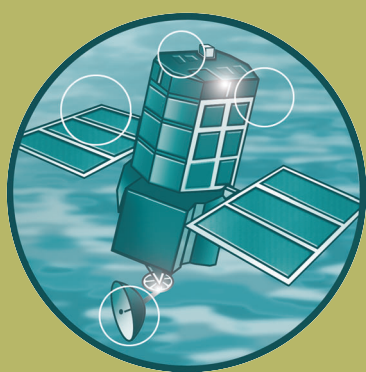


Developing an evidence base for appraisal guidance Task B1 Annex and appendices

R&D Project Record FD2019/PR4



Joint Defra/EA Flood and Coastal Erosion Risk
Management R&D Programme

Developing an Evidence Base for Improving Appraisal Guidance

R&D Project Record FD2019/PR4 (Task B1)
Appendix B1

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Executive summary

Objective of Task B1

The objective of Task B1 is to identify whether Project Appraisal Reports are applying the guidance consistently. This will help to identify any key areas where the guidance may be being interpreted in different ways.

Approach to Task B1

A total of 67 PARs were selected for review based on their location to give a good geographical spread such that they cover a range of consultants and their offices and also a range of clients' offices. The selection of PARs also took into account the responsible authority (i.e. Local Authority, Environment Agency or Internal Drainage Boards).

A standard approach to reviewing appraisals has been used, based on the key areas identified in the questionnaire, and using a proforma to record the results of all reviews. This not only provides consistency between appraisals reviewed by all the team members but with the consultation exercise as well. Thus, the results of the analysis of appraisals and the consultation (Task A2) can be combined to produce a more comprehensive set of evidence.

Conclusions

The review of PARs has shown that there is not one PAR that provides clear, transparent information on every aspect of the appraisal process. Conversely, all of the PARs include good information on at least one aspect of the appraisal process.

The majority of PARs (57 of the 67 PARs reviewed) set out the problem clearly. In many cases, the amount of quantitative information is minimal, with some PARs not including the number and type of properties affected. This can make it difficult to put the problem into context. A total of 44 PARs set out the base case clearly, although the level of information provided does vary widely, with 17 providing little or no quantitative information. Some PARs also introduce the do-nothing option by immediately stating that it is not an appropriate option.

Most of the PARs include objectives, but many of the objectives given are not associated with indicators and so cannot be easily measured. In many cases, this appears unimportant as the objectives are not referred back to when selecting the preferred option. Forty-four of the PARs identified links with other strategies, studies or high level plans (CFMPs or SMPs).

The majority of PARs (54) considered a wide range of options. However, four of the PARs looked at very restricted options while others only considered one standard of defence. Forty PARs undertook some kind of screening exercise to reduce the number of options taken forward into the appraisal.

A total of 35 PARs describe how each option has been costed; a further 22 provide partial details. Fifty of the 67 PARs made adjustments for risk and/or optimism bias. Those not including optimism bias are generally those PARs that pre-date the updated guidance.

Forty-four PARs included details of the benefits of each option. In contrast to the costs, the benefits are usually described very briefly, with 23 PARs not providing details of the benefits of each option (5 not at all, and 18 only partly). A total of 63 PARs include monetised benefits but only forty-eight of the PARs include non-monetary benefits. However, most of these (32) relate to inclusion of the results of the Environmental Impact Assessment/ Strategic Environmental Assessment, rather than non-monetary benefits that are taken into account in decision-making. Only two PARs take any account of distributional issues.

The majority of PARs (50) undertook some kind of sensitivity analysis, but 17 did not include any sensitivity analysis at all. Only 9 PARs consider switching values when assessing the robustness of the preferred option. Twenty-five PARs include scenarios, mainly in terms of changes associated with climate change (sea level rise, increase in flows, increase in rainfall).

Only 13 PARs were considered to take account of all of the costs, benefits, sensitivity analysis, etc. and compare the options back against the original objectives to select the best option, with 41 partly applying such an approach (where only the monetised costs and benefits were considered and there is no reference to the project objectives when selecting the preferred option).

Twenty-two PARs include option development and learning and for most of these, the development is the addition of mitigation measures to minimise environmental impacts, rather than development of the option to improve its performance in the appraisal. Only 14 PARs include optimisation to any degree, with 53 not undertaking any form of optimisation.

Despite the numerous omissions, there are only three PARs where the project team had concerns about the option that was selected as preferred. One PAR undertakes the base case assessment for the whole area, then in the sensitivity analysis it considers the impact of assessing each compartment individually, which shows that protection is not economically justified in all of the compartments. In a second PAR, there is concern that there was a pre-determined decision that had to be justified. A third PAR erroneously identifies the 1 in 100 standard of protection as the option with the highest benefit-cost ratio and selects it as the preferred option.

The review of PARs has shown that, while there is not one PAR that provides clear, transparent information on every aspect of the appraisal process, all of the PARs include good information on at least one aspect of the appraisal process.

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1. Introduction

1.1 Background to the study

FCDPAG 1 (MAFF 2001) defines Project Appraisal as: “the process of identifying and then evaluating options in order to select the one that most closely satisfies the defined project objectives. In the context of flood and coastal defence strategy and scheme appraisals these objectives include:

- reducing the risks to people and to the developed and natural environment from flooding and coastal erosion;
- identifying a solution that is technically sound and most fit for purpose;
- being environmentally acceptable and sustainable; and
- ensuring best value for money from a national perspective.”

The approach to project appraisal in flood and coastal erosion risk management (FCERM) is based on this definition. However, the definition appears to focus on a comparison of defined options and does not *emphasise* the role of developing options through learning and feedback from the appraisal process, although the FCDPAG series does refer to the need to review options both during and at the end of the appraisal process.

Making Space for Water (MSfW) clearly states the Government’s aim for flood and coastal risk management as: “to manage the risks from flooding and coastal erosion by employing an integrated portfolio of approaches which reflect both national and local priorities, so as:

- to reduce the threat to people and their property; and
- to deliver the greatest environmental, social and economic benefit, consistent with the Government’s sustainable development principles.”

It is clear that appraisals are therefore central to achieving and delivering the Government's aim.

This study, through reviewing and analysing existing appraisals and potential improvements, will provide a better understanding of the guidance that supports the appraisal process, how it can be improved to contribute to better decisions and be cost effective, in the quest to reduce risk and be consistent with sustainable development principles.

The study will need to be informed by other projects being carried out under the MSfW delivery programme such as “Identifying the barriers and incentive to the delivery of better environmental and social outcomes”, R&D projects such as “Evaluating a Multi-Criteria Analysis Methodology for Application to Flood Management and Coastal Defence Appraisal” and “Integrating Cost-benefit Analysis and Multi-Criteria Analysis of Flood and Coastal Defence Projects” (the Sugden Approach), and Foresight Scenarios.

1.2 Objectives of the study

The aim of the study as set out in the project specification is to:

- explore the potential for improvements to the existing project appraisal guidance (Defra 1999-2001) to reflect the findings of the Foresight Study (OST 2004) and the direction of travel identified in the Government's first response to the Making Space for Water (MSfW) consultation (Defra 2005).

The objective of the project is to:

- develop evidence that will allow Defra and the operating authorities to improve guidance and thus assist practitioners make better decisions.

1.3 Organisation of this report

This report is organised around the proforma used when reviewing the PARs:

- Section 2 provides a summary of the approach used and the PARs that have been reviewed, together with the rationale for their selection;
- Section 3 sets out the results of the review in terms of rationale and objectives;
- Section 4 provides an overview of the way that PARs identify options and undertaken screening;
- Section 5 summarises the presentation of information on the costs of options;
- Section 6 discusses approaches used to assessing the benefits of options;
- Section 7 describes the use of present values and discounting;
- Section 8 looks at how sensitivity analysis and scenarios have been used in the PARs;
- Section 9 sets out how the options have been compared and a decision made; and
- Section 10 provides an overview of the PARs as a whole.

1.4 Structure of the Final Report

This report forms one of five Task Reports which provide a summary of the results of each Task to inform the Final Report. Figure 1.1, overleaf, shows how these reports feed into the FR and draw on the evidence collected and reviewed during the study.

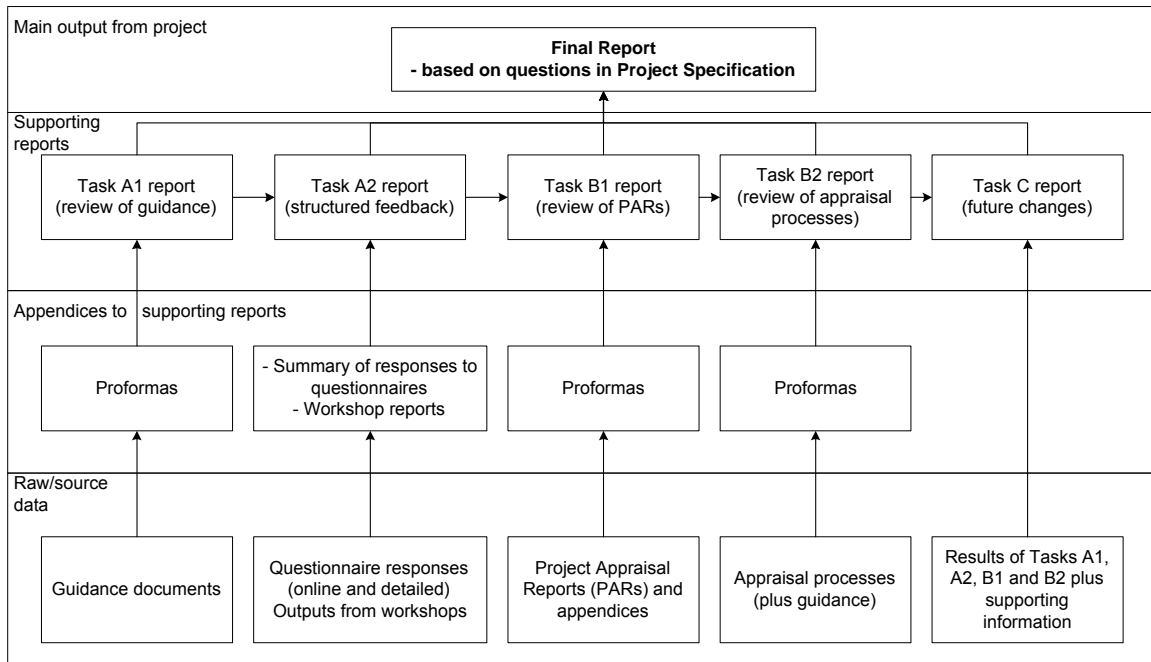


Figure 1.1 Structure of the outputs forming the Final Report

2. Approach to Task B1

2.1 Aims and objectives of Task B1

The objective of Task B1 is to identify whether Project Appraisal Reports are applying the guidance consistently. This will help to identify any key areas where the guidance may be being interpreted in different ways.

2.2 Approach to Task B1: Review of PARs

Similarly to Task A1, a standard approach to reviewing appraisals has been used, based on the key areas identified in the questionnaire. This not only provides consistency between appraisals reviewed by all the team members but with the consultation exercise as well. Thus, the results of the analysis of appraisals and the consultation can be combined to produce a more comprehensive set of evidence. As with Task A1, the proforma includes mainly 'closed' questions as this makes it easier to compare appraisals. A copy of the proforma used when reviewing completed project appraisals is included in Appendix 1.

A range of different appraisals have been identified covering:

- sites from around England and Wales;
- the different levels of appraisal (SMP, strategy, scheme);
- Environment Agency, Local Authority and IDB appraisals; and
- small (<£10m) to large (>£100m) appraisals.

The appraisals have first been selected based on their location to give a good geographical spread such that they cover a range of consultants and their offices and also a range of clients' offices. Figure 2.1 gives a map showing the location of the appraisals that have been identified and that are to be reviewed as part of Task B1. The Figure also shows the location of SMP/CFMPs, strategies and schemes. A total of 67 PARs have been reviewed under Task B1. One appraisal (Flood Warning Investment Strategy) is not shown on the map, and two PARs have been reviewed for Thames.

The selection of PARs also took into account the responsible authority (i.e. Local Authority (LA), Environment Agency (EA) or Internal Drainage Boards (IDBs)). The distribution of the sample set of PARs amongst these three authority types has been compared with summary data from Defra's database of appraisals completed since 1996¹. This information is used to assess how representative the sample is of the whole population of appraisals.

¹ This database only includes Environment Agency projects for the period up to April 2004, after which the Environment Agency projects were no longer reviewed individually by Defra and, hence, are not included. Data have also been obtained from the Environment Agency, hence, these have been combined with the Defra database to provide a comprehensive set of summary information.

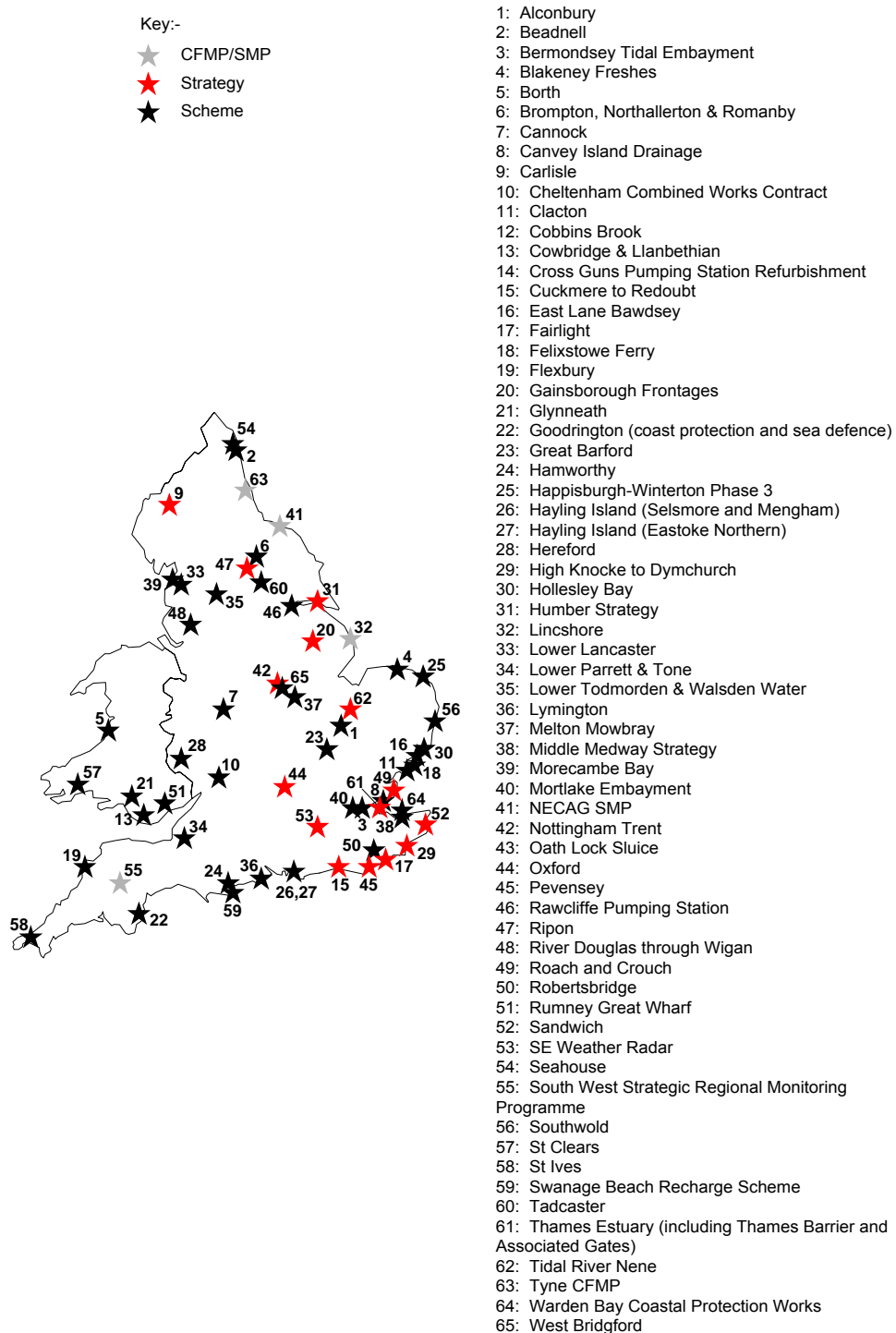


Figure 2.1: Location of appraisals selected for review

The comparison between the PARs identified for review and the Defra database is based on the proposed costs of any works associated with the PAR. However, the Defra database includes a lot of projects that relate to surveys and other studies, health and safety works, etc. The result is that the Defra database contains a very high number of low value projects that are not relevant to the reviews being undertaken here. These low value projects have been removed by excluding all projects with a value of less than £1 million.

Figure 2.2 presents a chart showing the comparison between the schemes selected for review and the proportion of projects submitted to Defra by LAs and IDBs, and completed by the Environment Agency.

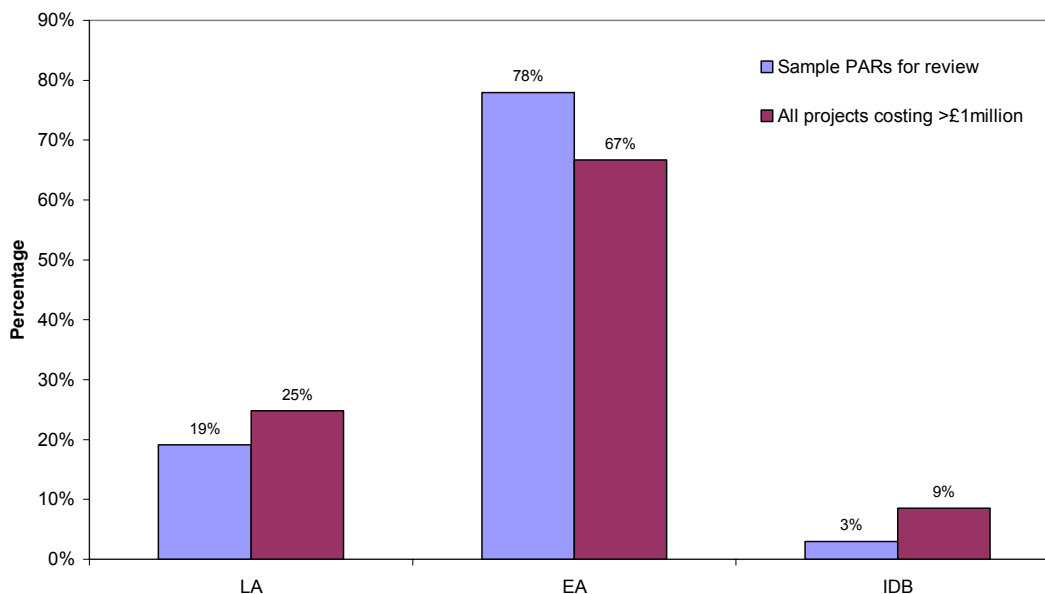


Figure 2.2 Comparison of PARs selected for review with all projects costing more than £1 million

Figure 2.2 shows that the PARs selected for review include a higher proportion of Environment Agency projects (79% in the sample compared with 67% of all appraisals completed). As a result, the proportions of both LA and IDB schemes in the sample are lower than in the Defra database and it was considered more important to have a geographically representative sample. If, however, there are particular issues arising from either (or both) the LA and IDB PAR reviews, additional PARs will be obtained to allow for further investigation.

Figure 2.3, overleaf, presents the proportion of projects selected for review that were predicted to cost less than £10 million, between £10 million and £100 million and greater than £100 million. The Figure shows that there is bias towards larger projects in the PARs selected for review when compared with the costs of all projects².

Most of the PARs selected for review are taken from recent years (with 89% from 2003 or later). Some older PARs have also been selected to provide an indication of whether there is increased use of the guidance over time.

² Note though that the costs of all PARs have not yet been included. This will be updated as further PARs are obtained from the Environment Agency and reviewed.

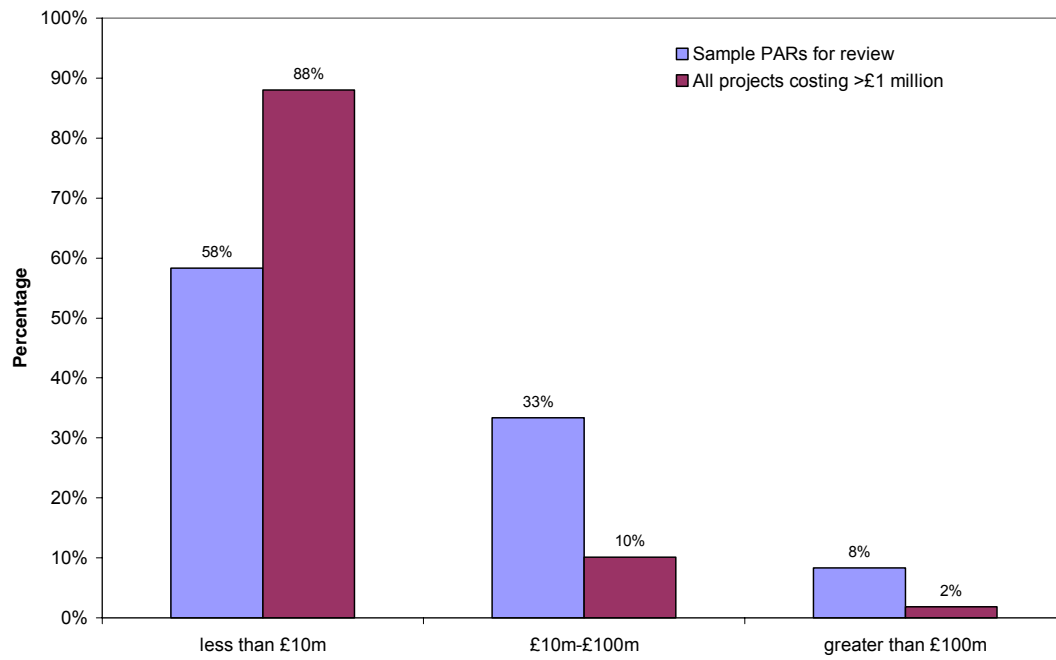


Figure 2.3 Comparison of costs of PARs selected for review with all projects costing more than £1 million

3. Rationale and objectives

3.1 Is the problem clearly defined?

The majority of PARs (57 of the 67 PARs reviewed) set out the problem clearly. In many cases, the amount of quantitative information is minimal, with some PARs not including the number and type of properties affected. This can make it difficult to get a feel for the project and, thus, to determine whether an appropriate option has been selected. Although not a PAR as such, the Regional Engineer's report for Goodrington Sea Wall and Coast Protection sets out, in half a page, a very clear description of the problem. This gives the location of the scheme, details of the defences (time and type of construction, condition), the assets that are protected, and history of flooding. The only additional information that would have been useful is the standard of defence provided and the return period of the flooding events. However, this shows that the description of the problem does not have to be long and detailed or provide a lot of engineering information.

Of those PARs not setting the problem out clearly (or only partly), one is an SMP whose purpose is to investigate the problem.

3.2 The appropriate level of detail

Very few of the PARs (5 out of 67) explain why they have used a particular level of detail. One of the schemes (Blakeney Freshes PAR) provides an economic assessment even though it is an environmental scheme stating that 'the PAR also contains an assessment of the damages and benefits... This is due to the impact on property and land caused by flooding'. For Clacton PAR, reasons behind the level of detail in the appraisal are given in appendices, which while useful for completeness, does not necessarily help those reviewing the PAR in terms of understanding why/how the appraisal has been carried out. Others give reasons for the level of detail for specific areas of the appraisal, e.g. Fairlight Cove PAR gives reasons for the level of costings. NECAG SMP draws on information from previous strategies and studies, hence, gives this as a reason for the level of detail in the PAR.

This section shows, that for most PARs, the level of detail to which the appraisal is undertaken is not stated.

The level of detail used when estimating the benefits is often very high. For example, one PAR for which detailed information was available on the approach used in the economic appraisal considered flood depths on a property-by-property basis, using LiDAR, Manhole Cover Data and Ordnance Survey spot heights to identify the property threshold level. The depth of flooding is taken from modelling of a number of storm events. The flood depth for each property is then used as the basis for estimating the damages under the do-nothing baseline. The use of such precise methods for obtaining property floor levels seems to disregard the likely uncertainty with modelling (calibration data

showed the flows to be within 10% of the measured flow). This is a common approach, perhaps driven by client and/or approver requirements, but produces a spurious level of apparent accuracy, for example, with damage estimates given to the nearest pound, and benefit-cost ratios and incremental-benefit cost ratios given to two decimal places. This is not assisted by data sources (e.g. MCM which gives depth-damage values to the nearest penny!).

