of other key stakeholders (particularly London Thames Gateway Development Corporation (LTGDC) and the Greater London Authority (GLA)).

Technical Considerations

TW have identified an 18 month pre-construction phase. In reviewing the data made available it is considered that the works to be constructed could be delivered within the identified implementation period (between 42 and 45 months) allowing completion by April 2012.

Tunnel works would lie at a depth between –55mAOD and -75mAOD. Tunnelling at this depth, in water bearing strata, provides considerable technical challenges, however, there is significant experience of such work within the industry. Although specialist shaft construction techniques are likely to be required, we have no overriding concern over the constructability of the transfer tunnel. We understand that all land required for tunnel construction lies in TW ownership.

The tunnel production rates quoted by TW appear optimistic. Our experience would suggest both average and peak productions significantly lower than TW identified rates. However, a sensitivity analysis on these lower rates still offers completion within the identified programme.

The treatment works extension is proposed to be based on conventionally laid out process units. Little detail of the proposed extension has been provided, but we have no over-riding concern over the principle of conventional treatment works construction at this site. Again, we believe that land is in TW ownership though there are issues with the proposed utilisation of Open Space that would be a factor in determining the planning applications.

The treatment works extension is likely to lie on the critical path for construction and commencement of construction by mid-2008 would be essential. It may be possible to achieve sufficient environmental benefit from completion of the transfer tunnel and partial completion of the treatment works to satisfy the principal aims of the First Phase. Diversion of flows and the advance commissioning of the preliminary treatment facilities may yield an additional period of float, perhaps up to six months. An alternative scheme based only on the provision of preliminary treatment for the Tideway stormwater flows would be more readily delivered within the available time, even if start on site (for the treatment element) was delayed by planning considerations.

Overall, providing a start-on-site is achieved by July 2008, completion of construction and commissioning by end March 2012 is feasible, though there would be little float (perhaps none) in this programme. Successful implementation in this period would rely on encountering no unforeseen construction difficulties and no undue difficulty in achieving a proper commissioning of the works.

Environmental / Planning Considerations

LTGDC, LBN and GLA have all provided the impression of an overall positive attitude to the scheme, including the separation of the First Phase works, with a stated intent of collaborating with TW in working towards the implementation of the scheme. GLA highlighted that separation of the First Phase works was in line with the latest legal advice to ministers and is an approach which receives full support from the Mayor. This separation from the appraisal of the overall scheme may, however, represent a risk to the determination of the planning application. A lack of consideration of the impacts of the overall scheme may offer increased grounds for objection / legal review, should third parties consider that due process was not being followed.

LTGDC, LBN and GLA were consistent in their view that the Government Office for London (GOL) would be unlikely to call in the application for the First Phase works for determination by the Secretary of State. Such a Call-in would almost inevitably lead to protracted consideration of the application involving a Public Inquiry. The authorities did suggest, however, that this may change if there is an unforeseen level of opposition by other stakeholders to the scheme. LBN and LTGDC saw close liaison with GOL as key to ensuring that extensive external stakeholder consultation is undertaken so as to minimise the likelihood of such opposition.

The key risks in achieving a local determination of the application for the First Phase scheme appears to rest with the required development at Beckton WwTW. The existing odour issues pertaining to the site, as well as any potential for further malodorous releases from the proposed extension, may result on pressure being applied by the planning authorities for partial, if not complete, covering of the works. In addition, the required footprint for a conventionally laid out works (including the required extension) is in some conflict with the wider proposals sponsored by the authorities to re-develop the surrounding area as part of the approach by LTGDC.

In this regard, the consultation with LTGDC, GLA and LBN identified mixed levels of support for a “fast-track” planning approach. There is a common view that an ideal extension at Beckton WwTW would take a holistic approach, viewing the need for an extended works and the impact of the total treatment facilities in the context of the successful delivery of the current development plans. LBN, however, has expressed concerns that the speeding up of the planning process may not allow this holistic view to be adequately developed.

LBN recognised the pressure posed by the 2012 Olympics but queried whether the possibility of TW introducing further mitigation measures to reduce the potential impact of CSO discharges had been sufficiently examined. Clearly, LBN considered that it may be possible to mitigate any discharges occurring during the period of the Olympic Games making a “fast-track” approach to any part of the overall scheme unnecessary. LTGDC and GLA did not express such concerns, but both demonstrated their awareness of the challenging amounts of work which would need to be undertaken to achieve a satisfactory determination of a planning application around April 2008.

The comments of the local authorities imply that any planning application capable of a “fast-track” local determination is likely to incorporate a low footprint scheme for Beckton WwTW, and demonstrate a greater overall benefit in the vicinity of the Beckton site than is currently indicated in the TW proposals. This is likely to lead to a more drawn out project development and planning determination process. Further, should the planning authorities seek to impose any conditions that might be viewed as “excessive and unreasonable”, then only in the circumstances that TW appeals such conditions (for determination by the Secretary of State) would the reasonable net additional costs be accepted by Ofwat.

It is considered unlikely that a planning consent, capable of Ofwat funding, can be obtained for the First Phase of Option 1c (as currently defined by TW) by the target date of April 2008. This concern would only be answered through obvious and firm political will as well as significant cooperation / compromise amongst all stakeholders.

An alternative solution that provided only screening and grit removal (ie preliminary treatment) to the flows transferred from Abbey Mills PS would provide a similar level of environmental protection to the River Lee and lessen the impact of discharges on the River Thames. Preliminary treatment facilities would be deliverable within a shorter implementation programme, even allowing for odour containment and treatment, allowing a greater period for determination of the Beckton WwTW planning consent. This would be a material programming advantage if early approval and planning consent could be obtained for the tunnel element of the First Phase works. However, when consulted, the local authorities did not support any further separation of the First Phase works into a treatment works and tunnel element. This may merit further consideration and discussion.

Management Considerations

TW have not at this stage completed development of their proposals for managing the First Phase works, pending the decision as to whether the scheme is to proceed. However, to date, TW have utilised a methodology, based on consultation with stakeholders and approving authorities, to develop and test the acceptability of the proposals including the First Phase element of the TTT&TS. This would have promoted identification of key issues, risks and potential mitigation strategies.

Effective governance, together with a plan for effective scheme programme management, project management and resourcing needs to be established rapidly by TW once approval to progress the scheme is given. This needs to ensure that a Project Manager of sufficient calibre and experience is fully committed and made responsible for delivering the fast track scheme by the deadline required.

The importance of early contractor involvement in the development and final design of the scheme is highlighted. However, TW apparently do not wish to 'stimulate' construction interest until the decision to proceed with the scheme is confirmed. TW's proposals to progress design by utilising embedded consultants and specialist consultants should enable design milestones to be achieved, but TW urgently need to engage with construction partners to ensure the constructability and optimisation of the scheme.

TW have recently undergone a change in ownership and the industry is aware that changes in management structure are occurring. This is not an ideal background for the efficient management and delivery of such a complex project.

If Ofwat require further re-assurance that this management aspect has been successfully addressed it is recommended TW be asked to provide a report detailing progress on these issues within 4 weeks (say) of approval being given to the scheme.