The question to be answered is: is this level of detail necessary to make the 'best' decision?

3.3 Inclusion of clear and measurable objectives

Most of the PARs include objectives, but many of the objectives given are not associated with indicators and so cannot be easily measured. In many cases, this appears unimportant as the objectives are not referred back to when selecting the preferred option (see Section 9.1 for a fuller discussion on the implications of not referring to the objectives when selecting the preferred option). Many of the PARs also only include one or two objectives. On occasions, the objective(s) included refer to a specific standard of defence or to maintaining the current situation (e.g. to provide a 1 in 100 year standard of protection, or to continue to provide flood defences). Such objectives may reflect the inclination to provide what seems to be the best solution but could be inferred as undertaking an appraisal to justify a decision that has already been made.

Many of the PARs include objectives associated with reducing the risk of flooding and erosion. Other objectives are often drawn from consultation and can include specific aims such as:

- 'consideration of the importance of recreational use of the coast, including tourism interests' and 'impacts of the coastal defence scheme on the shellfish industry' (Morecambe PAR);
- 'to minimise the adverse impacts on the natural environment' and 'to achieve best long-term value for money' (Lincshore PAR);
- 'devising a scheme which...promotes sustainability principles in its design' (Cheltenham PAR); and
- 'to ensure the continuation of the sediment supply to the downdrift beaches' (Happisburgh to Winterton PAR).

3.4 Hierarchy in decision-making

Forty-four of the 67 PARs identified links with other strategies, studies or high level plans (CFMPs or SMPs).

The Thames Estuary Flood Risk Management Plan (FRMP) includes links with SMPs for Essex and Kent, CHaMPs and CFMPs. Other FRMPs are also identified, with a description of how the two plans will link together and the need for collaboration between the project teams. This includes using the Thames

FRMP to develop high-level policy options, leading to more detailed investigations and studies.

The Oxford Option Identification Report takes explicit consideration of the preliminary findings of the CFMPs for the Thames during option identification and screening.

Hayling Island (Eastoke Northern Frontage) PAR includes links to previous reports and studies of relevance and uses the results of these other reports to focus areas of further/detailed study. In particular, the PAR uses the results of the SMP on the prioritisation of areas where improved flood protection is required (with Eastoke Northern Frontage having been identified as high priority).

Cuckmere Haven to Redoubt PAR highlights, in particular, the role of Local Plans in steering development activities within the area.

West Bridgford PAR reports how the flood risks were studied as part of the Fluvial Trent Flood Management Study. The results were used to produce a list of prioritised schemes. A description and diagram are included showing how the Fluvial Trent Management Study and Nottingham Strategy feed into the West Bridgford PAR.

4. Options and screening of options

4.1 The baseline

A total of 44 of the 67 PARs set out the base case clearly, although the level of information provided does vary widely. Seventeen of the PARs provided little or no quantitative information. Some PARs also introduce the do-nothing option by immediately stating that it is not an appropriate option.

The PARs that provide little or no quantitative information tend to make extensive use of words such as 'severe', 'significant', and 'quickly'. Others include phrases such as 'there are properties which cannot be insured for flood risk', 'resulting in an increasing risk of breach and overtopping with time' and 'the situation will worsen'. While it is understandable why such phrases are used (uncertainty in what will happen), this does not provide sufficient information to undertake the economic assessment of the do-nothing baseline. Since assumptions on the timing of events, number of properties affected, etc. have to be made to undertake the economic appraisal, they should be reported for transparency and auditability.

Flexbury PAR is one that sets out the base case very clearly and provides a lot of quantitative information. It also provides a very realistic baseline. This assumes that maintenance of the culverts would cease, resulting in culverts becoming blocked with debris. The probability that a blockage would occur is given with the impacts on surrounding properties described. The description of the impacts seems realistic and is described in non-emotive terms.

4.2 Consideration of a wide range of options

The majority of PARs (54 of the 67 reviewed) considered a wide range of options. However, four of the PARs looked at very restricted options while others only considered one standard of defence. For the Thames Embayment studies, a reason for only considering the options was given (dictated by Thames standard). For other PARs, no reasons were given as to why such a restricted view was taken of the options. In some cases, e.g. Tadcaster PAR, a short-list of options was considered but variations of the main options were considered such as compartmentalisation and providing alternative standards of protection.

4.3 Screening of options

Forty of the 67 PARs reviewed undertook some kind of screening exercise to reduce the number of options taken forward into the appraisal. However, 26 PARs did not undertake screening or only did so only partly. Five of those where screening was undertaken partly did not provide reasons why options had been screened out, or the reasons were not clear/convincing.

Clacton PAR includes a well discussed and reasoned approach to screening that results in just two options being taken forward for more detailed consideration. Cowbridge & Llanbethian PAR uses a multi-attribute technique (MAT) as the basis for screening. This was used to assess the opportunity for benefit and dis-benefit of each option, as objectively as possible, against the desired objectives of the scheme (control of flooding in Cowbridge & Llanbethian, and control of environmental and amenity impacts associated with each option). The MAT assessed each option for benefits (in terms of water quality, aesthetics, recreation and amenity, conservation and ecology, expectations of the scheme and the preliminary cost-benefit analysis) and for dis-benefits (lead time for scheme, complexity of design and construction, construction costs, operation costs, maintenance costs, land take and effects on community).

Fairlight Cove PAR includes screening against four criteria:

- technical feasibility;
- environmental impacts;
- costs and benefits; and
- compliance with project aims and objectives.

This results in four options being short-listed.

4.4 Option development and learning

Only 22 of the PARs include option development and learning and, for most of these, this consists of the addition of mitigation measures to minimise environmental impacts, rather than development of the option to improve its performance in the appraisal.

Cheltenham FAS Combined Works Contract PAR revisits the preferred option three times based on residual risk from the work on previous phases of the Cheltenham scheme. This results in the solution for which planning permission was granted being reviewed to reduce the environmental impact. Sustainability issues were also taken into account.

Hollesley Bay PAR adds a realignment option in addition to the originally proposed options. This reflected the way in which each section of the coast contributed to the overall flood risk management but also impacted on coastal geomorphology and as a consequence on the sustainability of other sections of the study frontage. It was necessary to introduce realignment as an option distinct from one of retreat; maintaining the defence function, while still modifying the alignment of the defence to allow a more beneficial geomorphological arrangement in combination with adjacent sections of the coast.

The approach used in Fairlight Cove builds up a combination of options, based on three of the original options. The combined option is then considered against the same criteria as the individual options (implementation, physical impacts, environmental impacts, and technical feasibility).

4.5 The do-minimum option

The Treasury Green Book requires a do-minimum option to be considered within economic appraisals. The review of PARs showed that 56 of the 67 PARs reviewed did include a do-minimum option (in some cases, more than one). However, seven PARs did not, with the do-minimum option described as 'not applicable', with this being the case for erosion schemes.

A number of PARs screened out the do-minimum option as not being 'acceptable'. For one PAR, the do-minimum option was screened out as it did not meet the primary objective. This is linked to the excessive cost of the do-minimum option due to the increasing need for emergency works. However, there is no reason why the do-minimum option could not undertake emergency works while the defences are still in sufficiently good condition and then revert to the do-nothing option. The Treasury Green Book states that 'the list [of a range of actions] should include an option where government takes the minimum amount of action necessary (the 'do-minimum option'), so that reasons for more interventionist actions can be judged'.

Glynneath PAR includes a well-described do-minimum option which 'assumes that all stakeholders would continue to undertake maintenance of the watercourse and in-river structures. This would include removal of growth and debris from the channel and its banks. Additional repair works would be required at intervals within the appraisal period to maintain even the minimum level of defence'. The PAR also notes that flooding would 'increase from a 1 in 25 chance with the impact of climate change'. This could be supplemented by quantitative information, e.g. the timing of the additional repair works and/or intervals, and what the 'minimal' level of defence relates to.

5. Option costs

5.1 Approach to costing options

Out of 67 PARs reviewed, 35 describe how each option has been costed. A further 22 provide partial details, only giving details for the preferred option, failing to provide details of the costs of each option, or only giving details in an Appendix.

Many of the PARs provide very detailed costing, often involving contractors to provide and/or verify cost estimates. Some, such as Canvey Island Drainage PAR, have undertaken workshops to determine the costs of the options. In many cases, the level of detail given is disproportionate compared with the level of detail provided for other sections of the PAR (particularly benefits).

The most detailed PAR (for costs) includes information on:

- economies of scale;
- details of work locations and costs for different chainage;
- the maintenance programme, including activities to be carried out;
- costs to others; and
- details of other studies that are needed and costs.

Whilst this is also useful information in terms of explaining how the costs have been estimated, not all of it is essential in a summary document. However, the Treasury Green Book does highlight that specialists may be required when estimating the costs. Such approaches have been used in many of the PARs reviewed, with cost consultants employed or consulted during the costing of the options.

5.2 Level of detail

A total of 45 PARs provide details of the capital and maintenance costs. Such information is not always provided for every option, however. Some of the PARs treat the different costs in interesting ways. For example, Lower Todmorden & Walsden Water PAR excludes maintenance costs from the total costs as all of the options require the same level of maintenance.

The type of cost information included varies widely, from costs for the preferred option only to detailed tables setting out type of work and timing along different lengths of defence. In most cases, the summary information is supported by detailed information in an appendix.

Alconbury PAR provides a good, brief description of the maintenance costs included for the options considered. This gives the activities, timing and overall costs. The maintenance costs represent around 14% of the total scheme costs for the preferred option.

St Ives and the Hemingfords PAR includes two options that are based on maintenance regimes:

- reactive maintenance (do-minimum); and
- maintain asset by continuing with the current maintenance regime with reactive maintenance as required.

The first of these options includes maintenance for a limited period after which the option reverts to do-nothing. The second involves rebuilding the defences once the condition has deteriorated such that it is no longer viable. To avoid the option reverting to do-nothing, a new flood wall is built. The maintenance costs of the preferred option represent almost 34% of the totals scheme (cash) cost.

5.3 Adjustments to costs

Depreciation and capital charges are generally not included within the costs, in line with Treasury Green Book requirements. Similarly, residual values are rarely included. Only one of the PARs, Rawcliffe Pumping Station PAR, considers the inclusion of residual values by looking at the value of the asset after 30 years. However, the PAR assumes that the pumping station has no value after 30 years, so there is no residual value to include. In coastal erosion PARs and in NECAG SMP, in particular, residual life is an essential aspect of the appraisal, often marking the start point for assessing the commencement of erosion and change. However, the defence itself does not specifically have a value, unless it is seen as having a value as the core structure for future defence improvement. Different approaches seem to have been taken when assessing the significance of the defence in the long term: either the residual life of defences are treated in terms of the delay in the onset of erosion beyond the end of the appraisal period (in effect a delayed do-nothing approach); or the future cost of replacing defences is included as part of the whole life costing (in effect a continue to hold the line approach). There is a lack of consistency evident in this, but often the choice between the approaches taken is implied from the specific situation being appraised.

6. Option benefits

6.1 Types of benefits

Of the 67 PARs reviewed, 44 included details of the benefits of each option. In contrast to the costs, the benefits are usually described very briefly, with some 23 PARs not providing details of the benefits of each option (5 not at all, and 18 only partly).

Borth PAR includes discussion of benefits against the project objectives and use of a multi-criteria analysis. The project uses results of a visioning meeting in development of the strategy and was considering how options contributed to management beyond strict risk management benefits.

Flexbury PAR includes a summary table to set out the benefits under the do-something options. This table summarises the results of the EIA, focusing on key positive and negative impacts, and notes mitigation or enhancement measures that could be taken. A similar summary table is provided in the Morecambe Bay PAR, but this only describes impacts from the EIA under the preferred options.

6.2 Use of early sensitivity to focus effort

Only 12 of the PARs consider the likely significance of the benefits before assessing them in detail. A further 8 partly do this.

The Lower Parrett & Tone PAR describes the benefits in terms of their magnitude and then does not value those that are considered to be negligible. The PAR covers a wide range of benefit types, describing the likely impacts under do-nothing and the do-something option. The assets described are:

- property assets (valued using the MCM);
- road assets (approach based on that set out in MCM or local data, where available);
- agricultural assets (based on work by Cranfield University);
- environmental assets (valuation for do-nothing only, based on ESA payments as a surrogate for environmental value);
- railway assets (based on need to rebuild the railway outside of the flood risk area for do-nothing);
- utility assets (relocation of pylons under do-nothing);
- social (population and human health) assets (linked to other impact categories and the SEA);
- regional impacts (description of potential for impacts outside of the study area); and
- risk to life (not quantified, but description of risks and change in risk over time).

Lower Todmorden & Walsden Water looks at traffic disruption benefits but does not assess them in detail as the duration of flooding is short and a significant part

of the traffic network would not be affected. The Roach and Crouch Flood Management Strategy PAR also considers traffic disruption benefits and then excludes them as they are considered to be small.

Morecambe Bay Coastal Works Phases VI and VII PAR discusses the likely magnitude of the benefits including recreation and conservation. These are included in the appraisal but are not valued, due to the likely limited nature of the impacts (for a short period of time, or only affecting part of the promenade).

Other PARs only include benefits where they can be monetised.

6.3 Monetising benefits

Only four of the PARs do not include any monetised benefits. The remaining 63 all include some monetised benefits.

Property damages are the most commonly included benefit type. A total of 56 PARs include residential property damages and 50 include non-residential property damages (commercial, industrial, etc.). It was not always easy to tell which benefits have been included, however, with at least two of the PARs not including sufficient detail for it to be determined even if property damages (and damages avoided) had been assessed.

Even though 56 of the PARs include damages to residential properties, only 13 stated that they included costs to emergency services. This is interesting since the Multi-Coloured Manual suggests multiplying residential damages by 10.7% to obtain emergency services damages. Thus, this should be a very straightforward additional benefit to include. It is likely that those not reporting in the PAR that they have included costs to emergency services have indeed done so. Consideration of the economic appendices (where available) shows that this has generally been included.

Agricultural damages are included in 14 PARs, with transport/traffic disruption monetised in 12 (note this includes rail as well as road disruption). Cross Guns Pumping Station Refurbishment PAR includes agricultural benefits in terms of reduced cropping damages, based on reduction in yield on different return period events. The do-nothing option takes account of potential environmental gain, valued at £1,000 per hectare for permanent wetland³. East Lane Bawdsey PAR includes write-off of agricultural land as a damage; environmental benefits are not quantified. Brompton, Northallerton & Romanby PAR considers traffic disruption costs but does not monetise them as the duration of flooding is not expected to exceed 2 days. Cobbins Brook PAR includes traffic disruption costs associated with closure of the M25 motorway on events of 1 in 50 and greater.

Recreational benefits appear to have only been monetised in five PARs. Felixstowe Ferry PAR includes recreational benefits in terms of the golf course and sailing club. In the case of the golf course this is represented by the

³ This compares with a value of £2,700 per ha for agricultural land (adjusted for subsidies).

replacement cost of different elements of the course, e.g. redevelopment of a green. In the case of the sailing club the value is argued on loss of income being a suitable substitute for willingness to pay, avoiding more detailed survey and economic analysis. No transfer value is applied due to waiting lists for membership of this and other sailing clubs on the Deben. Sandwich PAR also includes recreation in terms of the golf club, with the value of the recreational area based on the cost of purchasing an equivalent area of land (not at risk of flooding). Seahouses PAR also includes recreational benefits as does Southwold PAR. In the case of Southwold, recreational benefits are estimated by multiplying the results of a contingent valuation survey carried out for Corton (which is reported in the MCM) by the number of visitors to Southwold (from Waveney District Council). At Seahouses, since recreational value was associated with locally owned sailing craft, values were taken as a combination of the risk of loss boats due to failure of harbour defences and the travel costs associated with relocation. Cobbins Brook PAR includes recreational impacts by taking them as 1% of the residential property damages, although no reason is given for using 1%. The recreational damages avoided are taken into account as benefits for the flood warning option. In Lincshore PAR, the recreational benefits apply to five do-something options and are in excess of £28 million over 50 years.

Stress and health impacts have only been included in three PARs: Fairlight Cove, Cobbins Brook and Humber. Cobbins Brook PAR notes that this is recommended by Defra through a Supplementary Guidance Note, dated July 2004. Humber PAR provides an indication of the damages value due to stress by different standards of protection, but this was only done as part of the sensitivity analysis. One PAR explains why it has not included the human-related intangible impacts of flooding because 'the initial appraisal indicated the scheme viability to be sufficiently robust and therefore these additional benefits have not been included in the economic appraisal'. In fact, the willingness to pay value ascertained through the Defra research generally has little effect on the overall BCR, but can have a significant effect on the IBCR. This is unlikely to have affected the choice of preferred option in the PAR in question as the IBCR of the preferred option is already greater than 4.

Environmental and habitat benefits have only been included in four PARs. Blakeney Freshes PAR includes the damages from loss of grazing marsh and reed beds using the replacement costs approach set out in FCDPAG5, because the areas that would be lost are designated as Special Protection Areas (SPA) under the Habitats Directive. The values used are not given in the PAR. Cross Guns Pumping Station Refurbishment PAR and Rawcliffe Pumping Station PAR include the value of environmental gains as a one-off value of £1,000 per hectare. No references are given in either PAR as to the source of this value (which is close to the value used in the Humber PAR of £944 per hectare (taken from Woodward & Wui, 2001⁴), but the £944 per ha value is an annual willingness to pay estimate of the value of a wetland following managed realignment. The Lower Parrett & Tone Par includes environmental benefits

⁴ Taken from Environment Agency (2003): **Assessment of benefits for water quality and water resources schemes in the PR04 Environment Programme**, Part Two: Rivers and Groundwaters in Ch 9 (Biodiversity and non-use values), Table 9.12. The £944 per ha value is in 2001 prices.

using ESA payments as a surrogate for damages under the do-nothing option due to loss of the water level management function that benefits the SPA habitat. There is no discussion on changes to the habitats, or if only part or all of the SPA habitat would be 'lost'.

Lower Lancaster PAR includes an estimate of the benefits from flood warning, with damages estimated to reduce by 4.8% (in line with estimates included in the 2003 version of the MCM).

6.4 Inclusion of non-monetary benefits

Forty-eight of the PARs include non-monetary benefits to some extent. However, most of these (32) relate to inclusion of the results of the Environmental Impact Assessment/Strategic Environmental Assessment, rather than non-monetary benefits that are taken into account in decision-making. Nottingham Trent PAR includes consideration of the non-monetary impacts in decision-making by considering the impacts described in the EIA (and summarised in tables in the PAR) to confirm the choice of preferred option.

Borth PAR includes a multi-criteria analysis approach, which includes consideration of health and safety, operation and maintenance, environment, constructability, amenity, planning and technical. These primary criteria were each broken down into a set of more explicit measurable objectives; for example, in the case of amenity, specifically meeting results from the Council's envisioning exercise. While used at a high level within the screening process, the analysis was considered in greater detail in comparison of options, initially to distinguish between benefits derived from different approaches and specific options. Felixstowe Ferry also includes scoring of impacts, using this primarily as a screening process, setting thresholds for option acceptability.

Blakeney Freshes PAR includes ratings from 'major negative' through to 'major positive' to provide a summary of the environmental impacts (note though that environmental damages have been valued using the replacement costs approach).

Cobbins Brook PAR describes the social and recreational impacts and then applies an assumption to convert them into a monetary value, as described above.

The Flood Warning Investment Strategy PAR uses a factor of 50% to account for the intangible benefits and added this to the tangible benefits. The PAR states that there is no information to substantiate the 50% figure, but that it is the same as was used in the original investment study and it is considered reasonable by the Environment Agency. Despite this recognised uncertainty, the 50% factor is not tested in the sensitivity analysis (although other tests are undertaken, see Section 8).

Hayling Island (Selmore and Mengham) PAR includes a qualitative description of recreational and environmental impacts, and then applies a series of ticks in appraisal summary tables to represent acceptability (or not) of each option in

terms of engineering/coastal process, environmental impacts, economics, key consultees and the public.

The most commonly included non-monetary benefit (other than environment) is recreation, with 13 PARs taking some account of recreation. East Lane Bawdsey PAR includes a description of the recreational benefits and uses them to support justification for holding the existing defence line. This is not, however, discussed further, for example, during selection of the preferred option. Nottingham Trent PAR considers the potential for recreational benefits, through a description in a table summarising the key environmental impacts. Positive and negative impacts are carried forward for consideration in the selection of the preferred option.

Four of the PARs consider social impacts. Cobbins Brook PAR notes the intangible impacts such as stress, loss of memorabilia and health damages. It then includes them following the guidance set out in Defra's Supplementary Guidance Note (July 2004) (see also Section 6.3). Lymington River PAR includes impacts on local people and property. NECAG SMP follows an objective led approach to appraisal that includes social impacts (alongside environment, amenity, coastal stability, heritage, community, cultural, etc.).

One PAR (Lower Todmorden & Walsden Water) includes an indication of impacts on regeneration, noting that future development is currently suppressed by the risk of flooding. It adds that 'proposed flood alleviation scheme will encourage regeneration, new employment opportunities and future prosperity' for the area.

6.5 Adjustments to benefits

Nine PARs adjust the benefits for subsidies, mostly related to subsidies for agricultural land. However, there are 14 PARs that include agricultural benefits. This suggests that some economic appraisals may not be adjusting for subsidies, but this could equally be due to not reporting on adjustments in the PAR. Pevensey Bay PAR (completed in 1997) includes adjustment factors when taking the write-off value of agricultural land. The approach to estimating agricultural damages in Cross Guns Pumping Station PAR (completed in 2005) and Rawcliffe Pumping Station PAR (also completed in 2005) follow the method set out in FCDPAG3, adjusting for subsidies. Humber PAR uses the approach set out in FCDPAG3 for assessing loss of one year's agricultural output.

6.6 Distributional impacts

Only two of the 67 PARs take any account of distributional issues. The supplementary guidance note was issued in July 2004, such that it would be expected that recent PARs would have included reference to distributional issues. This highlights that practitioners may not be aware of the guidance and/or that the approach proposed is too complicated to apply. As the priority score includes some aspect of equity (through the index of multiple deprivation)

there may also be confusion as to the need to include distributional issues in the appraisal itself.

River Douglas through Wigan PAR states that human-related impacts have been taken into account (including socio-economic equity), but no further details are given (although more information may be given in an appendix).

NECAG SMP follows an objective led approach where the aim is deliver socio-economic aims within an acceptable risk management framework. This arguably incorporates inherently democratically acceptable distributional impacts.

7. Present values and discounting

7.1 Updating costs and benefits to today's prices

A total of 51 out of the 67 PARs have updated the value of costs and benefits to reflect the year when the appraisal was undertaken. There are nine PARs that have provided only partial details and three that do not appear to have updated the costs and/or benefits.

At least four PARs may have costs and benefits to different base dates. Whilst this is unlikely to be significant in terms of affecting the selection of the preferred option, it does suggest a lack of understanding or knowledge of the basic principles of economic analysis. In many cases, it is the benefits that have not been updated (e.g. from the figures taken from the Multi-Coloured Manual) and reflects the apparent concentration of effort on the costs.

This may be significant in terms of moving to an alternative metric for appraisal (e.g. as required by the Sugden approach) as it suggests that people undertaking the appraisal are happy to take the values but do not always question what they mean or how to apply them. Any move to a system that requires further adjustments to be made may require a revised set of outputs that already include the adjusted values to avoid the potential for errors.

7.2 Discount rate used

The review of PARs identified that there is a lot of basic information that is missing. This includes reference to the discount rate used, which should be an automatic inclusion in any economic appraisal for transparency and auditability purposes. However, only 43 of the 67 PARs reported the discount rate, of which two gave the discount rate used only in copies/printouts of the FCDPAG3 spreadsheets. Four PARs predated the move to 3.5% reducing. A further four PARs used 3.5% throughout the full time horizon, i.e. did not use the reducing discount rate. For one PAR (Flood Warning Investment Strategy) the time horizon used is 10 years, so this is appropriate. The other three PARs do not explain why they have used a non-reducing discount rate, although there are obvious time saving benefits of not doing so. Using the reducing discount rate requires the discount factor for each year to be calculated separately, thus needing a whole column in a spreadsheet. Using a flat discount rate means that present value damages can be calculated by applying the discount formula, thus requiring only a cell in a spreadsheet. Given the uncertainties in other figures (e.g. benefit values taken from the MCM), use of a flat discount rate is unlikely to affect the results significantly, particularly over shorter (50 year) time horizons.

7.3 Time horizon

Only four of the 67 PARs do not report the time horizon, with a further two only including it in copies of the FCDPAG3 spreadsheets. Of the 67 PARs, 34

undertook the appraisal over 100 years, with 27 using a different time horizon (mainly 50 years). Thus, 50 years continue to be a commonly used time horizon. Of those PARs submitted in 2005, nine use a time horizon that is different to 100 years, mostly 50 years (6 PARs), one uses 30 years, one takes a 200 year time horizon and two do not state the time horizon used.

7.4 Adjustments for risk and optimism bias

Fifty of the 67 PARs made adjustments for risk and/or optimism bias. Those not including optimism bias are generally those PARs that pre-date the updated guidance. Many of the PARs base the adjustment to costs on Monte Carlo and the level of optimism bias is often reduced by the consultants. This again highlights the differences between approaches to costs and to benefits. It seems as if a lot of time is spent in calculating the appropriate level of optimism bias to apply, with one PAR applying optimism bias of 5.7%. There are no PARs that make adjustments to the benefits to reflect risk, or even consider doing so.

8. Sensitivity analysis

8.1 Use of sensitivity analysis

The majority of PARs (50) undertook some kind of sensitivity analysis, but 17 did not include any sensitivity analysis at all. Four of the PARs including sensitivity analysis only do so on the preferred option. One PAR where this was the case gave the reason that 'as all options use traditional engineering techniques, it is considered that the sensitivity analysis will give proportionate variations and will not affect the choice of scheme'. This does not appear to take into consideration the potential for uncertainty in the benefit estimates. A second PAR looks at the effect of changes to costs and benefits, and the inclusion of climate change, on the benefit-cost ratio of the preferred option. The decision is currently made on the option which has the highest benefit-cost ratio. No consideration is given to changes in the incremental benefit-cost ratio and, thus, if the option would remain preferred under the tests. One other PAR only reports the results of sensitivity for the preferred option, but considers the impact of sensitivity tests on the IBCR.

The most common element changed as part of the sensitivity analysis is the costs. A total of 26 PARs reported changes to the costs as part of the sensitivity analysis (a further 6 included changes to optimism bias), while 16 included changes to the benefits. This again highlights the general focus on costs, even though the emphasis on obtaining costs by using contractors and the application of optimism bias may mean that it is the benefits that are the most uncertain.

The changes to costs and benefits are usually undertaken by applying a factor increase or decrease (20% being a typically used value). Glynneath PAR uses a reduction in the benefits from taking a maximum flood depth of 500 mm (no details are given on the flood depth used in the main assessment), removing commercial properties or public buildings that had particularly high damages, and only including damages occurring on a flood event of 1 in 50 or greater. The benefit-cost ratio remained above one when all tests were undertaken.

Other sensitivity tests used include:

- changes to the model predictions and/or flood levels (9 PARs);
- changes to erosion rates (2 PARs);
- changes to the number of properties affected (3 PARs);
- changes to the time horizon used (3 PARs); and
- changes to the timing of events (flooding, failure of defence, etc.) (5 PARs).

Pevensey Bay PAR considers the areas of greatest uncertainty and then assesses these in the sensitivity analysis. This includes providing minimum and maximum value of damage costs under different do-nothing scenarios, and assessing the impacts of changes to the costs and crest width.

Rumney Great Wharf PAR includes removal of damages from loss of electricity supply as one of its sensitivity analysis tests. This has the result of reducing the

damages by around 30%. Tadcaster PAR also assesses the impact of changes to damages associated with one particular asset, in this case the brewery. The sensitivity tests considered how the damages would change if the 'low susceptibility' damage data were used for the brewery. The result was a reduction in damages of 12%. It was found that such a change would result in a different option being preferred economically. Discussion was then given on the extent to which the brewery damages could change without affecting the preferred option and justification given as to why large changes (including using the 'low susceptibility' damages) would not be appropriate.

Brompton, Northallerton and Romanby PAR considers the likely degree of uncertainty arising from the accuracies of floor levels and model predictions. The degree of uncertainty is estimated and then compared with the change in benefits that is required to change the preferred option (see also Section 8.2).

Bermondsey Embayment Strategy Study identifies the preferred option in terms of the base case assessment and that changes some of the factors considered to have the greatest uncertainty. The result is that change to the condition grade result in two different options being identified as preferred economically. The PAR, therefore, discusses which condition grade is likely to be most appropriate based on standardised deterioration profiles.

One PAR (Flexbury) does not apply sensitivity tests once the preferred option has been selected. Instead, it considers sensitivity to assumptions in the main sections of the PAR. This is done by testing some of the key assumptions and reporting on the sensitivity of costs and benefits. For example, the sensitivity of the do-nothing damages to the probability of culvert blockage is tested by changing the probabilities from 10% in year 0 and 95% in year 10, to 5% in year 0 and 95% in year 20. This reduced the estimated damages by around 4%.

8.2 Use of switching values

Only nine of the 67 PARs consider switching values when assessing the robustness of the preferred option.

Brompton, Northallerton & Romanby PAR considers the critical decrease in costs and benefits to reduce the priority score to below the threshold score of 20 (i.e. BCR reduced to less than 5).

Cobbins Brook PAR considers the extent to which the costs could be reduced, but there would still be no change in the preferred option. East Lane Bawdsey PAR considers how much the costs would have to increase by to result in a lower option being selected as the preferred option. Oath Lock Sluice PAR considers the extent by which the costs would have to increase to reduce the benefit-cost ratio to unity, which would have to be by eight times. This is not expected to be the case in 'any foreseeable circumstance'. Sandwich PAR considers the cost increase that would be required to change the preferred option, which would have to be an increase of more than 150% and notes that the decision is not very sensitive to changes in costs.

Flexbury PAR considers the extent to which the costs would have to change to reduce the benefit-cost ratio to 5. There is also discussion on the sensitivity of the IBCR to changes in option costs but, because the two 'best' options are similar, any changes in one are likely to also apply to the other option, such that the choice of preferred option is not expected to change.

The scenario analysis developed in the NECAG SMP examines what becomes critical under different approaches to management. In effect this is seen as examining the sensitivity or switching mechanisms in the physical processes.

8.3 Use of scenarios

Twenty-five of the 67 PARs include scenarios to some extent. This mainly relates to changes associated with climate change (sea level rise, increase in flows, increase in rainfall). Seven PARs assess the impact of changes in river flows, with five considering sea level rise (including changes in the predicted rate of sea level rise). Six others include climate change without specifying what changes have been made.

Cannock PAR estimated that the inclusion of climate change as increasing peak flows by 20% would result in a maximum increase in water levels of 390 mm. In most areas, this was expected to be within the freeboard allowance of 300 to 500mm.

Carlisle PAR included a progressive increase in peak flows of up to 20% for the first 50 years of the scheme to assess the impact of climate change of design levels. This was estimated to be equal to an increase in design water levels of 400 mm. The potential increase in costs should the embankments have to be raised in the future is identified and is to be reviewed during detailed design (once site specific investigation information is available).

Cobbins Brook PAR considers that the impact of climate change would be to reduce the level of service provided from 1 in 50 to 1 in 35. The PAR also considers options that could be used to reduce the future flood risk, highlighting where additional flood storage could be provided. However, inclusion of the additional flood storage (even if it were to be built in 40 years time) is considered to have a lower benefit-cost ratio than the preferred option.

Lower Todmorden & Walsden Water PAR considers the use of additional storage capacity at existing water supply reservoirs and whether this could be made available. Indeed, the PAR notes that potential solutions have been identified and discussions are underway with reservoir owners.

Fairlight Cove PAR uses four scenarios to reflect different rates of future cliff recession. The scenarios are used to reflect the difficulties of accurately estimating future failure mechanisms, and the effects of climate change and sea level rise. This allowed a predictive map of the evolution of the cliff top in front of Fairlight village. Present Value losses were calculated for each scenario (and range from almost £13 million to £22 million for the 100 year time horizon). The impact of the four erosion scenarios on the priority score was also

considered (where it affected the people score as well as the economic score). Similarly, Warden Bay PAR uses scenarios to estimate different erosion rates, this time based on the Foresight scenarios. The 'best' estimate is then taken forward and used in the appraisal, rather than four different values (e.g. for sensitivity).

Gainsborough Frontages PAR includes increasing peak flows by 20% and a change in sea level rise from 6 mm/year to 10 mm/year. The Humber PAR also assesses the impact of increasing sea level rise from 6 mm/year to 10 mm/year.

Lower Lancaster PAR incorporates predictions of sea level rise of 4mm/yr into the model runs to assess future water levels. This results in the current 1 in 500 year return period water level reducing to a 1 in 185 year return period in 100 years time. As a result of the model runs, an allowance for sea level rise has been included in the economic analysis and so is taken into account when identifying the preferred option.

Thames Barrier and Associated Gates PAR considers the impacts of an increase in the number of barrier closure to 60 and 160 per year in 2100 (compared with an estimated average of 92 closures in 2100 in the main assessment). Neither of these scenarios results in a change in the preferred option.

Tyne CFMP uses scenarios to assess the impacts of changes in land use, changes in the rural landscape (including major changes in land management), loss of wildlife and habitats, and climate change. Future scenarios are described in detail and are used to reflect possible futures up to 50 years ahead.

9. Comparing options

9.1 Approach to decision-making

The proforma asks ‘are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?’ Only 13 of the PARs were considered to do this, with 41 partly applying such an approach to decision-making. Most of those assigned a rating of ‘partly’ include only the monetised costs and benefits in the decision-making and do not refer back to the project objectives when selecting the preferred option.

Blakeney Freshes PAR includes the costs and benefits, but refers back to the environmental objectives, with choice of the preferred option based on the selection of the most cost-effective scheme that is environmentally acceptable. Cannock PAR similarly uses both the economic criteria and the requirement of environmental acceptability to select the preferred option.

Borth PAR includes a multi-criteria analysis, which is set up around the project objectives. The preferred option is selected by considering the economic information but by also looking for the most positive option. The result is that the influence of the non-economic factors makes the economically optimal solution inappropriate. There was a recognition that while works in specific areas of the frontage were urgent, and, therefore, there was a need to determine an early and appropriate response to the flood and erosion risk, this had to be developed so as not to constrain further positive management options in meeting broader regeneration objectives. The criteria for assessment were weighted to reflect this and the preferred option selection made on this basis. Felixstowe Ferry PAR also includes an MCA approach that is used to help identify the preferred option by comparison against the original objectives. Being a combined flood and erosion risk project, where flood defences were being threatened by erosion, assessment of options under the decision rule process using indicative standards of defence failed to apply. Multi criteria objectives were introduced as substitutes, effective indicative standards of service and used in the decision rule to select the preferred option.

Gainsborough Frontages PAR includes a table setting out how each option compares against environmental, economic and technical aspects. The impacts (positive and negative) included in the table are used to support the option that was identified as preferred from the economic appraisal.

Hamworthy PAR identifies the preferred option in terms of the environment (Option 3) and then using the results of the economic appraisal. The option that would be identified as the preferred option following the decision rule would be Option 3 (1 in 50), as the next option (Option 3, 1 in 100) has an IBCR of 0.7. However, the PAR argues that a higher standard should be the preferred option (Option 3, 1 in 200) due to the similarity of benefit-cost ratios, plus additional benefits associated with providing a common standard of protection within Poole, better climate change proofing, and the very small additional expenditure required to move from 1 in 50 to 1 in 200 (around £65,000).

Humber PAR uses an Appraisal Summary Table (AST) to present information on the non-valued impacts, such that they can be taken into account at the decision-making stage. Selection of the preferred option was initially based on the FCDPAG3 decision rule using the BCR and IBCR and was then reviewed taking into account the non-valued impacts.

The Tyne CFMP is objective-led, with the preferred policy option selected by assessing the overall contribution of each option to attaining the policy appraisal objectives. This included consideration of whether the risk can be eliminated (avoided) or whether the risk is manageable, before identifying ways to reduce, transfer or share the risk.

Warden Bay identifies the preferred option based on economics and environmental sustainability as well as reducing the risk that landslides occur during the works. The option selected is the one with the least noise, disruption and pollution for local residents.

9.2 The FCDPAG3 decision rule

Thirty-five of the 67 PARs reviewed appear to follow the FCDPAG3 decision-rule correctly. A further 16 follow it partly, while 12 do not seem to follow it correctly at all. Some (2) of those not following the FCDPAG3 decision rule are older schemes pre-dating the introduction of the rule, or are erosion schemes or SMPs/CFMPs for which the decision rule is not applicable (5). To apply the FCDPAG3 decision rule, it is necessary to know the indicative standard. Forty of the 67 PARs report the indicative standard, while 20 do not as the indicative standards are not relevant (erosion schemes, environmental schemes, SMP, CFMP, etc.). Some PARs give the Land Use Band but do not state the indicative standard. One PAR only includes the high end of the indicative range while another uses the indicative standard to identify which options to assess.

Many of the PARs assigned a rating of 'partly' do not include consideration of incremental benefit-cost ratios (IBCRs) when identifying the preferred option. Others provide IBCRs, but against options that are not incremental to each other, such that the approach to applying the FCDPAG3 decision rule would be flawed if IBCRs were used. Others only consider one standard of protection in the economic appraisal such that IBCRs are not relevant.

High Knocke to Dymchurch discusses the selection of the preferred option by describing the performance of each option. This includes discussion on reasons for differences in costs, consideration of the amenity value of the beach and potential for environmental impacts.

In Robertsbridge PAR, it is the 1 in 200 year option which has the highest benefit-cost ratio. However, this is above the indicative standard so a pragmatic approach has been used to take account of the very similar benefit-cost ratios of other options and uncertainty within the appraisal.

SE Weather Radar PAR takes into account other considerations such as the project objectives, functional and technical criteria, and low negative

environmental and operational impacts. Comparison of the options against these criteria result in a different option being selected than would be the case if the BCR alone was used.

9.3 Key constraints

Twenty-six of the 67 PARs provided information on key constraints, with a further 15 providing some information. The most common constraint discussed was the environment, in 15 PARs, with technical constraints noted in three PARs.

Alconbury PAR discusses environmental constraints and impacts for the preferred option. These are taken from the Environmental Impact Assessment and include impacts during construction and more permanent changes. Mitigation measures are included where there are adverse impacts and the PAR also includes environmental enhancements. Melton Mowbray PAR describes the existing situation and constraints in terms of existing flood defences, infrastructure, and environmental constraints.

9.4 The appropriateness of the preferred option

Forty-seven of the 67 PARs identified the preferred option that seemed the most appropriate. For the other 20 PARs, it was more difficult to decide if the most appropriate option had been selected due to a lack of detail in the PAR (including in some cases which option had actually been selected), missing information or because the option selected did not actually seem justified by the discussion in the PAR. Clearly, the last of these reasons is the most serious as it could suggest that the 'wrong' option has been selected. However, the conclusions drawn here are mainly based on a review of the PAR only (only in limited cases was it possible to look in detail at the supporting appendices, etc.).

There are three PARs where the project team had concerns about the preferred option. One PAR undertakes the base case assessment for the whole area, then in the sensitivity analysis it considers the impact of assessing each compartment individually. The result is that two of the compartments have benefit-cost ratios of less than 1 for the 1 in 100 year standard. No consideration was given to whether these compartments should be assigned to Land Use Band A and, hence, whether the 1 in 100 year standard is appropriate. Similarly, no consideration was given to whether a lower standard of protection would have given a positive benefit-cost ratio. This suggests that there may be a need for clear guidance on how to deal with strategies and schemes that will protect discrete benefit areas.

A second PAR raises concerns not just with the selection of the preferred option but also in terms of the range of options that was initially considered. The discussion given in the PAR suggests there was a pre-determined decision that had to be justified. This is not likely to be a guidance issue and may have been driven by the requirements of the project manager (or even political factors).

A third PAR erroneously identifies the 1 in 100 standard of protection as the option with the highest benefit-cost ratio and selects it as the preferred option. In fact, do-minimum has the highest benefit-cost ratio and the incremental benefit-cost ratio of the 1 in 50 option over the do-minimum option is just 1.01 (not robustly greater than one). Therefore, the do-minimum option would be the (economically) preferred option (equivalent to a standard of 1 in 25). As there are almost 6,000 properties at risk, it seems unlikely that the 1 in 25 option would be preferred economically. The residual damages of the 1 in 50 and 1 in 100 options seem high (24% and 17% of the do-nothing damages, respectively). However, there is no sensitivity analysis to allow this to be investigated. The project team has concerns with this PAR since there is no reasonable argument given for moving to the preferred option (although the 1 in 100 would 'feel' right for the area). The source of the problems is unknown, hence, it is not possible to determine if it is caused by guidance or not.

9.5 Residual risk

Forty-three of the 67 PARs include some description of residual risk, although this is often only in terms of the residual damages included in the FCDPAG3 spreadsheets.

Flexbury PAR discusses residual risk mainly in terms of affecting the costs of the scheme but also in terms of residual flooding risk, with the importance of maintenance highlighted. Middle Medway PAR and St Ives & the Hemingfords PAR both include mitigation measures to address residual risk, but again these are related to construction risks.

Ripon PAR proposes management options to help deal with residual risks during construction of the scheme. This includes action to reduce the risk that there is undiscovered archaeology.

9.6 Optimisation

Only 14 of the PARs include optimisation to any degree, with 53 not undertaking any form of optimisation.

Bermondsey Tidal Embayment Study PAR includes a methodology that optimises the time for intervention but this is spreadsheet based and appears to be 'black box'. Borth PAR undertakes optimisation of options, which results in three options that are very similar, any of which could have been preferred. Clacton PAR looks at developing options, approaches and methods in a step-wise manner. Happisburgh to Winterton PAR optimises the preferred option based on technical and environmental grounds.

In Fairlight PAR, the appraisal does not identify the best bits of each option but the more detailed Scoping Report argues that to meet the project aim, a comprehensive scheme of works is needed which will imply a combination of options. The options selected as the best solution is a combination of options.

Other PARs that recommend a combination of options include Melton Mowbray and Middle Medway, while Roach and Crouch PAR recommends short-term measures be put in place while further information is collected on the impacts of managed realignment.

Felixstowe Ferry PAR begins by looking at compartments separately and then in combination to develop the 'best' overall solution.

Other PARs draw on work that has been previously undertaken to develop options derived from a combination of other options, or options discounted at an earlier stage. This is the case in Flexbury PAR, Glynneath PAR and Rumney Great Wharf PAR.

Lincshire PAR proposes a recommended option that includes preferred option and adds some extra elements, e.g. removal of ineffective groynes, replacement of promontory elements and maintenance of existing sea walls. Such refinements were required to develop the preferred strategy option such that it could be implemented. The PAR also includes a description of how the programme can be implemented in the most cost-effective manner.

9.7 Consultation

The degree to which consultation on the decision-making is undertaken is highly variable, with 20 PARs providing strong evidence that this had taken place. A further 27 included consultation at some stage of the appraisal process, with only 16 not appearing to have consulted.

9.8 Presenting the results of the appraisal

Most of the PARs (40) follow the PAR template very closely, others follow the main headings and/or omit one or two sections (17). Only 8 did not follow the PAR template at all and this includes the CFMPs and SMPs for which the template is not applicable.

9.9 Post project appraisal

Borth PAR is scheduled to undergo post project appraisal. No other post project appraisals of the PARs are known. The project team attempted to obtain post project appraisals that had been undertaken by Defra/Environment Agency but these were not provided, despite repeated requests.

10. Summary of findings

The review of PARs has shown that there is not one PAR that provides clear, transparent information on every aspect of the appraisal process. Conversely, all of the PARs include good information on at least one aspect of the appraisal process. However, there is a number of PARs that do stand out for one or a number of sections. Examples of the PARs considered 'best' by the project team are described below for different aspects of the appraisal (taken from a short-list of what were considered the 'best' eight of the 67 PARs – specific examples of good practice from other PARs are described above). These may reflect useful examples or illustrative sections for other undertaking project appraisal.

Many of the PARs were easy to read, but the best examples were Cannock, Flexbury and St Ives & the Hemingfords.

In terms of definition of the problem and the description of the do-nothing baseline, PARs were judged on the clarity of the explanation as well as the inclusion of quantified information. The best examples were considered to be Flexbury, Middle Medway, Morecambe and Sandwich.

Many of the PARs only considered a limited number of benefits, but some did look wider, including non-quantified benefits as well as those that could be expressed in money terms. The PARs providing the best description of benefits and covering a wide range of different benefit types are East Lane Bawdsey, Middle Medway and Sandwich.

When considering sensitivity analysis, the focus was on the extent of sensitivity testing undertaken and whether this informed the decision-making process. Flexbury PAR was notable because it included sensitivity analysis throughout the appraisal process, while Middle Medway PAR undertook a lot of sensitivity testing. Climate change scenarios are described well in Canvey Island Drainage PAR.

The final criterion was whether the PAR provided sufficient information so that the economic appraisal could be redone based only on the information given in the PAR. Again, most PARs give some of the information required, others give sufficient information so that a few assumptions could be made or default data used to allow the economics to be reworked. There are two PARs that provided sufficient information in the PAR for the economics to be reworked easily (and in which the information was easy to find). These are Sandwich and St Ives & the Hemingfords.

Task B1 Report

Appendices

Appendix 1

Proforma used in Task B1

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Alconbury Flood Defence Scheme	Y/N	Comments/Description/Reference Final report 2005 PAR reviewed only no appendices.
<i>Rationale and Objectives</i>		
Is the problem clearly defined?		
Is the reason for the level of detail of the costs and benefits given?		
Are clear and measurable objectives given?		
Are there links to the hierarchy of decision-making?		
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?		
Is a wide range of options and/or standards considered?		
Does the appraisal indicate how the long-list was reduced to a short-list of options?		
Does the appraisal include option development through a learning process?		
Are the reasons for screening out acceptable/convincing?		
Is a do-minimum option included?		
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?		
Are the costs broken down into capital, maintenance, etc.?		
Are depreciation and capital charges excluded (if relevant)?		
Are residual values included (if relevant)?		
<i>Option Benefits</i>		
Are the benefits of each option identified?		
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?		
Which benefits are valued in money terms?		
Have benefits been assessed for both residential and non-residential properties?		
Have benefits for recreation been taken into account?		
Is all of the key information used when valuing benefits given?		
Has capping been undertaken?		

Questions for Review of Appraisals (B1)

Are non-monetised benefits included in the appraisal (e.g. social, environmental)?		
What non-monetised benefits are included?		
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?		
Are approaches such as scoring and weighting used?		
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?		
Does the appraisal adjust for subsidies, etc.?		
Does the appraisal include valuation of legally protected elements at risk (if any)?		
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?		
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?		
Are all costs and benefits presented in Present Value (i.e. discounted) terms?		
Is a 100 year time horizon used?		
Does the guidance use a discount rate of 3.5% (reducing)?		
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?		
Are the main risks identified and described?		
Are any adjustments made for risk?		
Is optimism bias included?		
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?		
Does the sensitivity analysis include calculation of switching values?		
Are different scenarios used to take into account specific uncertainties?		
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?		
Are the options set out in a way that allows for easy comparison?		

Questions for Review of Appraisals (B1)

Are costs and benefits assessed over the same period using the same base date?		
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?		
Has the PAG3 decision rule been followed correctly?		
Have indicative standards been taken into account?		
Is there discussion on key constraints?		
Are the conclusions supported by the results?		
How does residual risk feature in the appraisal?		
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?		
Has the consultation been undertaken at the decision-making stage?		
Presentation of Results		
Does the appraisal follow the PAR format?		
Does the appraisal include all assumptions alongside the calculations, etc.?		
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?		
Do the results 'feel' right?		
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?		

Appendix 2

Completed proformas for Task B1
(review of appraisals)

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The views and comments included in the proformas are those of the project team and not of Defra and/or the Environment Agency. In most cases, the comments given are based on a review of the Project Appraisal Report only (and not the appendices, spreadsheets, etc.).

Review of Alconbury Flood Defence Scheme

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Alconbury Flood Defence Scheme	Y/N	Comments/Description/Reference Final report 2005 PAR reviewed only no appendices.
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	S2.2.1 includes number of properties recently flooded and return periods for floods
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	N	Objective to examine options to address flood risk
Are there links to the hierarchy of decision-making?	N	But comment that links with u/s village have been addressed in relation to water levels.
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	S2.2.2 do-nothing setting out impacts on residential and NRPs
Is a wide range of options and/or standards considered?	Y	S2.3 reasonable set of options
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S2.3.2 Env. Impact and cost
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Y	Appear to be thought through
Is a do-minimum option included?	Y	S 2.3.1.2 current regime
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	Y	S2.4.7 whole life incl. all cap. and maint.
Are the costs broken down into capital, maintenance, etc.?	Y	See above
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	N/A
<i>Option Benefits</i>		
Are the benefits of each option identified?	Y	Described in Appendix E
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?		S2.5.1 Residential and commercial
Have benefits been assessed for both residential and non-residential properties?	Y	See above

Questions for Review of Appraisals (B1)

Have benefits for recreation been taken into account?	N	Did not include negative benefits impacts of fair not being able to be held on common after flood banks build
Is all of the key information used when valuing benefits given?	Y	S2.5.1 MCM
Has capping been undertaken?	Y	S2.5.1
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	States that env. and social impacts not included and also did not include stress as b/c was robust without it.
What non-monetised benefits are included?	N/A	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N/A	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N/A	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N/A	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	S2.5.1 (May 2005)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S2.5.1 all to May 2005
Is a 100 year time horizon used?	Y	
Does the guidance use a discount rate of 3.5% (reducing)?	Y?	Not stated in PAR but presumed
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	S2.4.5 Risk contingency allowance
Are any adjustments made for risk?	Y	Uses Monte Carlo
Is optimism bias included?	Y	S2.4.5 But based on Monte Carlo
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	Costs increased by 20%, Errors in modelling (levels), climate change 20% increase on flows. But all taken individually
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account	N	

Questions for Review of Appraisals (B1)

specific uncertainties?		
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	S2.7.6Based on BCR and decision rule
Are the options set out in a way that allows for easy comparison?	Y	PAG Summary table
Are costs and benefits assessed over the same period using the same base date?	Y	!00 years may 2005 base
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S2.7.1In summary table
Has the PAG3 decision rule been followed correctly?	Y	S2.7.2
Have indicative standards been taken into account?	Y	S2.3.1.3 but is band A correct for a village?
Is there discussion on key constraints?	Y	Environmental constraints
Are the conclusions supported by the results?	Y	
How does residual risk feature in the appraisal?		Flood warning will continue
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	Not obvious
Has the consultation been undertaken at the decision-making stage?	N?	But some discussions with villagers
Presentation of Results		
Does the appraisal follow the PAR format?	Y	Easy to follow
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Generally but could be more explicit (may be more information in Appendices).
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Appears to be £229k for a £4,231k project (5%)
Do the results 'feel' right?	Y	Having seen the site the preferred option does appear right.
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	

Review of Beadnell (1999)

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Beadnell 1999	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Yes, clearly defined in the initial summary, poor condition of harbour defences and erosion and loss of SSSI, 51 properties and caravans. (Exec. Summary, Sec 2.2.3)
Is the reason for the level of detail of the costs and benefits given?	Partly	The levels of benefits are described though the detail of cost is not.(App C, D)
Are clear and measurable objectives given?	X	
Are there links to the hierarchy of decision-making?	Y	Yes the strategy is linked strongly with the SMP and develops it further. (Sec. 1.3)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Yes this is set out as a Do Nothing case (Sec. 6.2)
Is a wide range of options and/or standards considered?	Y	A range of options are looked at these include, rebuild harbour, encase harbour breakwater, new harbour breakwater; coastal protection: breakwater, rock revetment. (Sec. 2.4)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	X	The long list consists of Do Nothing or prevent erosion. (Sec. 6.2, 6.3)
Does the appraisal include option development through a learning process?	X	
Are the reasons for screening out acceptable/convincing?	Partly	The screening of options is only discussed in terms of economics and does not look at issues such as environment, access, amenity, etc. (Sec. 7)
Is a do-minimum option included?	X	This was not considered applicable to an erosion protection scheme though the option of delaying works is investigated.
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Yes this is laid out in (App C)
Are the costs broken down into capital, maintenance, etc.?	Y	The costs are broken down into capital and maintenance (App C, D)
Are depreciation and capital charges excluded (if relevant)?	n/a	
Is a common time horizon used?	Y	It appears so though not stated explicitly, the economics follow the PAGN guidance (Sec. 7.3)

Questions for Review of Appraisals (B1)

Are residual values included (if relevant)?	Y	As part of damages not avoided (App D)
Option Benefits		
Are the benefits of each option identified?	Y	Yes residential, commercial, infrastructure, though the method used to delaying works appears to reduce damages as harbour is still functional and earning fees (Sec. 7)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	
Which benefits are valued in money terms?		Property (residential, commercial, infrastructure) and harbour revenue (Sec. 7)
Have benefits been assessed for both residential and non-residential properties?	Y	Residential and caravans are assessed (Sec. 7.2)
Have benefits for recreation been taken into account?	Y	Yes they have as fees from the harbour (Sec. 7.2)
Is all of the key information used when valuing benefits given?	Y	(App C, D)
Has capping been undertaken?	X	Damages are erosion/loss based therefore damaged properties are lost
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	These are discussed in each option and the viability of each option (Sec. 6)
What non-monetised benefits are included?	Y	Technical issues, Environmental (Sec 6.4)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description (Sec 7)
Are approaches such as scoring and weighting used?	X	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	X	
Does the appraisal include valuation of legally protected elements at risk (if any)?	Y	There are historic and environmental sites which are taken into account in the viability though they are not quantified (Sec. 6.4)
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Jan 1999 (App C, D)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Yes (App C, D)
Is a 100 year time horizon used?	X	50 years is used due to the PAGN guidance at the time (App C, D)

Questions for Review of Appraisals (B1)

Does the guidance use a discount rate of 3.5% (reducing)?	X	It is assumed constant 6% is used as from the PAGN guidance (App C, D)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	
Are the main risks identified and described?	Partly	Issues are discussed surrounding the preferred option, though not for the other proposed options (Sec. 9)
Are any adjustments made for risk?	Y	
Is optimism bias included?	Y	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Yes, sensitivity is carried out on the damage values with respect to different erosion rates, onset of erosion and equilibrium shape (Attachments)
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	Y	Erosion rates, onset of erosion and equilibrium shape are each looked at independently (Attachments)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	X	
Are the options set out in a way that allows for easy comparison?	Y	The costs are well laid out in comparison tables and the qualitative descriptions in a section for each option (Sec. 6, 7)
Are costs and benefits assessed over the same period using the same base date?	Y	Yes (App C, D)
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Net Present Value, Benefit-Cost Ratio are calculated. Incremental cost benefit does not appear to be appropriate in coastal protection schemes (Sec. 7)
Has the PAG3 decision rule been followed correctly?	X	The PAGN rule is followed up to the point of calculating incremental benefits (Sec. 7)
Have indicative standards been taken into account?	X	These appear not to be applicable in delaying erosion
Is there discussion on key constraints?	Partly	The options are only discussed in terms of environmental and technical constraints (Sec 6.4)
Are the conclusions supported by the results?	Y	Yes

Questions for Review of Appraisals (B1)

How does residual risk feature in the appraisal?	X	Residual risk does not appear as the damages are looked at deterministically and are prevented in a prevent erosion scheme
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	X	This did not seem relevant as there was only one component in the scheme
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation has only been undertaken with English Nature (Sec. 6.5)
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Where appropriate
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Assumptions are implied in the methods used, but not described explicitly
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Yes the detail seems appropriate to the project value
Do the results 'feel' right?	Y	Yes
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Un- know n	Possibly, though no records available

Review of Bermondsey Embayment Strategy

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Bermondsey Embayment Strategy	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Full description based on condition summary
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	Project objective only stated and is based on the case for continuing to provide flood defence
Are there links to the hierarchy of decision-making?	N	
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do-nothing described based on tidal flooding and properties written off.
Is a wide range of options and/or standards considered?	N	Thames standard dictates standard of protection (based on level)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N/A	
Does the appraisal include option development through a learning process?	N/A	
Are the reasons for screening out acceptable/convincing?	N/A	
Is a do-minimum option included?	N/A	
Option Costs		
Does the appraisal describe how each option has been costed?	N	
Are the costs broken down into capital, maintenance, etc.?	Y	Capital and maintenance costs included
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	
Option Benefits		
Are the benefits of each option identified?	Y	Probability based analysis
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	Only residential and NRPs included as others considered insignificant
Which benefits are valued in money terms?		As above
Have benefits been assessed for both residential and non-residential properties?	Y	As cabove
Have benefits for recreation been taken into	N	

Questions for Review of Appraisals (B1)

account?		
Is all of the key information used when valuing benefits given?	N	
Has capping been undertaken?	N	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	
What non-monetised benefits are included?	N	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	All to same timebase
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	
Is a 100 year time horizon used?	?	Time horizon not given
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Assumed yes
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	N	
Are any adjustments made for risk?	Y	OB reduced based on risk
Is optimism bias included?	Y	OB at 42%
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	Using spider diagrams
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to	Y	Based on scenario analysis and best time to intervene.

Questions for Review of Appraisals (B1)

select the best option?		
Are the options set out in a way that allows for easy comparison?	Y	Probability based scenarios
Are costs and benefits assessed over the same period using the same base date?	Y	Assumed
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Set out in tables
Has the PAG3 decision rule been followed correctly?	Y	But slightly modified as standard dictated by Thames legislation
Have indicative standards been taken into account?	N	
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	Uses methodology designed of Thames embayments
How does residual risk feature in the appraisal?	N	
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	Y	Partly in that the methodology optimises the time for intervention but is spreadsheet based and appears to be 'black box'.
Has the consultation been undertaken at the decision-making stage?	N	
Presentation of Results		
Does the appraisal follow the PAR format?	N	Appears to follow a 'Thames Embayment' layout
Does the appraisal include all assumptions alongside the calculations, etc.?	N	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	
Do the results 'feel' right?	Y	Give a sensible approach to protecting large number and value of assets.
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	

Review of Blakeney Freshes

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Section 2.2.1 and includes quantitative information on area that would be flooded
Is the reason for the level of detail of the costs and benefits given?	Y	It is an environmental scheme and notes that 'although an assessment of the damages and benefits...is not required as part of the Defra funding application...this PAR also contains an assessment of the damages and benefits...This is due to the impact on property and land caused by flooding, in addition to impact on the SPA and cSAC sites'.
Are clear and measurable objectives given?	Y	The relevant SMP primary objectives and secondary objectives are given as are the CHaMP objectives. Project objectives are given in Section 2.2.5
Are there links to the hierarchy of decision-making?	Y	Links are made with the objectives of high level policy
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	A description of the impacts of doing nothing is given, with areas of land quantified. The number of properties affected is not given, however
Is a wide range of options and/or standards considered?	Y	Nine initial options are identified
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	The reduction in number of options is based on four environmental criteria (linked to the project objectives, sustainable, compliance with current legislation/guidance and cause no significant impacts on majority of key issues)
Does the appraisal include option development through a learning process?	Not known	Page 17 is missing
Are the reasons for screening out acceptable/convincing?	Y	Four options were screened out as being unsustainable over the 50 year project lifetime
Is a do-minimum option included?	Y	Option B
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Detailed costing has been undertaken by the contractor
Are the costs broken down into capital, maintenance, etc.?	Y	In Appendix E (not available)

Questions for Review of Appraisals (B1)

Are depreciation and capital charges excluded (if relevant)?	Not known	
Are residual values included (if relevant)?	Not known	
Option Benefits		
Are the benefits of each option identified?	Y	Environmental impacts of each option are identified
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	
Which benefits are valued in money terms?		Damages to residential and commercial properties, agricultural land, infrastructure damages, loss of grazing marsh, reed beds
Have benefits been assessed for both residential and non-residential properties?	Y	
Have benefits for recreation been taken into account?	X	They have been excluded to avoid the potential for double counting with environmental damages. PAR also notes that a survey and contingent valuation would be required (too expensive)
Is all of the key information used when valuing benefits given?	Partly	The discussion is quite brief, but key data are generally described
Has capping been undertaken?	Y	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Environmental losses are valued by using the replacement costs approach
What non-monetised benefits are included?	X	None
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	X	
Are approaches such as scoring and weighting used?	Partly	The summary of environmental impacts using a scoring system of major negative through to major positive
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	Y	Where agricultural land has been written-off
Does the appraisal include valuation of legally protected elements at risk (if any)?	Partly	Chapel SAM would not be protected under any of the options. Environmental habitat lost is valued using replacement costs
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
Present Values and Discounting		

Questions for Review of Appraisals (B1)

Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	Costs are projected forwards to summer/autumn 2004 using 6% inflation, base date for benefits is not known (but is probably 2003 since MCM is source of data)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Table 2.4 (Scheme Costs) and Table 2.5 (numbered Table 2.3, pg 29) (PV Damages and Benefits)
Is a 100 year time horizon used?	?	Pg 16 notes 'the 50 year project lifetime', the tie horizon for costs is not given in the PAR (Appendix E not available). Pg 27 notes that property damages have been estimated over 'the 100 year period of analysis'
Does the guidance use a discount rate of 3.5% (reducing)?	?	Not stated, but refers to FCDPAG3 so probably
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	
Are the main risks identified and described?	Y	Appendix F includes a full risk assessment for the preferred scheme
Are any adjustments made for risk?	Not known	Appendix F is not available
Is optimism bias included?	Y	Monte Carlo analysis is used for some options and optimism bias of 40% where Monte Carlo analysis was not specifically undertaken
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	X	PAR notes that 'sensitivity testing is not applicable since Option C is the only acceptable option'
Does the sensitivity analysis include calculation of switching values?	N/a	
Are different scenarios used to take into account specific uncertainties?	N/a	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	The FCDPAG3 summary table is produced but the choice of scheme is 'governed by the selection of the most cost-effective scheme that is environmentally acceptable'
Are the options set out in a way that allows for easy comparison?	Partly	It would have been helpful to have a table summarising the key differences between the options at the decision-making stage (presumably Table 2.3, pg 20) is the basis for identifying which options are/are not environmentally acceptable

Questions for Review of Appraisals (B1)

Are costs and benefits assessed over the same period using the same base date?	Not known	But does not affect the decision
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	
Has the PAG3 decision rule been followed correctly?	N/a	It is an environmental scheme, although the choice between Option C1 and C2 is based on the option with the highest benefit-cost ratio
Have indicative standards been taken into account?	X	Not relevant for an environmental scheme
Is there discussion on key constraints?	X	
Are the conclusions supported by the results?	Y	The option selected is a compromise option
How does residual risk feature in the appraisal?	Y	A risk register is included in Appendix F
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	X	
Has the consultation been undertaken at the decision-making stage?	Not known	There is no discussion of consultation (other than with English Nature) in the PAR
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Most key information is given
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Gives additional detail that is not specifically required
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Not known	

Review of Borth 2006

Questions for Review of Appraisals (B1) Borth 2006

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Described as deteriorating condition of defences, low standard of protection and flooding, erosion of 400 properties in the town, SSSI, control processed in adjacent estuary (Sec 5)
Is the reason for the level of detail of the costs and benefits given?	Partly	Some detail is given for the benefits and costs, this tend to follow guidance, but does not explain the amount of detail (Sec. 8.1)
Are clear and measurable objectives given?	Y	Yes there are 8 objectives given and assessed using multi criteria analysis (Sec 6)
Are there links to the hierarchy of decision-making?	Y	Yes, there are links to the SMP previous strategies and studies (Sec. 1)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	This is covered in the Do Nothing case (Sec. 8.2)
Is a wide range of options and/or standards considered?	Y	Yes; do nothing, do minimum, 2 maintain current standard and 7 improved standard (Sec. 7.2-7.4)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	Not all the solutions were obvious from the outset of the project. The number and variation of more promising options increased during the appraisal as the options were refined (Sec. 1)
Does the appraisal include option development through a learning process?	Y	Yes the options have developed over the project with the latter options being similar as they are refined (Sec. 7)
Are the reasons for screening out acceptable/convincing?	Y	Yes this is covered well on economic and other criteria (Sec. 9)
Is a do-minimum option included?	Y	A do minimum is included (Sec. 8.3)
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Yes, primarily from records of similar work (App. D)
Are the costs broken down into capital, maintenance, etc.?	Y	(App. D)
Are depreciation and capital charges excluded (if relevant)?	X	Not relevant
Is a common time horizon used?	Y	Yes, the report uses 100 year horizon (App. D)

Questions for Review of Appraisals (B1) Borth 2006

Are residual values included (if relevant)?	Partly	The report recognised that some of the defences have some life left and phased work over 15 years was proposed (Sec 8.4 – 8.12)
Option Benefits		
Are the benefits of each option identified?	Y	Yes they are calculated in the economics and non financial benefits are discussed in each of the options against the objectives and assessed in a multi criteria analysis (App. C)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	
Which benefits are valued in money terms?	Y	Residential and commercial due to flood damages and erosion (App. C)
Have benefits been assessed for both residential and non-residential properties?	Y	(App. C)
Have benefits for recreation been taken into account?	Y	Yes in the multi criteria analysis. (Sec. 9)
Is all of the key information used when valuing benefits given?	Y	(App. C)
Has capping been undertaken?	Y	Yes, though it has been capped by grouping properties (App. C)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Yes in the multi criteria analysis (Sec. 9)
What non-monetised benefits are included?	Y	Health and safety, operation and maintenance, environment, constructability, amenity, planning, technical (Sec. 9.)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	They are described in each option, compared and scored in a multi criteria analysis
Are approaches such as scoring and weighting used?	Y	(Sec. 9.)
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	MCA used to incorporate non tangible issues
Does the appraisal adjust for subsidies, etc.?	X	
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	No, though they are assessed in the multi criteria analysis (Sec. 9.)
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	No
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Yes 2005 (App. C, D)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Yes (App. C, D)

Questions for Review of Appraisals (B1) Borth 2006

Is a 100 year time horizon used?	Y	Yes (App. C, D)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Yes (App. C, D)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	Not relevant
Are the main risks identified and described?	Y	Yes this is well described in the cost risk assessment and calculation of the optimism bias (Sec. 8.)
Are any adjustments made for risk?	Y	Yes, uncertainty was assessed in terms of the materials quantities and unit rates (Sec. 8.)
Is optimism bias included?	Y	Yes this is calculated individually for each option to give a comparison of risk (Sec. 8.)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	X	
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	Partly	Yes the economic uncertainties are well discussed in the cost risk assessment and in the option discussions (Sec. 8.)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	Yes this is covered well in the multi criteria analysis which has been set up around the objectives (Sec. 9.)
Are the options set out in a way that allows for easy comparison?	Y	Yes they start with the do nothing, minimum, maintain current and then looked at improving the standard with a number of different approaches, then variations of the most positive looking option (Sec. 7.)
Are costs and benefits assessed over the same period using the same base date?	Y	Yes (App. C, D)
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	NPV and C/B are calculated, though not the incremental cost benefit. (App. E)
Has the PAG3 decision rule been followed correctly?	Partly	The nature of the project and the influence of non economic factors make the purely economic optimised solution not appropriate (Sec. 9.)
Have indicative standards been taken into account?	Y	Yes
Is there discussion on key constraints?	Y	Yes these are discussed in each of the options (Sec. 8)

Questions for Review of Appraisals (B1) Borth 2006

Are the conclusions supported by the results?	Partly	There are 3 similar options which are all reasonable solutions and not much difference between them, Though only one option is put forward as the preferred option (Sec. 10, 11.)
How does residual risk feature in the appraisal?	Y	It is included in the calculation of the damages (App. C)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Y	Yes this is covered in the latter options (Sec. 8)
Has the consultation been undertaken at the decision-making stage?	Y	Yes consultation was included in a visioning exercise. (Sec. 6.2)
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Where considered appropriate
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Yes these are clearly laid out in the appendices
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Yes
Do the results 'feel' right?	Y	Yes, although due to the learning process, any of the final three options would have felt about right
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Y	It is scheduled to occur imminently

Review of Brompton, Northallerton & Romanby

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Brompton, Northallerton and Romanby (2005)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Partly	There is detailed description of previous flooding events, with information given on public buildings affected, but little on the number of properties affected or the return period of the events. This information has been added in the Defra RE's comments
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	The objectives are based on a predetermined standard of service. The objectives are also somewhat lost in the amount of text given, although the long-term goals are set out more clearly
Are there links to the hierarchy of decision-making?	Y	Mention is made that there is not a CFMP, plus an indication that there are not expected effects up- or downstream
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	N	Some of the impacts are described (including the more intangible effects), but no quantitative information is given (including the number of properties that would be affected). In S2.5, the do-nothing option is described as 'status quo', but this is not how it is described in S2.3.1
Is a wide range of options and/or standards considered?	Y	S2.3.4 gives the long-list of options and reasons why they have been eliminated
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S2.3.4
Does the appraisal include option development through a learning process?	Partly	The options considered include a mixture of actions which suggest some learning may have taken place – this is not described in the PAR however
Are the reasons for screening out acceptable/convincing?	Partly	Advanced early warning systems could have been considered as part of the other options, but otherwise the reasons are convincing
Is a do-minimum option included?	Y	Option 2 is the do-minimum option (S2.3.2)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	A brief description of the costs of all options is given
Are the costs broken down into capital,	Y	Table 2e sets out the capital and

Questions for Review of Appraisals (B1)

maintenance, etc.?		maintenance costs of each option
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	A separate section is given for each option
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Direct damages to residential and commercial properties Indirect damages to residential properties Traffic disruption costs Emergency service costs
Have benefits been assessed for both residential and non-residential properties?	Y	S2.7.1 summarises the damages that have been monetised
Have benefits for recreation been taken into account?	N	No allowance has been included for recreational enhancements
Is all of the key information used when valuing benefits given?	Partly	The source of the data is given, but no details on how the damages/benefits have been calculated for each option
Has capping been undertaken?	N	There is no mention of capping in the PAR
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	The Environmental Impact Assessment is described in some detail. It is stated in S2.7.5 that where there are no data to allow intangible benefits to be valued, they have been excluded from the assessment
What non-monetised benefits are included?	N	None – S2.7.5 explains that no allowance has been made within the economic assessment
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N	No details given – but there are no agricultural impacts included in the appraisal
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
Distributional Impacts		
Are distributional impacts taken into account (e.g.	N	

Questions for Review of Appraisals (B1)

vulnerable groups)?		
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	The benefits have been updated to March 2004 values using the RPI. Costs are given in March 2005 values
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	A copy of the FCDPAG3 table is included in S2.8
Is a 100 year time horizon used?	Y	This is confirmed for the benefits (S2.7.1) but not for the costs
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S2.7.1 confirms that this is the case
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	No details given
Are the main risks identified and described?	Y	Risk allowances on the costs are described in detail in S2.6
Are any adjustments made for risk?	Y	Adjustments are made to the costs through the use of optimism bias
Is optimism bias included?	Y	S2.6, pg 27 sets out the approach to optimism bias, which is taken as 30%
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Changes have been made to the costs, benefits, floor levels and model predictions and the impact of the benefit-cost ratio is discussed
Does the sensitivity analysis include calculation of switching values?	Y	The critical % decrease in benefits to reduce the priority score is discussed
Are different scenarios used to take into account specific uncertainties?	Y	Account is taken of the impact of climate change (i.e. 20% change in flows)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The decision is based on costs and benefits
Are the options set out in a way that allows for easy comparison?	Partly	The options in the FCDPAG3 summary table are given in the wrong order such that the standard of protection decreases from Option 3 to Option 5 (this is corrected by the Defra RE and a new FCDPAG3 summary table included)
Are costs and benefits assessed over the same period using the same base date?	N	Costs are given to March 2005 and benefits to March 2004
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	The FCDPAG3 summary table is included in S2.8
Has the PAG3 decision rule been followed correctly?	Partly	The presentation of the FCDPAG3 summary table means that the incremental benefit-cost ratios cannot be

Questions for Review of Appraisals (B1)

		used
Have indicative standards been taken into account?	Partly	There is no mention of indicative standards in the PAR, although the Land Use Band is given in the copy of the FCDPAG3 summary table
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	The option to protect to a 1 in 100 year standard has the highest benefit-cost ratio and appears to be the best option
How does residual risk feature in the appraisal?	Y	The nature and scale of residual risks is given in S2.8.4 and is mainly concerned with costs
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N	Consultation has been undertaken on the EIA
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	The general approach is in line with the PAR Template, but there are a lot of long sections with detailed text
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumptions are given, but there is a lot of information that is missing that makes it more difficult to follow exactly how the benefits have been calculated
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	Some areas of the PAR are in a lot of detail, others (e.g. benefits) are in much less detail. Similarly, the description of selection of the preferred option is very brief
Do the results 'feel' right?	Y	The option selected seems right, although it would be difficult to be sure without the information added by the Defra RE, as this is the only place where the number of properties protected is given
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Ridings Brook, Cannock

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Ridings Brook, Cannock	Y/N	Comments/Description/Reference (PAR reviewed only not Appendices)
Rationale and Objectives		
Is the problem clearly defined?	Y	Described in S2.2 in some detail but does not give magnitude of problem (number of props etc.)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Clear but not measurable S2.2.6
Are there links to the hierarchy of decision-making?	Y	Statement that there is no effect u/s or d/s
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	N	Not clearly stated but does refer back to pre-feasibility study S2.3.3 & S2.6.1
Is a wide range of options and/or standards considered?	Y	Wide range of methods and standards (detail in Appendix C)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	But combinations used from list of generic options (S2.3.1) and may be in appendix C
Does the appraisal include option development through a learning process?	Y?	In S2.3.1 'it became evident that a combination of generic options would be required' although there is no evidence set down.
Are the reasons for screening out acceptable/convincing?	N	It appears that mainly technical grounds are used but no detail in the PAR
Is a do-minimum option included?	Y	S2.3.2 & S 2.3.4 Do-minimum – carry on maintenance but with standard decreasing
Option Costs		
Does the appraisal describe how each option has been costed?	Y?	Costs in appendix E but statement that costs for preferred option put together with contractors
Are the costs broken down into capital, maintenance, etc.?	Y	
Are depreciation and capital charges excluded (if relevant)?	NA	
Are residual values included (if relevant)?	NA	
Option Benefits		
Are the benefits of each option identified?	Y	S2.6.1 e.g. road disruption looked at but not valued as insignificant when compared with property damage.
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	S2.6.1 e.g. road disruption looked at but not valued as insignificant when compared with property damage

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?		Residential/commercial damages
Have benefits been assessed for both residential and non-residential properties?		See above
Have benefits for recreation been taken into account?	N	N/A
Is all of the key information used when valuing benefits given?	Y?	Assume so – Appendix E
Has capping been undertaken?	Y	For residential damages
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Environmental impacts – but not quantified
What non-monetised benefits are included?	?	Not sure as presumably in Appendix A
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Based on environmental constraints
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N/A	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N/A	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	N/A
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	S2.6.1 Q1-2004 (when appraisal was produced)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S2.6.1
Is a 100 year time horizon used?	Y	
Does the guidance use a discount rate of 3.5% (reducing)?	Y	
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	Not relevant?
Are the main risks identified and described?	Y	Climate change and env. risks
Are any adjustments made for risk?	Y	Change on flows
Is optimism bias included?	Y	Uses Monte Carlo
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	20% increase in flows
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	20% increase in flows

Questions for Review of Appraisals (B1)

Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	Cba and environmentally acceptable drivers
Are the options set out in a way that allows for easy comparison?	Y	PAG summary table
Are costs and benefits assessed over the same period using the same base date?	Y	S2.7.1
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S2.7.1
Has the PAG3 decision rule been followed correctly?	Y	S2.7.1
Have indicative standards been taken into account?	Y	But no clear definition of land use bands
Is there discussion on key constraints?	Y?	In pre-feasibility study?
Are the conclusions supported by the results?	Y	
How does residual risk feature in the appraisal?	Y	S2.7.6 risk contingency in costings
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	Partly-with the EA process
Presentation of Results		
Does the appraisal follow the PAR format?	Y	Well set out
Does the appraisal include all assumptions alongside the calculations, etc.?	N	Could be more transparent
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Appears to be
Do the results 'feel' right?	Y	Economic and environmental impacts considered to give a 'win-win'. However, the large bcr meant that there was no need to look at env. benefits in detail.
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	

Review of Canvey Island Drainage

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Canvey Island Drainage (June 2004)	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	P 8 problem clearly defined
Is the reason for the level of detail of the costs and benefits given?	X	
Are clear and measurable objectives given?	X	Only objective considered to reduce risk of flooding
Are there links to the hierarchy of decision-making?	X	Stand alone project
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	S2.3.2 & Appendix D do-nothing quantified but apart from describing annual flooding of properties no other information is given
Is a wide range of options and/or standards considered?	Y	S 2.3 Reasonable range of options considered based on standards of protection using existing PSTns. Little discussion on other options such as fewer number larger PSTns.
Does the appraisal indicate how the long-list was reduced to a short-list of options?	X	No long list. Assumed replacement of existing PSTns
Does the appraisal include option development through a learning process?	X	
Are the reasons for screening out acceptable/convincing?	X	
Is a do-minimum option included?	Y	S2.3.2 2 do minimums one of which was discounted through H&S grounds
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S2.5.3 costs in detail and from a workshop that included EA ops staff, consultants and contractors
Are the costs broken down into capital, maintenance, etc.?	Y	S2.5.3 table 6
Are depreciation and capital charges excluded (if relevant)?	n/a	
Are residual values included (if relevant)?	n/a	
Option Benefits		
Are the benefits of each option identified?	Y	S2.6 and Appendix D based on modelled flood depths and damages
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	Y	Appendix D Flood damages to residential and commercial properties
Have benefits been assessed for both residential and non-residential properties?	Y	See above
Have benefits for recreation been taken into account?	X	
Is all of the key information used when valuing benefits given?	Y	Appendix D
Has capping been undertaken?	X	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	X	
What non-monetised benefits are included?	n/a	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	n/a	
Are approaches such as scoring and weighting used?	X	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	n/a	
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	S2.5, S2.6.3.3 Appendix D
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	
Is a 100 year time horizon used?	X	50 year being life of pumps
Does the guidance use a discount rate of 3.5% (reducing)?	Y	
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	X	
Are the main risks identified and described?	X	Risk of pump breakdown not included
Are any adjustments made for risk?	X	
Is optimism bias included?	Y	Appendix D – optimism bias correctly used but called contingency?
<i>Sensitivity Analysis</i>		

Questions for Review of Appraisals (B1)

Has sensitivity analysis been undertaken?	Y	Appendix D. CC 20% increase in flows, reducing no of properties by 50% and 70%, delaying write off in DN (increasing life of pumps by 10 years) and increase costs by 25% ⁿ
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	Y	Appendix D
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	Appendix D
Are the options set out in a way that allows for easy comparison?	Y	S2.7 & appendix D
Are costs and benefits assessed over the same period using the same base date?	Y	S2.6.4 50 years
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S2.7
Has the PAG3 decision rule been followed correctly?	Y?	S2.7 in part as indicative standard not stated. Option with highest B/C chosen. B/C & IC/B used to compare options but B/Cs are very close and more discussion could have been included.on
Have indicative standards been taken into account?	X	
Is there discussion on key constraints?	X	
Are the conclusions supported by the results?	Y	S2.7 and Appendix D although b/c are very close and there is no discussion
How does residual risk feature in the appraisal?	X	
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	X	
Has the consultation been undertaken at the decision-making stage?	X	
Presentation of Results		
Does the appraisal follow the PAR format?	Y	In general. It is easy to read
Does the appraisal include all assumptions alongside the calculations, etc.?	Y?	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	X	

Review of Carlisle

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Carlisle: Eden and Petterill	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S2.1 sets out the description of the flood risk area, details of the existing flood risk management arrangements and properties affected by flood events. The problem itself is set out in S2.1, with the history of flooding given in S2.2
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	S2.2.6 sets out the scheme objectives
Are there links to the hierarchy of decision-making?	Y	The CFMP for the Eden catchment is mentioned in S2.1.1 as being under development
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	The description of the do-nothing option focuses on changes in the defences and does not include a detailed description of the impacts. Details on the impacts of do-nothing are given in S2.6.4 on benefits
Is a wide range of options and/or standards considered?	Y	The do-something options are discussed in terms of opportunities and are discussed in some detail
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Each do-something option is described in detail with reasons given where the option is then not carried forward
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Y	The reasons for screening out are linked to the project objectives and where an option does not meet these, it is screened out
Is a do-minimum option included?	Y	S2.3.1 sets out the do-minimum option
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S2.5.1 sets out the approach used to costing the options, including the cost elements considered
Are the costs broken down into capital, maintenance, etc.?	Y	S2.5.1 confirms that capital and maintenance costs have been considered and are set out for the preferred option in S7
Are depreciation and capital charges excluded (if relevant)?	N	No details given

Questions for Review of Appraisals (B1)

Are residual values included (if relevant)?	Y	Residual value of the defences is assumed to be zero at the end of the 100 year time horizon (S2.6.1)
Option Benefits		
Are the benefits of each option identified?	Partly	S2.6.2 sets out the methodology used when assessing the benefits, but only brief details are given on the benefits of each option
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?		Damages to properties
Have benefits been assessed for both residential and non-residential properties?	Y	Both commercial and residential property damages have been included (S2.6.4)
Have benefits for recreation been taken into account?	N	No details given
Is all of the key information used when valuing benefits given?	N	The description of the methodology refers only to the Multi-Coloured Manual and does not give any details on how other benefits have been taken into account (or if they have)
Has capping been undertaken?		
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	An EIA has been undertaken and is reported in S2.3.3, with positive and negative impacts of each option summarised in Table 5
What non-monetised benefits are included?	N	None
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N/a	
Are approaches such as scoring and weighting used?	N/a	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N/a	
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	N?	Costs are estimated to a base date of January 2005. There is no discussion of the base date used for benefits (except that they are taken from the MCM – it is not stated if they have been updated)
Are all costs and benefits presented in Present	Y	A copy of the FCDPAG3 summary able

Questions for Review of Appraisals (B1)

Value (i.e. discounted) terms?		is given which includes the PV costs and benefits
Is a 100 year time horizon used?	Y	As confirmed in S2.5.1 for costs
Does the guidance use a discount rate of 3.5% (reducing)?	Y	The discount rate used is stated in S2.6.2
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	No details given
Are the main risks identified and described?	Y	Residual project risks are set out in S2.7.4
Are any adjustments made for risk?	Y	The benefits have been reduced by 10% to take account of the non-fluvial flood risks
Is optimism bias included?	Y	Optimism bias is set in S2.7.2 and reduced to 31%
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Climate change has been included, costs and benefits have been increased and decreased by 20%
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	The impact of climate change on fluvial flows is considered
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The costs and benefits are discussed when selecting the preferred option
Are the options set out in a way that allows for easy comparison?	Y	A copy of the FCDPAG3 summary table is included
Are costs and benefits assessed over the same period using the same base date?	Y?	The base date for benefits is not given, but both are considered over 100 years
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	A copy of the FCDPAG3 summary table is included which gives the NPV, BCR and IBCR
Has the PAG3 decision rule been followed correctly?	Partly	The do-minimum option has the highest BCR and the next option has an IBCR of 0.59; the decision to move to a higher option is based on the failure of the do-minimum option to reduce flood risk
Have indicative standards been taken into account?	Y	The area is allocated to Land Use Band A
Is there discussion on key constraints?	Y	Environmental constraints are considered in S2.7.1
Are the conclusions supported by the results?	Y	The preferred option is to provide a higher standard of defence (1 in 200) which appears appropriate given the

Questions for Review of Appraisals (B1)

		description of the area at risk, and from the assets affected in the 2005 floods
How does residual risk feature in the appraisal?	Y	Residual project risks are discussed in S2.7.4
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	Consultation has been undertaken at the scoping stage and at subsequent stages during the appraisal process (S2.4.7)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	The main PAR headings are used
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some of the key assumptions are given, particularly for costs. The discussion is much more brief for benefits
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	More detail on the benefits would have been useful, also there must be social benefits that have not been considered and which may have been a better basis for arguing the move to an option above the do-minimum option
Do the results 'feel' right?	Y	The assets at risk suggest that a scheme to reduce flood risk must be viable
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Cheltenham PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Cheltenham Flood Alleviation Scheme	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2 sets out the problem and effects of doing nothing, including number of properties affected by previous flooding (Pg 5)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	S 2.2. sets out the objectives in terms of number of properties for which the risk of flooding will be reduced and the standard of defence to be achieved; although some objectives, i.e. sustainability, environmental protection are less measurable
Are there links to the hierarchy of decision-making?	Y	S 2.1 sets out the legislative framework
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	S 2.7, choice of the preferred option uses 'do nothing' as the baseline but this is not spelled out earlier in report. Quantification is given in the description of problem
Is a wide range of options and/or standards considered?	Y	S 2.3 (Pg 7-8): A total of 7 options considered (Option 7, the preferred option, is re-visited three times)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Pg 7-10 explain why the options have been ruled out and the basis
Does the appraisal include option development through a learning process?	Y	Option 7 is re-visited three times based on residual risks
Are the reasons for screening out acceptable/convincing?	Partly	S 2.3 describes briefly the reasons for screening out the option. It may benefit from further evidence though
Is a do-minimum option included?	Y	S 2.3: Option 2 is the 'do minimum' but it is screened out
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Only for the preferred option (S 2.5)
Are the costs broken down into capital, maintenance, etc.?	Y	But only for the preferred option
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		

Questions for Review of Appraisals (B1)

Are the benefits of each option identified?	N	
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	S 2.6 notes that environmental and/or recreational enhancement benefits have not been assessed because they would be 'insignificant' in comparison to damage avoided from flooding
Which benefits are valued in money terms?	Y	Damage avoided from flooding
Have benefits been assessed for both residential and non-residential properties?	Y	Commercial properties and fire station included
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Partly	No values and little consideration given to the loss of tourism and sales in the town centre, loss of employment and devaluing of properties outside the area
Has capping been undertaken?	N	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	
What non-monetised benefits are included?	N	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Income from tourism and other recreational values, e.g. fishing, may be a readily available figure and could have been used to support the case
Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	Y	Listed building are included in the assessment of benefits (S 2.6)
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	The construction costs were assessed in 2001 but have been updated to present day values, 2003 base date. Inflation rate has been assumed to be 5% per annum
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	
Is a 100 year time horizon used?	N	50 years used
Does the guidance use a discount rate of 3.5% (reducing)?	N?	No details given, although the choice of option was in accordance with PG3 at the time
Economic Adjustments		

Questions for Review of Appraisals (B1)

Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	As assessment of all the residual risks was carried out. The types of risks considered included landowner issues, consents from the relevant authorities, environmental issues and construction risks (Pg 15; a detailed assessment is included in Appendix G)
Are any adjustments made for risk?	Y	Monte Carlo analysis undertaken on the costs in order to take account of residual risks
Is optimism bias included?	Y	Optimism bias has been included in accordance with Defra's Guidance Note
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	The impact of climate change has been assessed (Pg 14)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Preferred option is described against the objectives; but other options are only briefly compared across against the objectives
Are the options set out in a way that allows for easy comparison?	Partly	Costs of preferred option compared against the costs of do-minimum in S 2.5, costs. Benefits are compared against the 'do nothing'. S 2.7, Choice of the Preferred option, then compares costs and benefits against the do-nothing
Are costs and benefits assessed over the same period using the same base date?	Y	2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Although incremental Benefit-costs ratio is mentioned with regard to the choice of option, this is not given in summary Tables and only PVs and the average benefit/costs ratio are given
Has the PAG3 decision rule been followed correctly?	Y	S 2.7 (Pg 14)
Have indicative standards been taken into account?	Y	S 2.7
Is there discussion on key constraints?	Y	Constraints for the Combined Work Contract are set out (Pg 9)
Are the conclusions supported by the results?	Partly	May benefits from further discussion and presentation of incremental benefits costs ratio for all options
How does residual risk feature in the appraisal?	Y	Residual risks are set out (S 2.7; Pg 15). A Monte Carlo Analysis has been

Questions for Review of Appraisals (B1)

		undertaken for all the residual risks quantified using the @Risk software and the 50% and 95% confidence limit for risk contingency (Pg 12)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	Consultation was carried out over a period of 12 months and will continue during the life of the project (Pg 10)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumption set out in text, e.g. with regard to write-off values and inflation for instance. PAR may benefit from giving these alongside calculations
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	
Do the results 'feel' right?	Partly	Not enough discussion on costs and benefits from other options. This evidence could have supported the choice of option
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Unknown

Review of Clacton

Questions for Review of Appraisals (B1) Clacton Scheme strategy Plan-August 2004

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	The problems are all laid out by bullet points. 3250 properties over the next 100 years are expected to be lost (Sec. 2)
Is the reason for the level of detail of the costs and benefits given?	Y	Yes these are described in the appropriate appendices (App. A & B)
Are clear and measurable objectives given?	Y	Seven objectives are given. Four of them are specific and measurable (Sec 2)
Are there links to the hierarchy of decision-making?	Y	Reference is made to the SMP (Sec. 1.2)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	The existing environment and defences are outlined (Sec 3.)
Is a wide range of options and/or standards considered?	Partly	A wide range of defence methods is discussed prior to the appraisal and five viable methods are taken forward and developed into 11 defined options. Only 150 years defence standard is considered (Sec 4).
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	The long though broad list looked at approaches of to do nothing, hold the line, advance the line, retreat the line. Two of these are taken forward and expanded for more detailed consideration of defence methods described above (Sec 4)
Does the appraisal include option development through a learning process?	Y	Yes a learning process is demonstrated through the discussion of possible and appropriate approaches and method in defining the options to be considered (Sec 4)
Are the reasons for screening out acceptable/convincing?	Y	Yes they are well discussed and reasoned (Sec 4)
Is a do-minimum option included?	Y	Do minimum is included as a minimum cost option and ruled out early on (Sec 4)
Option Costs		
Does the appraisal describe how each option has been costed?	Y	(App A)
Are the costs broken down into capital, maintenance, etc.?	Y	They are divided into capital, maintenance, design and supervision (Sec. 5)

Questions for Review of Appraisals (B1) Clacton Scheme strategy Plan-August 2004

Are depreciation and capital charges excluded (if relevant)?	X	Not Relevant
Is a common time horizon used?	Y	Yes they used March 2004 (Sec. 5)
Are residual values included (if relevant)?	Partly	Residual values are not used though some of the schemes took into account the phasing of options due to existing residual lives (Sec. 4)
Option Benefits		
Are the benefits of each option identified?	Y	The benefits of eight options were considered in detail (Sec 5, App B)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	This is done implicitly by ruling out a number of approaches due to their perceived effectiveness, prior to the economic assessment (Sec. 4)
Which benefits are valued in money terms?	Y	Commercial and residential property, infrastructure and amenity (Sec. 5)
Have benefits been assessed for both residential and non-residential properties?	Y	Both have been assessed (Sec. 5)
Have benefits for recreation been taken into account?	Y	Amenity of the Clacton seafront is taken into account (Sec. 5)
Is all of the key information used when valuing benefits given?	Y	Yes values and erosion probability lines are given and discounted (App B)
Has capping been undertaken?	X	No, as the damages are due to erosion (one off losses i.e. not of a repeated nature)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Only environmental benefits and constraints are discussed in the options (Sec 9.)
What non-monetised benefits are included?	Y	Environmental (Sec. 4)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Partly	Descriptively (Sec. 4)
Are approaches such as scoring and weighting used?	X	none
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	The obvious benefits are valued where considered necessary
Does the appraisal adjust for subsidies, etc.?	X	none
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	none
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	Y	Yes the distribution impacts of amenity are looked at in a number of zones.(Sec. 5.1.3)
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	The costs and benefits were calculated up to March 2004 (App B)

Questions for Review of Appraisals (B1) Clacton Scheme strategy Plan-August 2004

Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Yes (App B)
Is a 100 year time horizon used?	Y	The costs and benefits are discounted over 100 years (App B)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Yes (App B)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	Not relevant
Are the main risks identified and described?	Partly	Some risks in the assessed benefits have been looked at. Risks have been assessed in detail after a preferred option has been proposed (Sec. 4.5.5, 7.8)
Are any adjustments made for risk?	Partly	Sensitivity of benefit variations have been done on the preferred option. Risk of the preferred option has been estimated with respect to the monetary value, and the optimism bias adjusted accordingly to 30% (Sec. 5.1.3, 8.2)
Is optimism bias included?	Y	Yes initially all options were assessed with an optimism bias of 60%, the preferred option was then reduced to 30% (Sec. 8.2)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Partly	Only sensitivity of benefits for the preferred option has been looked at (Sec. 5.1.3)
Does the sensitivity analysis include calculation of switching values?	X	No
Are different scenarios used to take into account specific uncertainties?	X	No
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	X	No. the original objectives are not revisited
Are the options set out in a way that allows for easy comparison?	Y	Yes they are laid out in stages as the strategy is developed and options ruled out, and developed in more detail
Are costs and benefits assessed over the same period using the same base date?	Y	Yes they are assessed at Mar 2004 (Sec 5.1.2)
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Net Present Value, Benefit-Cost Ratio. Incremental cost benefit is not investigated (Sec 5)
Has the PAG3 decision rule been followed correctly?	Partly	Yes apart from the incremental c/b which was not considered relevant.

Questions for Review of Appraisals (B1) Clacton Scheme strategy Plan-August 2004

Have indicative standards been taken into account?	Y	A standard of defence of 150 years is used
Is there discussion on key constraints?	Y	Yes these are discussed in each of the 11 options (Sec 4.5)
Are the conclusions supported by the results?	Y	Yes
How does residual risk feature in the appraisal?	Y	Residual risk is discussed. It was not considered to be directly relevant to damages from erosion (App B.)
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	Y	It does this well by looking at developing options approaches and methods in a stepwise manner
Has the consultation been undertaken at the decision-making stage?	Y	Consultation, primarily environmental, has been carried out to ensure the proposed options are reasonable (Sec. 10.3)
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Where it is considered applicable, all information is presented, though in a different structure
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	The methods and most assumptions have been clearly outlined, though some are not described and are assumed implicitly as part of the method used
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Yes
Do the results 'feel' right?	Y	Yes
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Un-known	No information available

Review of Cobbins Brook PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Cobbins Brook Flood Alleviation Scheme	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	The problem is clearly defined with number of properties affected set out (S2.2, pg 4)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Flood alleviation schemes objectives are set out (S 2.2.5, pg5) but may not be all easily measurable (include 'reduce', 'ensure')
Are there links to the hierarchy of decision-making?	Partly	There is a mention to other Agency catchment plans, other planning policies and local plans (S 2.4.1, pg 9) but how the PAR fits into this is unclear
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is the baseline option (S 2.3.1; Pg 6; but limited quantitative information in this section)
Is a wide range of options and/or standards considered?	Y	Six options considered (S 2.3, pg 6), including the do nothing and do minimum options.
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	A number of options were rejected for not being viable; but uncertain about exact basis/criteria for this decision (Pg 6)
Does the appraisal include option development through a learning process?	Partly	An EIA is undertaken to assess all options as part of identifying the preferred option; a number of mitigation and compensation measures are defined in response to each of the moderate residual impacts (S 2.4, pg 10)
Are the reasons for screening out acceptable/convincing?	Partly	Option 3 is not included as part of the application of the decision rule but unclear why (S 2.7, pg 16). Additional components for option screening are given in S 2.7 (Pg 18)
Is a do-minimum option included?	Y	Option 2, but this is considered unacceptable as it does not reduce the level of flood risk (S 2.7.1, Pg 17)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	S 2.5 (Pg 12) sets out the PV costs for all options, using Framework Suppliers, but detailed breakdown is only given for the preferred option.
Are the costs broken down into capital,	Partly	Only for the preferred option, Option 4,

Questions for Review of Appraisals (B1)

maintenance, etc.?		in the main body of the text (S 2.5.2, Pg 13)
Are depreciation and capital charges excluded (if relevant)?	N	No details given (inflation is considered though)
Are residual values included (if relevant)?	N	No details given (although previous investment has been taken into account of by including the benefits offered by the previous scheme although the costs are considered 'sunk costs'; S 2.6.2, Pg 15)
Option Benefits		
Are the benefits of each option identified?	Partly	S 2.6.1 (Pg 14) sets out the PV Benefits for each option but there is not a breakdown of benefits apart from some general discussion on the benefits related to the creation of woodlands and wetlands
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	Benefits are not assessed in detail
Which benefits are valued in money terms?	Y	Property damages Recreational assets (1% of total residential damages) Existing flood warning system (in relation to intangibles; 1% of total residential damages) Previous investment benefits (Pg 15)
Have benefits been assessed for both residential and non-residential properties?	Y	Motorway closure related costs , M5 between Junction 25 and 26, included (Pg 3) but other non-residential unclear in the PAR
Have benefits for recreation been taken into account?	Y	Recreational assets are included although uncertain as to what it refers to (water sports, formal/informal, etc)
Is all of the key information used when valuing benefits given?	Y	S 2.6.2 sets out the benefits included (Pg 15) but may benefit from further explanation
Has capping been undertaken?	N?	No suggestion that capping has been undertaken
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Social, recreational, impacts are included
What non-monetised benefits are included?	Y	Intangibles, uncertain about type of benefits from previous investment (Pg 15)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	?	Qualitative description but assumption applied to convert them into monetary values; not clear from main body of the report about reasons for such assumptions and how they are assigned

Questions for Review of Appraisals (B1)

		to options
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Environmental impacts are described qualitatively but not valued. Values for wetland creation are available.
Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Variations of RPI used (S 2.6.1)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5.1 and 2.6.1 set out the PV costs and benefits of options
Is a 100 year time horizon used?	Y	Costs and benefits are calculated over a 100 year time horizon, with Defra's recommended discount rates
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 2.6.1, P 14
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	S 2.7.2 sets out the residual risks for the preferred option
Are any adjustments made for risk?	Y	A risk contingency is included within the cost estimates (S 2.5.2, Pg 12)
Is optimism bias included?	Y	On PV costs, 60% optimism bias (Pg 13)
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	S 2.7.4 describes sensitivity analysis undertaken on the preferred option
Does the sensitivity analysis include calculation of switching values?	Partly	The results show however the same preferred option even for worst case BC ratio
Are different scenarios used to take into account specific uncertainties?	Y	Climate change has been taken into account by looking for additional flood storage
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	S 2.7 explains why the option has been selected but does not include a reference back to the original objectives

Questions for Review of Appraisals (B1)

Are the options set out in a way that allows for easy comparison?	Partly	Summary Tables are included but Tables are not always easy to follow (e.g. Table 2.7.1 does not include a 1:200 standard of service whereas previous Tables did).
Are costs and benefits assessed over the same period using the same base date?	Y	Over a 100 years, base date is 2004.
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Table 2.7.1 sets out NPV, average CB ratio and incremental CB ratio
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.1
Have indicative standards been taken into account?	Y	S 2.7.1
Is there discussion on key constraints?	Y	S 2.7.1 describes some of the main constraints regarding the decision, e.g. excavation costs
Are the conclusions supported by the results?	Y	Although there are some concerns over the approach used to estimate the benefits
How does residual risk feature in the appraisal?	Partly	Only small description in S 2.7.2 (2 bullet points)
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	For the Environmental Impact Assessment (pg 9). Discussions with the Corporation of London, the EFDC Country Care, EA and other stakeholders
Presentation of Results		
Does the appraisal follow the PAR format?	Y	It follows the structure of the PAR
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some key assumptions are given while other key information (e.g. whether the properties are written-off or not) is not
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	It is difficult to tell from the PAR itself, there is the suggestion that a lot of detail and effort has been put in but this is not really supported by the PAR
Do the results 'feel' right?	Partly	The preferred options proves to be fairly robust to sensitivity analysis but may have benefits from further explanation on benefits estimation
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	

Review of Cowbridge and Llanblethian PARs

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Cowbridge and Llanblethian Flood Alleviation Scheme	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. sets out the problem (Pg 5); number of properties affected given (S 1.1; Pg 1)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	There is not a section of objectives; although these are mentioned in different parts of the document, i.e. reduce the risk of flooding, improve the quality of life, etc. (Pg 8).
Are there links to the hierarchy of decision-making?	N	
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is given as the baseline (S 2.3.3; Pg 9) but limited quantitative information
Is a wide range of options and/or standards considered?	Y	13 options considered (Pg 13-14)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	MAT analysis used to assess options on the basis of benefits (water quality, aesthetics, recreation and amenity, conservation, etc) and dis-benefits (lead time for scheme, construction costs, operation costs, maintenance costs, etc.) (pg 10)
Does the appraisal include option development through a learning process?	Y	EIA undertaken and mitigation options proposed accordingly (Pg 2)
Are the reasons for screening out acceptable/convincing?	Y	S 2.7.1, options screened out on the basis of costs, impacts on flooding, environmental impacts, etc.
Is a do-minimum option included?	Y	Option B (S 2.3.4; Pg 9)
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Appendix 4; five options costed in detail (divided into different standards of protection) after first screening
Are the costs broken down into capital, maintenance, etc.?	Y	Appendix 4
Are depreciation and capital charges excluded (if relevant)?	Y	
Are residual values included (if relevant)?	Y	No details given
Option Benefits		

Questions for Review of Appraisals (B1)

Are the benefits of each option identified?	Y	In terms of PV damage avoided for screened option (and their different standards of protection) (Pg 24)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?		
Which benefits are valued in money terms?	Y	PV damage avoided
Have benefits been assessed for both residential and non-residential properties?	Y	Commercial, public properties (town hall and public conveniences) and other major infrastructure included (Pg 5)
Have benefits for recreation been taken into account?	Partly	Initially, for the selection of options for the economic appraisal; but these are not included again in the economic appraisal
Is all of the key information used when valuing benefits given?	N	Not financial assessments have been carried out to assess the environmental benefits. The reason given is that the costs of undertaking this exercise are deemed to outweigh potential returns
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Table 3 (pg 13) presents a good summary of advantages and disadvantages for each option at the feasibility stage but these are not considered again.
What non-monetised benefits are included?	Partly	Amenity, recreation, intangibles, conservation, aesthetics for original screening
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description
Are approaches such as scoring and weighting used?	N	But might have been undertaken earlier in the process
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Recreational and conservation probably; although study explains that these are not warranted by results
Does the appraisal adjust for subsidies, etc.?	Y	Compensation costs included
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2004 base date (Pg 19)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.7.2 (Pg 26-27)
Is a 100 year time horizon used?	Y	S 1.6 (Pg 2) and S 2.6.2 (Pg 22)

Questions for Review of Appraisals (B1)

Does the guidance use a discount rate of 3.5% (reducing)?	Y?	Composite discount rates used – TF: what is composite discount rate?
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	S 2.7.6 (mainly related to property flooding during over-design events)
Are any adjustments made for risk?	Y	Monte Carlo for economic risk and risk register in Appendix 7 (S 2.5.2; Pg 19)
Is optimism bias included?	Y	95%tile
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Partly	On costs (of imported fill and compensation costs) for the preferred option; S 2.7.3 (Pg 27)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Decision based on economic appraisal. Objectives not clearly set out
Are the options set out in a way that allows for easy comparison?	Y	Good appraisal summary tables for different options and standards of protection (Pg 26-27)
Are costs and benefits assessed over the same period using the same base date?	Y	2004 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7.2 (Pg 26-27)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.2 (Pg 25). Option achieving highest benefit costs ratio selected since next highest schemes has an incremental BC ratio of less than 3
Have indicative standards been taken into account?	Y	S 1.1; S 2.2.4 (land use band 'A')
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	As based on the ratios
How does residual risk feature in the appraisal?	Y	S 2.7.6
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation undertaken for EIA
Presentation of Results		

Questions for Review of Appraisals (B1)

Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumptions described in text; but not always alongside calculations. More detailed costs and benefits data given in Appendices
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	
Do the results 'feel' right?	Y	As based on ratios
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Cross Guns Pumping Station Refurbishment

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Cross Guns	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Partly	Section 2 (Problem). Data on number of houses, area of land that could be flooded would have been useful
Is the reason for the level of detail of the costs and benefits given?	X	But the scheme is very small (<£150,000)
Are clear and measurable objectives given?	X	
Are there links to the hierarchy of decision-making?	X	
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	A description is given but no quantitative information (e.g. area of land affected, how many properties would be affected and when)
Is a wide range of options and/or standards considered?	Y	Four options are considered, which covers the range of possible actions
Does the appraisal indicate how the long-list was reduced to a short-list of options?	X	Not relevant
Does the appraisal include option development through a learning process?	X	The options are mutually exclusive
Are the reasons for screening out acceptable/convincing?	X	Not relevant
Is a do-minimum option included?	Y	Includes maintenance and essential repairs only
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Section 4 (costs of alternative schemes)
Are the costs broken down into capital, maintenance, etc.?	Y	Each option is fully costed
Are depreciation and capital charges excluded (if relevant)?	Not known	They are not included in the cost estimates so probably
Are residual values included (if relevant)?	?	Not included in tables of costs but benefits show ongoing reduction in damages to year 49, but costs are only incurred until year 30 – could indicate some residual value of pumps even though the probability of pump failure increases
Option Benefits		
Are the benefits of each option identified?	Y	Printouts of the FCDPAG3 spreadsheets are provided

Questions for Review of Appraisals (B1)

Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	
Which benefits are valued in money terms?		Agricultural benefits in terms of reduce cropping damages, and reduced damages to properties. Value of environmental gain has also been estimated
Have benefits been assessed for both residential and non-residential properties?	Not known	PAR refers to 'properties' only (although does say houses in Section 1)
Have benefits for recreation been taken into account?	X	Not included – possibly no benefits as the catchment area is mainly arable
Is all of the key information used when valuing benefits given?	Y	Full details of all the calculations is provided in Appendices
Has capping been undertaken?	X	Not clear if this is because damages were not significant enough to require capping or whether it has been omitted
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	X	Section 6 notes that there are not significant areas of conservation importance and that the preferred option (refurbishment) will cause the least disturbance to the environment
What non-monetised benefits are included?	X	None
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	X	
Are approaches such as scoring and weighting used?	X	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	Y	The approach to estimating agricultural damages follows the method set out in FCDPAG3 and adjusts for subsidies
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	The base date is given in the printouts of the FCDPAG spreadsheets as July 2005
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	FCDPAG spreadsheets have been used and calculate all costs and benefits on PV terms
Is a 100 year time horizon used?	X	FCDPAG3 spreadsheets used over a 50 year (year 49) time horizon for do-something options, but costs only calculated up to year 30

Questions for Review of Appraisals (B1)

Does the guidance use a discount rate of 3.5% (reducing)?	Y	Given in FCDPAG3 spreadsheets
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	
Are the main risks identified and described?	Y	Risks associated with pump failure is the focus of the appraisal
Are any adjustments made for risk?	Y	The appraisal is focused around the probability than 0, 1, 2, 3, 4, 5, or 6 pumps could fail
Is optimism bias included?	X	10% contingencies are included, but no mention of optimism bias. The Regional Engineers report adds 30% to reflect optimism bias
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	X	
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	X	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Costs and benefits are compared in FCDPAG3 summary table. Selection of preferred option is based on benefit-cost ratio although the discussion also notes that this options would ensure reliability in excess of 25 years
Are the options set out in a way that allows for easy comparison?	Y	PAR is very short and very easy to follow
Are costs and benefits assessed over the same period using the same base date?	X	Appears that costs are assessed over 30 years and benefits over 50 years (for so-something options) but may reflect residual value of pumps beyond when any costed work is undertaken?
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	FCDPAG Summary table presented in Appendix D
Has the PAG3 decision rule been followed correctly?	Y	Based on option with highest benefit-cost ratio (no incremental options as such)
Have indicative standards been taken into account?	Partly	Land is identified as being in Land Use Band B, but this does not really affect the decision (standard provided by having pumping station is not discussed)
Is there discussion on key constraints?	X	
Are the conclusions supported by the results?	Y	

Questions for Review of Appraisals (B1)

How does residual risk feature in the appraisal?	?	Residual risks are calculated using FCDOAG3 spreadsheets but not reported
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	X	
Has the consultation been undertaken at the decision-making stage?	Y	Consultation with statutory consultees has been carried out and is included in the PAR
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Uses similar headings and structure
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	All calculations are given, but a knowledge of the FCDPAG3 spreadsheets for drainage schemes is needed to understand workings
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Very small project (<£150,000) provides detail needed to see that decision is appropriate
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Not known	

Review of Cuckmere Haven to Redoubt

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Cuckmere Haven to Redoubt (2003)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	N	There is a general description of the area with an indication of the assets at risk, but Section 2.2 does not give a good 'feel' for what the problem is
Is the reason for the level of detail of the costs and benefits given?	Partly	A higher standard than 1 in 200 is not considered due to the low level of residual damages at 1 in 200
Are clear and measurable objectives given?	N	
Are there links to the hierarchy of decision-making?	Y	Links are given to the SMP, work undertaken at Eastbourne and Local Plans in Section 2.1.2. A preface (written by the Environment Agency's PM sets out linkages to adjacent strategies)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	The do-nothing scenario is described, but quantitative information is only given occasionally. Much more detail is given in the Economic Appraisal (App D, Section 3)
Is a wide range of options and/or standards considered?	Partly	A good range of strategic options is proposed, but is somewhat limited by the policy options. It may have been possible to look at a higher standard (than 1 in 200) but this is shown to be not feasible due to low level of residual damages
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Many of the options would provide the same standard of defence, so not all are considered further
Does the appraisal include option development through a learning process?	N	But this is partly driven by the recent completion of works at Eastbourne
Are the reasons for screening out acceptable/convincing?	Y	The high current standard and recent defences at Eastbourne mean many of the options would provide the same standard, therefore, they are not all considered further
Is a do-minimum option included?	Y	It includes groyne maintenance and monitoring costs, including allowance for an annual bathymetry survey
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Unit rates are given as are the PV costs for the do-minimum and sustain options. A table setting out the cost profile is given (Table 3.1, pg 27). The Economic

Questions for Review of Appraisals (B1)

		Appraisal (App D) describes the option costs in more detail
Are the costs broken down into capital, maintenance, etc.?	Y	Unit costs are given for both capital and maintenance works
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	Groynes are replaced in year 30 and may have some residual life (but probably not significant?)
Option Benefits		
Are the benefits of each option identified?	Y	But only in terms of total benefits, no indication of what benefits are included/have been monetised, etc. is given in the PAR. The Economic Appraisal (App D) does not give much detail on how the benefits have been estimated, although copies of the spreadsheets are included
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Property damages. Recreation damages are mentioned in the Economic Appraisal, but it is not clear from the spreadsheets how they have been included. It is also not clear if emergency services costs have been included
Have benefits been assessed for both residential and non-residential properties?	Y	Residential and commercial property damages are included (see Annex A to Economic Appraisal, App D)
Have benefits for recreation been taken into account?	Y	Economic Appraisal (App D), Section 2.3 discusses recreation values – most are assumed to go to alternative sites, therefore, no national loss. Only 'day' visitors
Is all of the key information used when valuing benefits given?	N	Number of properties at risk from flooding and erosion needs to be taken from copies of the spreadsheets
Has capping been undertaken?	Not sure	The PAR says that 'no area of the frontage is at significant risk of flooding', however, most of the spreadsheets included in Annex A to Appendix D (Economic Appraisal) relate to flooding
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	They are not described or quantified
What non-monetised benefits are included?	N	None
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting	N	

Questions for Review of Appraisals (B1)

used?		
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	The appraisal includes only those impacts that can be easily monetised
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Not given in the PAR, but the Economic Appraisal (App D) notes that all costs and benefits have been updated to a base date of Q2, 2003
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	The summary tables include only PV values
Is a 100 year time horizon used?	N	The Strategy provides a plan to year 2054
Does the guidance use a discount rate of 3.5% (reducing)?	N?	The Economic Appraisal (App D) states that 'a discount rate of 3.5% has been used throughout the 50-year appraisal period'
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Potential conflicts are described in Section 2.4.2
Are any adjustments made for risk?	N	
Is optimism bias included?	Y	Optimism bias of 35% has been included (to be consistent with adjacent strategies)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	A 100 year time horizon and optimism bias of 60% have been included in the sensitivity tests. The Economic Appraisal (App D) also includes changes to the erosion rate and timing of defence failure in the sensitivity tests
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to	Partly	No objectives were set out. However, the selection is based on the costs and benefits

Questions for Review of Appraisals (B1)

select the best option?		
Are the options set out in a way that allows for easy comparison?	Y	Summary tables are provided
Are costs and benefits assessed over the same period using the same base date?	Y	Q2, 2003 is the base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Table 2.6, pg 20
Has the PAG3 decision rule been followed correctly?	Partly	The incremental benefit-cost ratio of sustain over do-minimum is 1.89. It is not clear what standard of protection would be provided by the do-minimum option
Have indicative standards been taken into account?	Partly	The indicative standard for the unit is mentioned (Land Use Band A)
Is there discussion on key constraints?	Partly	Potential conflicts are discussed in Section 2.4.2
Are the conclusions supported by the results?	Partly	Without more information on the standard provided by the do-nothing option, it is difficult to determine if sustain is robustly preferred over it
How does residual risk feature in the appraisal?	Y	The Economic Appraisal (App D) includes a section on residual damages (Section 5)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	But there are only two do-something options (do-minimum and sustain)
Has the consultation been undertaken at the decision-making stage?	Not sure	The PAR mentions that further discussions be carried out (but does not mention any discussions that have been carried out)
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Some sections (e.g. objectives) appear to be missing
Does the appraisal include all assumptions alongside the calculations, etc.?	N	The PAR is very brief, with no calculations included although some assumptions are given. More detail is given in the Economic Appraisal, but again there is very little information on how the benefits have been estimated
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	More description on the benefits would have been useful as it is not clear what benefits have been included and how
Do the results 'feel' right?	Partly	It is unclear what standard is currently being provided under do-minimum and, therefore, whether there is an economic case for moving to sustain. This needs to be explained further. It is interesting to note that assets at Birling Gap could not be protected by a rock revetment due to environmental

Questions for Review of Appraisals (B1)

		constraints, but that South East Water was allowed to install a rock revetment to protect a perched aquifer at Holywell
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of East Lane, Bawdsey PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: East Lane, Bawdsey	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. (Pg 12) sets out the problem
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives are clearly set out (S 2.2.3) but not all of them may be easily measurable (e.g. 'acceptable' visual impact; 'no adverse impact' on the surrounding environment)
Are there links to the hierarchy of decision-making?	Y	One of the objectives relate to higher level plans and strategies for management of the shoreline and adjacent estuaries (S 2.2.3; Pg 14)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	Do nothing is the baseline but description only gives value of damages without breakdown of properties or assets affected
Is a wide range of options and/or standards considered?	Y	S 2.3 (Pg 15-24) 10 options considered, including do nothing and do minimum
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3. describes each option in detail including reasons why they have been excluded
Does the appraisal include option development through a learning process?	Y	Mitigation is included
Are the reasons for screening out acceptable/convincing?	Y	Based on costs, environmental impacts and other objectives
Is a do-minimum option included?	Y	S 2.3.2 gives reasons why this has been rejected (high residual risk)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Some assumptions given in text when describing the options (S 2.3; Pg 15-24); but not by option. More details in Appendix E
Are the costs broken down into capital, maintenance, etc.?	Partly	Some breakdown given in main text (S 2.5); full breakdown of whole life costs given in Appendix E
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	Y	A nominal "Raw Rock Costs" has been discounted at the end of the scheme (Appendix E)
Option Benefits		

Questions for Review of Appraisals (B1)

Are the benefits of each option identified?	Y	S 2.6 (Pg 29)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	There is significant discussion on the benefits from each option before assessing them in detail; although economic valuation does not include recreation, amenity and other environmental values
Which benefits are valued in money terms?		Damage avoided to properties including access to properties; damages to agricultural land as write-off values (to a level of 4m being written off) ; and heritage values
Have benefits been assessed for both residential and non-residential properties?	Y	Heritage sites and sewage treatment costs for instance included
Have benefits for recreation been taken into account?	Partly	They have not been monetised but are included and considered to add weight to the justification of holding the existing defence line (Pg 29)
Is all of the key information used when valuing benefits given?	Partly	As recreation and other environmental impacts are not valued; however, heritage value has been included
Has capping been undertaken?	Y?	Land lost from agricultural production and loss of agricultural grade. 4 properties assumed to be lost at breach of the defences (evaluation based on market value of similar properties in the area); and properties lost due to coastal erosion.
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Recreation, amenity and environmental considerations are included in the appraisal of options but they are not monetised
What non-monetised benefits are included?	Y	Recreational, environmental and amenity benefits have not been quantified but included in the general consideration for choice of option (Pg 29)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description (S 2.7)
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Probably recreation and environment
Does the appraisal adjust for subsidies, etc.?	Y	A factor of 0.45 is applied to land values to reflect the effect of agricultural support and subsidy in the UK (S 2.6; Pg 28)
Does the appraisal include valuation of legally protected elements at risk (if any)?	Y	The Martello Towers are included in the economic assessment, their intrinsic heritage value considered alongside their monetary value (taken as the costs

Questions for Review of Appraisals (B1)

		of rebuilding them) (S 2.6; Pg 29)
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5; S 2.6 and 2.7
Is a 100 year time horizon used?	N	50 years used
Does the guidance use a discount rate of 3.5% (reducing)?	Y	3.5% yr 0-30, 3% yr 31 to 49
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Some described in text; risk assessment included in Appendix G
Are any adjustments made for risk?	Y	The overall contingency, applied to construction and design costs has been set at 23.7%, comprising 18% residual risks and 5.7% optimism bias
Is optimism bias included?	Y	5.7% applied to the overall costs of all options (S 2.5.3; Pg 27)
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	On costs for all options (S 2.7.4; Pg 32)
Does the sensitivity analysis include calculation of switching values?	Y	S 2.7.4 notes than costs would have to more than double below a lower standard of defence is preferred
Are different scenarios used to take into account specific uncertainties?	Partl N	
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	There is some discussion on the choice of the preferred option and meeting the objectives but not in great detail (S 2.7; Pg 29)
Are the options set out in a way that allows for easy comparison?	Y	Table 2.7.a (Pg 31) summarises costs (capital and PV costs) and benefits from flood defence and coastal protection for the different options
Are costs and benefits assessed over the same period using the same base date?	Y?	Not spelled out but assumed to be 50 years with 2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	S 2.7.1 gives NPV and BC ratios but not incremental CB ratios
Has the PAG3 decision rule been followed correctly?	Partly	Based on higher BC ratio but no incremental ratios considered

Questions for Review of Appraisals (B1)

Have indicative standards been taken into account?	N	
Is there discussion on key constraints?	Y	S 2.2.4 (Pg 14) discusses the main constraints on the development of options
Are the conclusions supported by the results?	Partly	Discussion reads well; as choice of option is supported by environmental objectives; but may benefit from considering incremental CB ratios and indicating indicative standards of defence
How does residual risk feature in the appraisal?	Y	18% of project construction costs for the preferred option (S 2.7.5 shows probabilistic analysis; Pg 33)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation undertaken (S 2.4.2; Pg 25) for EIA; but uncertain about consultation at the decision making stage
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumptions in main text (e.g. Pg 2 Table includes assumptions about design and supervision costs, contingency and optimism bias; more details given in Appendices
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y?	Analysis seems quite thorough but some important elements seem to be missing : incremental CB ratios and indicative standards of protection
Do the results 'feel' right?	Partly	Discussion on indicative standards and incremental BC ratio is recommended and currently omitted
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Landslip at RockMead Road, Fairlight Cove PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Landslip at RockMead Road, Fairlight Cove ¹	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2 (Pg 2) sets out the problem, including description of recession in the short, medium and long terms.
Is the reason for the level of detail of the costs and benefits given?	Y	S22.1 gives reasons for details of costings (pg 69 of TOAL)
Are clear and measurable objectives given?	Y	Objectives are clearly set out (S 5.1; Pg 26; TOAL)
Are there links to the hierarchy of decision-making?	Y	(S 2.3; pg 3 of TOAL) Links to Shoreline Management Plans
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	The “No active intervention” scenario is presented as a baseline for comparison with other “Do something” options (S 6.2; Pg 28 of TOAL), includes description of properties at risk
Is a wide range of options and/or standards considered?	Y	14 options considered
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Each option is discussed with regard to physical impacts, technical feasibility; environmental impacts; costs and benefits; compliance with projects aims and objectives; 4 option short-listed
Does the appraisal include option development through a learning process?	Y	Includes combination of options
Are the reasons for screening out acceptable/convincing?	Y	physical impacts, technical feasibility; environmental impacts; compliance with projects aims and objectives
Is a do-minimum option included?	N	
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Estimates for capital costs and maintenance costs given but not how each option has been costed
Are the costs broken down into capital, maintenance, etc.?	Y	S 2.5 (Pg 14)
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given

¹ This PAR follows on from a Scoping Study¹ undertaken by Terry Oakes Associates Ltd (TOAL);, also made available to the consultants; both documents have been reviewed and references to the latter are also given.

Questions for Review of Appraisals (B1)

Option Benefits		
Are the benefits of each option identified?	Partly	Some discussion of benefits when discussing the options, e.g. environmental, but no details when valuing the benefits
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	Some discussion of benefits when discussing the options but these are not investigated in much greater detail later in the report
Which benefits are valued in money terms?	Y	Damage avoided (4 different scenarios for the 'do nothing' option), and intangibles (stress and health)
Have benefits been assessed for both residential and non-residential properties?	Y	Commercial properties considered but as the only one was a shop this was given the value of a residential property (Pg 75)
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Partly	Environmental impacts are discussed but these are not valued
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Each option is discussed in terms on physical and environmental impacts; not so much social impacts, hardly assessed
What non-monetised benefits are included?	Y	Environmental, e.g. conservation, vegetation creation, etc.
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Maybe environmental impacts could have been valued
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y?	Likely as budget estimates were generated from appropriate contractors for the project, but this is not spelled out
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Pg 1 of PAR S 24.3 (Pg 79 of TOAL)
Is a 100 year time horizon used?	Y	Pg 1 of PAR

Questions for Review of Appraisals (B1)

		S 23.7 (Pg 76 of TOAL)
Does the guidance use a discount rate of 3.5% (reducing)?	Y?	Likely, as in agreement with PAG Guidance, but this is not spelled out
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	There is some discussion in TOAL on risk under the description of each option, and different risk components (e.g. design complexity; degree of innovation; environmental impact, etc) are considered for reducing the optimism bias; but there is no a section on risk; nor in the PAR
Are any adjustments made for risk?	Y	Included under optimism bias
Is optimism bias included?	Y	Different OBs factors applied, also for scenario testing (S 22.2; Pg 69-71 of TOAL; Pg 15 of PAR)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Sensitivity of the preferred option by assessing the costs and benefits under a range of erosion rates and optimism bias scenarios (Pg 2 of PAR; S 25.3; Pg 82 of TOAL)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Prediction of future cliff recession for benefits assessment
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Options are screened out on the basis of compliance with aims and objectives and only four are brought forward; but the selection process among these four is not very detailed (S 24.1; Pg 77 of TOAL)
Are the options set out in a way that allows for easy comparison?	Y	Table 5 (Pg 79 of TOAL) presents a summary of costs and benefits for the viable Option under the four erosion scenarios
Are costs and benefits assessed over the same period using the same base date?	Y	2005 base date over 100 yrs
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	No incremental ratios given
Has the PAG3 decision rule been followed correctly?	Partly	Unsure, highest BC ratio option selected but not incremental ratios are given although text notes that the preferred option's ratios are robust in economic terms.
Have indicative standards been taken into	N	Cliff erosion and shoreline retreat

Questions for Review of Appraisals (B1)

account?		problem
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y?	The TOAL provides a thorough discussion on option; and ratios seem to support the choice of option; but might have benefited from including incremental BC ratios
How does residual risk feature in the appraisal?	Partly	Included under project Plan, residual risk after mitigation is considered 'low' for all hazards identified (Pg 29 PAR; no in TOAL)
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	Partly ?	Although the appraisal does not identify the best from each option, TOAL argues that to meet the project aim, a comprehensive scheme of works is needed which will imply combination of options (Pg 65)
Has the consultation been undertaken at the decision-making stage?	Partly ?	EN has been actively involved in the development of options, but uncertain about consultation at the decision-making stage
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Some sections are included, e.g. costs, benefits; but other are omitted, e.g. sensitivity analysis (TOAL does included a section on sensitivity)
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Assumptions on costings given (S 22.3 Pg 72)
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	PAR is very brief; TOAL is quite thorough although it may had benefited from, e.g., including incremental CB ratios, and, perhaps, more valuation
Do the results 'feel' right?	Partly	TOAL is quite thorough, and environmental and other impacts are considered in detail, although the are not valued; PAR is quite brief in comparison
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Felixstowe Ferry

Questions for Review of Appraisals (B1)

Felixstowe Ferry 2000

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Short term measures have failed. They were put in place to enable an estuarine strategy and SMP to be progressed. About 50 properties at risk from flooding and erosion (Sec. 1)
Is the reason for the level of detail of the costs and benefits given?	X	None given
Are clear and measurable objectives given?	Y	Yes, to find the most economic solution satisfying the other social environmental criteria (Sec. 2.1)
Are there links to the hierarchy of decision-making?	Y	There are references to the SMP and Suffolk Estuaries Strategy (Sec. 5)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Yes this is laid out in the Do Nothing case (Sec. 4.3)
Is a wide range of options and/or standards considered?	Y	A wide range of protection methods are investigated, there are two flood compartments which are considered alone and in combination, though their standards of protection are not clear (Sec. 4.3)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	X	A longer list is not used
Does the appraisal include option development through a learning process?	Y	This is demonstrated in the examination of options in the appendix (App. D)
Are the reasons for screening out acceptable/convincing?	Y	Yes an acceptability matrix and economic assessment was used for screening options (Sec. 4.5)
Is a do-minimum option included?	Y	Yes several variations on this are included as well as delayed works (Sec. 4.5)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	The option is broadly broken down into components and rates though it does not state where these have come from (App E)
Are the costs broken down into capital, maintenance, etc.?	Y	Yes the costs are broken down into capital general and preliminary works, contingency, design management and future works (App E)
Are depreciation and capital charges excluded (if relevant)?	X	
Is a common time horizon used?	Y	Yes they are calculated for 50 years (App D)
Are residual values included (if relevant)?	X	No
Option Benefits		
Are the benefits of each option identified?	Y	Yes these are identified quantitatively in terms of property/land damages and qualitatively in terms of intangible benefits (App D)

Questions for Review of Appraisals (B1) Felixstowe Ferry 2000

Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	No they are calculated for all options (Sec 4)
Which benefits are valued in money terms?	Y	Property and land, damages and losses (App D)
Have benefits been assessed for both residential and non-residential properties?	Y	Yes
Have benefits for recreation been taken into account?	Partly	They have in terms of recreation property/ land, for the golf course and sailing club (App D)
Is all of the key information used when valuing benefits given?	Y	Yes (App D)
Has capping been undertaken?	X	No. though it was produced in 2000
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Yes they are discussed qualitatively (Sec 4)
What non-monetised benefits are included?	Y	Amenity, environment, strategic geomorphology and safety (Sec 4)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	As a matrix of acceptable and unacceptable options according to the criteria (Sec 4)
Are approaches such as scoring and weighting used?	Partly	Basic scoring of acceptable neutral and unacceptable are used, no weighting is used (Sec 4)
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	No.
Does the appraisal adjust for subsidies, etc.?	X	Not applicable
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	This appears to be so but is not stated explicitly (App D/E)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Yes
Is a 100 year time horizon used?	X	50 years is used as recommended in guidance at the time (App D/E)
Does the guidance use a discount rate of 3.5% (reducing)?	X	6% is used as recommended in guidance at the time (App D/E)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	x	
Are the main risks identified and described?	Y	Yes a risk assessment has been carried out and a risk register appended and key risks are quantified and value estimated (App G)
Are any adjustments made for risk?	Y	Yes a contingency of 20% is calculated and added to the costs (App G)
Is optimism bias included?	X	(Pre-guidance)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	A sensitivity assessment has been carried out for the preferred option (App G)

Questions for Review of Appraisals (B1) Felixstowe Ferry 2000

Does the sensitivity analysis include calculation of switching values?	X	No. This is not particularly relevant to this scheme
Are different scenarios used to take into account specific uncertainties?	X	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	Yes this is done in a multi-criteria assessment against the original objectives (Sec 4)
Are the options set out in a way that allows for easy comparison?	Y	Yes these are well laid out and discussed each in turn and then summarised in the multi-criteria assessment (Sec 4)
Are costs and benefits assessed over the same period using the same base date?	Partly	They appear to be, though it is not stated explicitly (App D/E)
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Yes
Has the PAG3 decision rule been followed correctly?	Y	Yes up to the incremental c/b which is used to differentiate different scheme approaches though they are not related to either standard of protection or design life. (Sec 4)
Have indicative standards been taken into account?	X	Not applicable
Is there discussion on key constraints?	Y	Yes these are discussed qualitatively in the options discussions (Sec 4)
Are the conclusions supported by the results?	Y	Yes the scheme
How does residual risk feature in the appraisal?	Y	It features in the assessment of benefits and the residual risk of flooding. It is also covered in the risk assessment (Sec 4)
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	Y	Yes this is done by looking at the two flood compartments separately and then in combination (Sec 3)
Has the consultation been undertaken at the decision-making stage?	Y	There is a lot of consultation with stakeholders and the local community (App A)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	Where considered appropriate
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Less common assumptions are stated, though assumptions assumed to be standard are not written explicitly
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Yes.
Do the results 'feel' right?	Y	Yes the solution seems to be the most appropriate; providing an adaptable solution in a highly variable estuary mouth
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Unknown	No record.

Review of Flexbury

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Flexbury (2005)	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	Includes details on historic flooding, causes of flooding and number/type of properties affected
Is the reason for the level of detail of the costs and benefits given?	Partly	The PAR makes numerous links to the preliminary analysis
Are clear and measurable objectives given?	Partly	Objectives are given in 2.2.7 including 'to provide the optimum economic level of flood defence'
Are there links to the hierarchy of decision-making?	Y	Section 2.2.5 states that 'Flexbury is a standalone scheme that does not affect any other scheme. A strategy is therefore not required'
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	The description of the do-nothing option is very clear and gives a lot of quantitative information. It also seems realistic
Is a wide range of options and/or standards considered?	Y	Section 2.3.1 notes that a preliminary stage was undertaken to identify potentially viable options. Only options identified as viable were taken forward to full project appraisal. Eight options were considered at the preliminary stage (Section 2.3.2). It would have been useful to consider an intermediary standard between 1 in 5-1 in 10 (do-minimum) and 1 in 50
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Section 2.3.2 explains why four of the options have been screened out
Does the appraisal include option development through a learning process?	Y	Section 2.3.3 notes that 'it became clear during the preliminary appraisal stage that a technically feasible and sustainable option ... would require a combination of the options'
Are the reasons for screening out acceptable/convincing?	Y	Reference is made to technical viability, sustainability, and environmental and economic grounds
Is a do-minimum option included?	Y	Section 2.3.2 describes the options taken forward
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	Y	Section 2.4.2 describes how the costs have been assessed and checked
Are the costs broken down into capital, maintenance, etc.?	Y	Table 1 breaks costs down into a number of component parts

Questions for Review of Appraisals (B1)

Are depreciation and capital charges excluded (if relevant)?	Not known	No details given
Are residual values included (if relevant)?	Not known	No details given
Option Benefits		
Are the benefits of each option identified?	Y	The description of the approach to estimating damages under do-nothing is very clear. A summary table is given showing the benefits of the do-something options, but no discussion
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	No details given
Which benefits are valued in money terms?	Y	Property damages Traffic disruption (assumed to be 10% of property damage) Emergency services costs Temporary accommodation and extra heating The benefits of environmental enhancements have not been monetised, nor have avoiding the health impacts of flooding
Have benefits been assessed for both residential and non-residential properties?	Y	The approach is based on the area that is likely to be affected by blight due to permanent flooding in many roads and access difficulties for others
Have benefits for recreation been taken into account?	N	Tourism and recreation benefits are not included
Is all of the key information used when valuing benefits given?	Partly	Some discussion on benefits under the do-something options would have been useful (only the change in flood frequency is mentioned)
Has capping been undertaken?	Y	S2.5.2 confirms that the present value of flood damages has been capped at property market value
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	The potential for environmental enhancements is mentioned in the PAR and is taken into account when selecting the preferred option
What non-monetised benefits are included?	?	Environmental enhancements are mentioned but not monetised
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N/a	
Are approaches such as scoring and weighting used?	N/a	
Does the appraisal avoid valuation of what is	Partly	Although the area is important for

Questions for Review of Appraisals (B1)

easily valuable to the detriment of other issues?		tourism, on tourists are not assessed (or described) in any detail
Does the appraisal adjust for subsidies, etc.?	N	None needed?
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	None mentioned
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	All benefits have been updated to December 2004 prices
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	All costs and benefits are to December 2004 prices (S2.4.2 and S2.5.1)
Is a 100 year time horizon used?	Y	S2.5.1
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S2.5.1
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	Environmental risks are discussed in Section 2.6.3. Methods for mitigating these risks, with key positive impacts are given in Table 4
Are any adjustments made for risk?	Y	The impact of climate change on flows and, hence, standard of protection provided is discussed briefly in Section 2.2.6
Is optimism bias included?	N	Optimism bias is not mentioned, but 95% contingency has been taken into account from Monte Carlo analysis
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	The results of sensitivity to certain assumptions are discussed in the main sections, rather than being left until the end
Does the sensitivity analysis include calculation of switching values?	Partly	The extent to which the costs would have to change by to reduce the benefit-cost ratio to less than 5 is given
Are different scenarios used to take into account specific uncertainties?	N	
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The preferred option is selected mainly on the decision rule, although consideration is given as to whether it would be appropriate to move to the next option. The preferred option also includes environmental enhancements

Questions for Review of Appraisals (B1)

		and the environmental assessment is considered when determining which is the preferred option
Are the options set out in a way that allows for easy comparison?	Y	A summary table is provided and the discussion on the selection of the preferred option is clear
Are costs and benefits assessed over the same period using the same base date?	Y	100 year time horizon, December 2004 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Table 5
Has the PAG3 decision rule been followed correctly?	Y	Section 2.7.2 describes the steps taken and how the decision rule has been applied
Have indicative standards been taken into account?	Y	The indicative standards are discussed in the description of how the PAG3 decision rule has been applied
Is there discussion on key constraints?	Partly	Environmental constraints are discussed in Section 2.6.2
Are the conclusions supported by the results?	Y	The conclusions are supported by the economics and the environmental assessment, with mitigation measures also proposed
How does residual risk feature in the appraisal?	Y	Section 2.7.7 discusses residual risk, mainly in terms of affecting the costs of the preferred option but also in terms of residual flooding risk, with the importance of maintenance highlighted
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Partly	This was partly undertaken in the preliminary analysis, when combinations of options were developed. No further discussion is given in the PAR
Has the consultation been undertaken at the decision-making stage?	Y	Section 2.6.3 sets out the approach to consultation on the environmental assessment
Presentation of Results		
Does the appraisal follow the PAR format?	Y	The PAR is very well written, includes quantitative information and is easy to follow
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Most key assumptions are included, although some extra detail on the benefits of each do-something option would have been useful
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Simplifications have been made where this seems sensible (e.g. traffic disruption)
Do the results 'feel' right?	Y	The preferred option is supported by the economics and other discussions in the PAR (e.g. environmental)
Other Reviews of the Guidance		

Questions for Review of Appraisals (B1)

Has a post project appraisal been undertaken been? If so, what were the findings?	Not known	
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Review of Flood Warning Investment Strategy Appraisal Report 2003/04 to 2012/13 PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
Flood Warning Investment Strategy Appraisal Report 2003/04 to 2012/13		
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Partly	Not a section specifically; but background to and reasons for the strategy are given (Pg 10, 17)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives given but not easily measurable (Pg 10-11)
Are there links to the hierarchy of decision-making?	Y	Agency's plans and policies (Pg 10)
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	Baseline set out and costs given, including reasons why it is not acceptable
Is a wide range of options and/or standards considered?	Partly	4 options considered (Pg 11); these are quite generic options (e.g. 'current targets', 'public expectation') and no specific measures or standards of defence are given
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 3 (Pg 29-31)
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Y	Screened out in terms of Government's requirements, benefits targets and ability and effectiveness of the public to respond to flood events (Pg 29-31)
Is a do-minimum option included?	Y?	Option 2, the intermediate service, implies minimal levels of improvements (S 3.2.2; Pg 30)
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	N	
Are the costs broken down into capital, maintenance, etc.?	N	
Are depreciation and capital charges excluded (if relevant)?	Y	
Are residual values included (if relevant)?	N	No details given
<i>Option Benefits</i>		
Are the benefits of each option identified?	Y	S 4.2.2 (Pg 40)

Questions for Review of Appraisals (B1)

Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Damage avoided and Intangibles
Have benefits been assessed for both residential and non-residential properties?	Y?	Commercial properties included
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	N?	Unclear about process for benefit estimation,; e.g. environmental impact not included but intangible seem to
Has capping been undertaken?	N	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	A factor of 50% for intangible benefits has been added to the values (S 4.1; Pg 35)
What non-monetised benefits are included?	N	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	Limited discussion on non-monetised benefits
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N?	
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	Investment costs based on 2002 data; annual average damage benefits based on July 2001 data
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 4 (Pg 35-43)
Is a 100 year time horizon used?	N	10 years used (Pg 39)
Does the guidance use a discount rate of 3.5% (reducing)?	Partly	3.5% but not reducing
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	S 5.5 (Pg 53): Risk register in Appendix XI
Are any adjustments made for risk?	N?	S 5.5 (Pg 53) notes that it is not planned to identify cost contingency

Questions for Review of Appraisals (B1)

Is optimism bias included?	N	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	S 5.6 (Pg 54). Sensitivity on costs for all options (60% increase) and on the recommended option on timing for delivery of objectives (delay)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	S 5 provides some discussion on option selection against objectives based on level of service, expectation, Agency's targets but arguments are not always clear
Are the options set out in a way that allows for easy comparison?	N	Text and Table differ in argument, e.g. Pg 47 says that comparison is against Option 2, but Table says Option 1
Are costs and benefits assessed over the same period using the same base date?	N	Benefits based on 2001 data; costs on 2002 data
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	NPV and CB ratios given, but not incremental CB ratios
Has the PAG3 decision rule been followed correctly?	N	No incremental BC ratio
Have indicative standards been taken into account?	N	
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	N?	Arguments do not follow through very well and economic analysis not clear
How does residual risk feature in the appraisal?	N	
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N	No information on consultation process
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Some elements included, e.g. options, costs and benefits, but other missing, e.g. problem, residual risks, etc.
Does the appraisal include all assumptions alongside the calculations, etc.?	N	Not in the main text; uncertain whether assumptions included in Annexes (not available)
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	Arguments difficult to follow through and decision process unclear
Do the results 'feel' right?	Partly	Decision process unclear

Questions for Review of Appraisals (B1)

<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Gainsborough Review of PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	History of flooding, asset condition survey results and details of affected properties provided p.7-9
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives given in Section 2.2.7 on p.10 but without indicators
Are there links to the hierarchy of decision-making?	Partly	Identifies requirements for Agency and local planning approvals p.7
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	No. and types of properties affected identified p.9, history of flooding, asset condition, flood defence and warning system all described p.7-9. Appendices provide details. An assessment of the baseline environment was carried out during the preparation of the scoping and the draft environmental report. p.17
Is a wide range of options and/or standards considered?	Y	16 alternatives identified p.10-11. Section 2.2.4 states "Indicative standard of protection on a tidal river is in the range 1 in 100 to 1 in 300 annual chance events".
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	16 possibilities identified in a long list but no clear explanation as to why the 4 options selected for further appraisal were chosen p.10-11
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	N	Not provided. Options selected for appraisal listed under title "Technically Feasible Options" but no explanation as to why others are not technically feasible.
Is a do-minimum option included?	Y	Do-minimum option "remedial works" identified in Section 2.3.4 on p.11
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Contractor from the NCF estimated construction costs. Entire project team involved. Based on unit rates and experience of similar projects. Operating and maintenance costs for each option are derived from information on the current maintenance budget (p.14)

Questions for Review of Appraisals (B1)

Are the costs broken down into capital, maintenance, etc.?	Y	2.4.1 Cost estimates of options on p.14 and Appendix E breaks down into construction, maintenance etc.
Are depreciation and capital charges excluded (if relevant)?	N	Not mentioned
Are residual values included (if relevant)?	N	Not mentioned
Option Benefits		
Are the benefits of each option identified?	Y	Based on: Direct damage to residential properties; Direct damage to industrial, commercial and business activities; Indirect damages (such as costs of temporary accommodation and emergency services). Total damages generated using the micro-ESTDAM version 2.0 software. p.14-15. For the calculations it has been assumed that the flooding duration is greater than 12 hours. PV benefits of each option presented in Table 4 p. 17
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Direct damage to residential properties; Direct damage to industrial, commercial and business activities; Indirect damages (such as costs of temporary accommodation and emergency services). P. 14-15, and Appendix G
Have benefits been assessed for both residential and non-residential properties?	Y	Covered in p.14-15 and Annex G
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Y	But only monetised benefits are valued.
Has capping been undertaken?	Y	p.16 reference is made to "Where appropriate, (PV damages) have been capped at the market value of the property". Capping treated as "write off" in Appendix G Economic Appraisal in Damage Cost Calculation Sheets
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Positive impacts of options identified in Table 5 p.18 for environmental impacts but some of these e.g. 2389 properties would be protected during a 1 in 100 annual chance flood event are then monetised in main economic analysis
What non-monetised benefits are included?	Y	Improve the standard of protection at three locations where there are low spots in the existing defences; Increased protection for listed buildings; Opportunities for enhancing the riverside footpath, walkway and public access to

Questions for Review of Appraisals (B1)

		the riverside; Opportunity for habitat enhancement and some small scale habitat creation. Table 5 p.18. Also lists a range of environmental enhancements that preferred option will deliver, but doesn't do the same for other options (if there are any) p. 20 e.g. improved access to footpaths, improved habitats, extending riverside walkway etc.
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Only via description in table 5 p.18. Referred to in final decision making p.22.
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Environmental enhancements and positive impacts are not valued, in monetary or other terms
Does the appraisal adjust for subsidies, etc.?	N	Not mentioned
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	Not mentioned
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Q2 2005/6 used as base for costs and benefits p.15
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Costs presented in PV p.14 in Table 2, benefits presented in PV p.17 in Table 4
Is a 100 year time horizon used?	Y	100 year appraisal period stated p.8
Does the guidance use a discount rate of 3.5% (reducing)?	Y	3.5% for years 0-30, 3% for years 31-75, 2.5% for years 76-99 on p.14
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	Not mentioned
Are the main risks identified and described?	Y	Residual risks of the preferred option are detailed in the risk register in Appendix F and summarised on p.23.
Are any adjustments made for risk?	Y	The risk register (Appendix F) has been used as the basis for deriving risk contingencies for approval purposes, which have been calculated using Monte Carlo analysis. The risk values and probabilities assigned to each risk element have been agreed by the project team. The risk contingencies derived are £1,606,002 (50 percentile) and £2,702,002 (95 percentile)

Questions for Review of Appraisals (B1)

Is optimism bias included?	N	Monte Carlo analysis used instead
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Preferred option tested by increasing peak flows by 20 per cent over a 50-year period 10 and 6mm per year included for sea level rise p.10. Tested against defences causing problems elsewhere p.16 and 22, against cost increases p.22
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Climate change – flows and sea level rise
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	Under section 2.7, Choice of Preferred Option, examine environmental, technical and economic aspects. Table 7 Summary of Options Appraisal p.23 sets out these three areas against each option.
Are the options set out in a way that allows for easy comparison?	Y	Table 7 p.23 sets out the main technical, environmental and economic analysis of each of the options for easy comparison
Are costs and benefits assessed over the same period using the same base date?	Y	Q2 2005/6 used as base for costs and benefits p.15
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Table 6 p.22 includes all.
Has the PAG3 decision rule been followed correctly?	Y	Justification provided under Table 6 p.22
Have indicative standards been taken into account?	Y	Reference made under Table 6 p.22
Is there discussion on key constraints?	Partly	Programme constraints referred to on p.2 under 1.6 Residual Risk but no details. Environmental constraints referred to in Table 5 p.18
Are the conclusions supported by the results?	Y	Strong arguments made for preferred option on technical, economic and environmental grounds throughout.
How does residual risk feature in the appraisal?	Y	Appendix F deals comprehensively with risk
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N	No indication that consultation being carried out at decision stage
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions	Y	Throughout

Questions for Review of Appraisals (B1)

alongside the calculations, etc.?		
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	?	
Do the results 'feel' right?	Y	
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	?	Not known

Glynnneath Review of PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	Flooding history and flood risk to key areas defined in Section 2.2.2 to 2.2.4 p.9
Is the reason for the level of detail of the costs and benefits given?	Partly	Section 2.3.1 sets out reasons for approach adopted and only considering viable approaches for full project appraisal p.10
Are clear and measurable objectives given?	Partly	Objectives supplied in Section 2.2.7 but no indication of how they will be measured
Are there links to the hierarchy of decision-making?	N	PAR approval sheets attached
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	Areas at risk clearly defined and properties likely to be affected quantified (p.8-9)
Is a wide range of options and/or standards considered?	Y	Option considered in Section 2.3 p.10-12
Does the appraisal indicate how the long-list was reduced to a short-list of options?		Only options identified in preliminary stage as being viable were taken forward to full project appraisal. p.10-11
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Y	Reasons given on p.11
Is a do-minimum option included?	Y	All stakeholders would continue to undertake maintenance of the watercourse and in-river structures. This would include removal of growth and debris from the channel and its banks. Combined with additional repair works.
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	Y	Table 1 p.15. Document mentions contribution from WEFO (p.6) but no indication of amount?
Are the costs broken down into capital, maintenance, etc.?	Y	Budget in table 1 p.15 shows budget lines for construction, various fees, compensation, maintenance and contingency
Are depreciation and capital charges excluded (if relevant)?	?	No details
Are residual values included (if relevant)?	?	No details

Questions for Review of Appraisals (B1)

Option Benefits		
Are the benefits of each option identified?	Y	Benefits defined conservatively in terms of damage avoided Section 2.5 p.17-18
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	No evidence in document to suggest this was done, other than calculating the damage avoided.
Which benefits are valued in money terms?	Y	Damage avoided (in terms of damage to property, costs of emergency services and cost of temporary accommodation and heating)
Have benefits been assessed for both residential and non-residential properties?	Y	But not differentiated in the analysis provided in Appendix E Economic Appraisal
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Partly	The impact the flooding will have on health, the local transport network, insurance premiums and the local economy are not costed p.18
Has capping been undertaken?	Y	The present value of flood damages is capped at property market value p.17
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Section 2.6.7 p. 21 identifies environmental enhancements and mitigation measures for preferred option.
What non-monetised benefits are included?	Y	List of enhancements and mitigation measures included on p.21-22 for preferred option
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	These are described on p.21-22. Note: environmental enhancement and mitigation measures have been included in the scheme costs
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	Environmental enhancements and mitigation measure benefits not valued, but have costs associated with them under the budget
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Base date for costs and benefits set at Q3 2005 p.7

Questions for Review of Appraisals (B1)

Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Done throughout
Is a 100 year time horizon used?	Y	100 year appraisal
Does the guidance use a discount rate of 3.5% (reducing)?	Y	3.5% for yrs 0-30, 3% for yrs 31-75, 2.5% for yrs 76+ as stated in Appendix E Economic Appraisal
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	The results of the risk analysis are presented in Appendix F
Are any adjustments made for risk?	Y	Risk contingency for the preferred option has been assessed by undertaking a full 'Monte Carlo' analysis for all residual risks
Is optimism bias included?	Y	Monte Carlo
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Checked the sensitivity of the economic analysis by reducing the benefits. Capped the flood depth to 500mm, removed commercial properties or public buildings that attracted high damages, only considered flooding with a chance in any given year of 1 in 50 or above and reduced the Do Nothing damages in the same proportion as the Do Minimum flood damages. Also tested the impact of analysing Risk Areas 1 and 2 as separate units.
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	All elements are considered in the analysis, but not specifically referred back to the original objectives in Section 2.7 Choice of Preferred Option
Are the options set out in a way that allows for easy comparison?	Y	
Are costs and benefits assessed over the same period using the same base date?	Y	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Details in Appendix E.
Has the PAG3 decision rule been followed correctly?	Y	Decision process detailed on p.23
Have indicative standards been taken into account?	Y	Appears so from the explanation of the PAG3 decision process on p.23 referring

Questions for Review of Appraisals (B1)

		to reason for selecting 1 in 100 year as opposed to 1 in 200 year standard.
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	Preferred option is well argued
How does residual risk feature in the appraisal?	Y	Risk log established in Appendix F. Used to calculate contingency.
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Y	Preferred option includes the removal of redundant piers identified in an early option discounted at the preliminary stage. p.11
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation appears to have been undertaken at the point of analysing the options rather than at the decision making stage.
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Details provided in the Appendixes
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	?	
Do the results 'feel' right?	Y	Case for preferred option is well argued and logical.
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Goodrington

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Goodrington (Regional Engineer's Report for Sea Wall and Coast Protection)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	The problem as set out in the RE's report gives (in half a page) details of the location, condition of the defence, assets protected and previous flooding events
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	N	
Are there links to the hierarchy of decision-making?	N	
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	The description of the do-nothing option is limited to the failure of the defences. More details are given in S6 (benefits)
Is a wide range of options and/or standards considered?	Partly	Four options are considered; more options could probably have been considered (may be were in the PAR)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	N/a	
Is a do-minimum option included?	Y	The do-minimum option comprises continued maintenance and intermittent repair after a breach
Option Costs		
Does the appraisal describe how each option has been costed?	Y	A brief description of how the costs have been estimated in given in S5
Are the costs broken down into capital, maintenance, etc.?	N	Not in the RE's report
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Partly	Brief details of the benefits of each option are given in S6
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	N	No details given in the RE's report
Have benefits been assessed for both residential and non-residential properties?	N?	Not known – no details given in the RE's report
Have benefits for recreation been taken into account?	N?	No details given
Is all of the key information used when valuing benefits given?	N?	No details given in the RE's report
Has capping been undertaken?	N?	No details given in the RE's report
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N?	No mention is given of non-monetised benefits
What non-monetised benefits are included?	N	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	N	Not known – base date is not given
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S7 provides PV costs and benefits
Is a 100 year time horizon used?	Y?	Not stated
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S7 confirms the discount rate used
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	N	
Are any adjustments made for risk?	N	
Is optimism bias included?	Y	Optimism bias of 30% has been applied
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	N?	No details given in the RE's report
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	

Questions for Review of Appraisals (B1)

Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The RE's report shows that costs and benefits have been taken into account when identifying the preferred option
Are the options set out in a way that allows for easy comparison?	Y	A copy of the FCDPAG3 summary table is included in S7
Are costs and benefits assessed over the same period using the same base date?	Y?	Not confirmed in the RE's report
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	In FCDPAG3 summary table
Has the PAG3 decision rule been followed correctly?	Y?	Not set out in RE's report, but appears correct
Have indicative standards been taken into account?	N?	No mention is made of indicative standards
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	The economic assessment is strongly in favour of the option selected
How does residual risk feature in the appraisal?	N	
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N?	No details are given in the RE's report
Presentation of Results		
Does the appraisal follow the PAR format?	N	Although the general headings are similar
Does the appraisal include all assumptions alongside the calculations, etc.?	N	The RE's report gives only the key data
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	The RE's report (although short – 5 pages) gives most of the information needed to make a decision on the preferred option
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Great Barford FAS

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Great Barford FAS (2005)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	The problem is set out clearly with information on the number of properties affected given under different return period events but little information given in relation to past flooding events, except general descriptions
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	N	No objectives are given
Are there links to the hierarchy of decision-making?	N	
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	The do-nothing option is described clearly, but more information on the years when events would happen (rather than 'quickly' would have been useful)
Is a wide range of options and/or standards considered?	Y	Six options are considered in the appraisal, four others have been screened out
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	The options screened out and reasons why have been given (S2.3)
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Partly	There is little discussion, although the reasons given seem appropriate (there is also reference to another report with more details)
Is a do-minimum option included?	Y	Option 2 consists of maintaining the watercourses to the low standard currently provided
Option Costs		
Does the appraisal describe how each option has been costed?	Y	A table setting out the cost elements for each option is given, with the total PV costs for each option (pg 7)
Are the costs broken down into capital, maintenance, etc.?	Y	Costs are also broken down further, but include both capital and maintenance costs (pg 7)
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		

Questions for Review of Appraisals (B1)

Are the benefits of each option identified?	Partly	The discussion on benefits is very brief. The damages under do-nothing are described briefly, while benefits under the do-something options are set out in general terms only
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Property damages and protection of agricultural land (but not easy to tell)
Have benefits been assessed for both residential and non-residential properties?	?	Not known – details of properties are not given, although the general description suggests they are all residential properties
Have benefits for recreation been taken into account?	N	No details given
Is all of the key information used when valuing benefits given?	N	There is very little information given on how the benefits have been estimated
Has capping been undertaken?	N	No mention of capping
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	The results of the Environmental Impact Assessment are summarised
What non-monetised benefits are included?	N	None
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N	Not known – there is insufficient description given on the agricultural benefits to be able to tell
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	The social impacts on the community are mentioned in the executive summary, but are discussed elsewhere
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	Costs are given in 2005 values, the base date for benefits is not given (including if benefits from the MCM have been updated)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	A version of the FCDPAG3 summary table is given (with the options reading across the page rather than down)
Is a 100 year time horizon used?	N	A 50 year time horizon has been used

Questions for Review of Appraisals (B1)

Does the guidance use a discount rate of 3.5% (reducing)?	?	Not known – no details are given on the discount rate used
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	A risk register has been prepared (included in the Appendices)
Are any adjustments made for risk?	N	No adjustments are made in the PAR or to the benefits
Is optimism bias included?	Y	30% optimism bias has been included
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	No sensitivity analysis has been undertaken
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The selection of the preferred option is based on the costs and benefits only
Are the options set out in a way that allows for easy comparison?	Y	A version of the FCDPAG3 summary table is included
Are costs and benefits assessed over the same period using the same base date?	?	Not stated in the PAR
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	A version of the FCDPAG3 summary table is included that gives the BCR and IBCR but not the NPV
Has the PAG3 decision rule been followed correctly?	Y	The description of how the preferred option has been identified sets out how the FCDPAG3 decision rule has been followed (pg 10)
Have indicative standards been taken into account?	Y	The description on page 10 includes reference to the indicative standards
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	The economic results support the selection of the option
How does residual risk feature in the appraisal?	N	
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N	There is no mention of consultation in the PAR, except in relation to the Environmental Impact Assessment
Presentation of Results		

Questions for Review of Appraisals (B1)

Does the appraisal follow the PAR format?	Partly	The key headings are included, but some sections have been omitted, e.g. objectives
Does the appraisal include all assumptions alongside the calculations, etc.?	N	There is very little detail on how the damages have been estimated and how benefits have been calculated
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	The scheme is being promoted through the provision of clay from the bypass. More detail could have been provided on benefits – but this must have been undertaken to provide the summary table
Do the results 'feel' right?	Y	The option provided will give a standard of protection of 1 in 50 years
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Proforma for Hamworthy PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Hamworthy Sea Defences	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2 sets out the problem including number of properties at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.2 (Pg 17) sets out the scheme objectives but these are quite general, i.e. reduce flood risk, ensure not adverse impact on flora and fauna, have due regard for residents, etc.
Are there links to the hierarchy of decision-making?	Y	Links to Shoreline Management Plan and other local plans (Pg 17)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	The 'do nothing' option is only described briefly in the main body of the PAR (S 2.3; Pg 19),. Quantification given under the description of the problem.
Is a wide range of options and/or standards considered?	Y?	6 options considered; in addition to the 'do nothing', 'do minimum' and the flood warning options, three additional options are considered
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3 (Pg 19) explains why flood warning is not considered to be a viable option. S 2.7 screens out of the basis of amenity and impacts on designated sites (Pg 29)
Does the appraisal include option development through a learning process?	Y?	For each of the scheme options, measures to mitigate the potential impacts were identified through consultation. Mitigation measures for the do nothing options have not been considered (Pg 24)
Are the reasons for screening out acceptable/convincing?	Partly	Probably more acceptable for the flood warning options than for the other options
Is a do-minimum option included?	Y	Do minimum allow for basic maintenance such that the existing defences continue to operate at the current standards
Option Costs		
Does the appraisal describe how each option has been costed?	N	
Are the costs broken down into capital, maintenance, etc.?	Partly	S 2.5 of main body of PAR only gives total costs; a breakdown of costs for the do minimum and three scheme options

Questions for Review of Appraisals (B1)

		is given in Appendix D
Are depreciation and capital charges excluded (if relevant)?	N?	No details given
Are residual values included (if relevant)?	N?	No details given
Option Benefits		
Are the benefits of each option identified?	Partly	Benefits for do nothing, do minimum and the three options are summarised in S 2.6 but these are not discussed in detail
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	Overall the answer is no, although S 2.6 notes that a minor benefit should arise under the Do nothing option for flora and fauna. This however will be outweighed in the Operational Stage
Which benefits are valued in money terms?	N	Environmental benefits and intangibles are not quantified. Property damages are considered and secondary costs associated with the provision of extra heating, the use of de-humidifiers and the provision of temporary accommodation (In Appendix A, feasibility study, Pg 12)
Have benefits been assessed for both residential and non-residential properties?	Y	No details given in main report but information in appendix E includes non-residential, e.g. warehouses
Have benefits for recreation been taken into account?	Partly	Recreation is mentioned as an environmental constraint but this is not linked to the choice of option (Pg 14)
Is all of the key information used when valuing benefits given?	N	For instance, fisheries and other recreational activities are acknowledged in the business case (Pg 14) but they are not taken into consideration for option selection
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	
What non-monetised benefits are included?	N	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	E.g. commercial fishing
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
Distributional Impacts		
Are distributional impacts taken into account (e.g.	N	

Questions for Review of Appraisals (B1)

vulnerable groups)?		
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.7, Pg 30 sets out PV costs and benefits
Is a 100 year time horizon used?	N	50 years used
Does the guidance use a discount rate of 3.5% (reducing)?	Y	
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	No details given
Are the main risks identified and described?	Partly	Residual risk are described only briefly (Pg 31)
Are any adjustments made for risk?	Y	'Monte Carlo' type risk assessment conducted for the preferred option
Is optimism bias included?	Y	Optimism bias at 28% applied to the capital, operating and maintenance costs for each option (S 2.5; S 2.7)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Partly	On all options but only the costings have been subject to sensitivity testing (S 2.5; Pg 26)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	Compared against the standard of protection and environmental objectives (more details on these are given in Appendix C, the Environmental report)
Are the options set out in a way that allows for easy comparison?	Y	Table 2.6.1 presents a good summary of costs and benefits
Are costs and benefits assessed over the same period using the same base date?	Y	Over 50 years, and 2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Table 2.6.1 does not include incremental benefit costs ratio; Table 2.7.1 does but this is for different standards of protection for Option 3.
Has the PAG3 decision rule been followed correctly?	N	Uncertain about the process for selection of option (S 2.7; Pg 30)
Have indicative standards been taken into account?	Y	S 2.7
Is there discussion on key constraints?	Partly	Environmental constraints are described in S2.1 but this do not permeate

Questions for Review of Appraisals (B1)

		throughout the report very well.
Are the conclusions supported by the results?	Partly	Uncertain why option 2, with an incremental benefit costs ratio of 0.4 is selected
How does residual risk feature in the appraisal?	Y	S 2.7 notes that residual risks of over
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation has informed mitigation options
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	N	Limited discussion of assumptions
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N?	The main body of PAR seems to be omitting important information; information from the Annexes could be brought forward
Do the results 'feel' right?	N	Arguments for selecting Option 2 200 Yrs standard of defence not clear
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Unkown

Review of Happisburgh to Winterton Sea Defences Strategy Review

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Happisburgh to Winterton Strategy Review (Aug 2002)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S2.2.1 Problem defined and covers inadequacy of defence systems but little detail of impacts
Is the reason for the level of detail of the costs and benefits given?	N	Report is very engineering biased
Are clear and measurable objectives given?	Y	S 2.2.2 clear and wide ranging but not measurable
Are there links to the hierarchy of decision-making?	Y	S 2.5.1 Links to SMP and CHaMP
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	H.1, H2 Do nothing baseline set out in technical terms and modelled to ascertain flood depths/outlines
Is a wide range of options and/or standards considered?	N	Range of options and standards considered but not wide
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3.3 Screening against environmental objectives
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Y	Against environmental and technical objectives
Is a do-minimum option included?	Y	S 2.5.2 emergency response to breaching
Option Costs		
Does the appraisal describe how each option has been costed?	Y	H9 description of activities costed
Are the costs broken down into capital, maintenance, etc.?	N	Appears to be capital only
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	
Option Benefits		
Are the benefits of each option identified?	Partly	H 3.5 But not in detail which is presumably on spreadsheets
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?		H 3.2 Residential, agriculture and utility company

Questions for Review of Appraisals (B1)

Have benefits been assessed for both residential and non-residential properties?	Y	See above
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Y?	Links to computational model and spreadsheets
Has capping been undertaken?	Y	H 3.2 residential damages capped at property value
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	Environmental damages or identified as significant but not valued
What non-monetised benefits are included?	N	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N/A	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	H 3.4 Environmental impacts are an important aspect on this frontage
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y?	Not specified but appears to be
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	H 3 PAG33 spreadsheets used
Is a 100 year time horizon used?	??	Not known
Does the guidance use a discount rate of 3.5% (reducing)?	N	But pre 3.5% - 3.5% used as sensitivity test
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	N	
Are any adjustments made for risk?	N	
Is optimism bias included?	N	Pre optimism bias but 20% contingency used
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	H 10 sensitivity for economic robustness and appropriate standard and option
Does the sensitivity analysis include calculation of switching values?	N	

Questions for Review of Appraisals (B1)

Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Costs and benefits only considered
Are the options set out in a way that allows for easy comparison?	Y	Summary table used
Are costs and benefits assessed over the same period using the same base date?	??	Assume so
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7.1 FCD summary table used
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.1
Have indicative standards been taken into account?	Y	H 6 based on land use band B
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	Preferred option based on assessed information and discussed
How does residual risk feature in the appraisal?	Partly	In damages only
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	Y	But only on technical and environmental grounds
Has the consultation been undertaken at the decision-making stage?	N	
Presentation of Results		
Does the appraisal follow the PAR format?	Y	Easy to follow
Does the appraisal include all assumptions alongside the calculations, etc.?	N	Limited and not always easy to track through
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N	Could be more detail
Do the results 'feel' right?	Y	Appears to be the right answer based on what is at risk
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	

Review of Hayling Island: Selsmore and Mengham PARs

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
Hayling Island: Selsmore and Mengham Sectoral Strategy Study		
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. sets out the problem
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Clear objectives but all of them not easily measurable, e.g. enhance the ecological value of the area (S 2.2.80; Pg 19-20)
Are there links to the hierarchy of decision-making?	Y	Links to higher level plans (Pg 5)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	Do nothing is the baseline option (S 2.2.66; Pg 17) but limited quantitative information
Is a wide range of options and/or standards considered?	Y	S 2.3. sets out the options; 6 options with upgrade options further divided into three
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	Screening out seems to be based on standards of protection but not very clear from text (S 2.3; Pg 21-22)
Does the appraisal include option development through a learning process?	Partly	Option 1 for instance is subject to mitigation measures but uncertain about other options (S2.7.8; pg 37)
Are the reasons for screening out acceptable/convincing?	Partly	Since reasons are not at all clear
Is a do-minimum option included?	Y	S 2.3.5 9Pg 21)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Non construction and construction costs considered for the do minimum and three of the options (S 2.5; Pg 32)
Are the costs broken down into capital, maintenance, etc.?	Y	For the do-minimum and three of the options
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given although residual life of assets are mentioned elsewhere (S 2.2.77; Pg 19); S 2.6.2; Pg 34
Option Benefits		
Are the benefits of each option identified?	Y	S 2.6.12; Pg 35

Questions for Review of Appraisals (B1)

Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	PV damages avoided
Have benefits been assessed for both residential and non-residential properties?	Y	Commercial and industrial properties included (in Appendix I)
Have benefits for recreation been taken into account?	N	No damage values from recreation included or transportation disruption, loss of life, disruption and distress, damages to services and the costs of emergency services in the economic appraisal in the economic assessment (S 2.6.11; Pg 34)
Is all of the key information used when valuing benefits given?	N	Environmental and recreational impacts not included in the estimation of benefits
Has capping been undertaken?	N	No enough details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	No damage values are included but they are included in the general appraisal of options (tables 2-15 to 2.19)
What non-monetised benefits are included?	Y	Recreational and environmental described qualitatively
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description and system of ticks for the appraisal summary tables
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y?	Recreational and environmental could, potentially, be valued
Does the appraisal adjust for subsidies, etc.?	Y	Compensation costs are included for each option; also compensation for coastal squeeze (S 2.5; Pg 31)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Dated to 2003 (Q3) (S 2.5.1; Pg 31)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5 and 2.6
Is a 100 year time horizon used?	N	Costs and benefits discounted over 50 years (Pg 34)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Benefits at a discount rate of 3.5% for years 0-30 and 3% for years 31-50
<i>Economic Adjustments</i>		
Are any adjustments made for material	N	

Questions for Review of Appraisals (B1)

differences in tax (if relevant)?		
Are the main risks identified and described?	Y	S 2.5.19; with more details given in Appendix J
Are any adjustments made for risk?	Y	On costs for compensation (S 2.5.19; Pg 31)
Is optimism bias included?	Y	Optimism bias of 30% on the costs (S 2.5.2; Pg 31)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Sensitivity testing on costs and benefits of preferred option consisting of removing any large single ownership benefit areas and the effect of varying flood levels (S 2.6.16; Pg 36)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Different flood levels (increase by 200mm and reduction by 100mm) (S 2.6.16; Pg 36)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	S 2.7 presents an evaluation of each option against the objectives and the general requirements for economic justification, environmental acceptability and technical soundness (system of ticks)
Are the options set out in a way that allows for easy comparison?	Partly	S 2.7 presents good summary Tables for comparison building from the economic appraisal presented in S 2.6; but not all options are included in the Tables
Are costs and benefits assessed over the same period using the same base date?	Y	50 years; 2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.6
Has the PAG3 decision rule been followed correctly?	Y	S 2.6.12
Have indicative standards been taken into account?	Y	S 2.3 (Pg 21); the land use is classified as 'A'
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	S 2.7 explains the choice of option based on objectives
How does residual risk feature in the appraisal?	Y?	Risk assessment included in summary tables (S 2.7)
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the	Y	S 2.7.3 (results of the public consultation and the key consultees meeting showed

Questions for Review of Appraisals (B1)

decision-making stage?		overall support for the preferred option but subject to mitigation measures)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumption in text; but not always clear how values are arrived at
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y?	
Do the results 'feel' right?	Y	Also based on public support
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not know

Review of Hayling Island PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Hayling Island: Eastoke Northern Frontage Flood Defence Scheme	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. sets out the problem including number of properties at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives are clearly set out (S 2.2.29) but these are not easily measurable (e.g. minimise visual intrusiveness, improve ecological interest, etc)
Are there links to the hierarchy of decision-making?	Y	Links to the East Solent Shoreline Management Plan and a high level strategy study for the whole of the Inland
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	Presumably do nothing (from summary tables and benefits section) but not explicitly mentioned in the description of Do nothing (it includes average annual damages though)
Is a wide range of options and/or standards considered?	Y	4 options considered; but sub-divided so 8 finally considered (S 2.3; Pg 20-23)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Based on public opposition, risks and costs from compensation (S 2.3; Pg 21)
Does the appraisal include option development through a learning process?	Y	Mitigation measures such as habitat replacement proposed (S 2.3.15; Pg 23)
Are the reasons for screening out acceptable/convincing?	Y	As based on public concerns and flood risks
Is a do-minimum option included?	Y	S 2.3.5 (Pg 20)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Capital, operating and other costs described for the screened options
Are the costs broken down into capital, maintenance, etc.?	Y	For the do-minimum and three of the options
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.6 (Pg 39)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	Y	Damage avoided from flooding
Have benefits been assessed for both residential and non-residential properties?	Y	Commercial properties included; also caravans (S 2.6.4; Pg 37)
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	N	Environmental loss of the salt marsh or the loss of open area or gardens not included in the economic appraisal. It is also assumed that not damage will occur to gardens as a result of saltwater intrusion and not damage included to cover the disruption to services, recreation, transportation or loss of life (S 2.6.9; Pg 38)
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Included but not in the economic appraisal
What non-monetised benefits are included?	Y	Environmental benefits considered for selection of the preferred option (s 2.7.5; Pg 42)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Partly	Description but this is limited
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y?	Recreational and environmental could, potentially, be valued
Does the appraisal adjust for subsidies, etc.?	Y	Compensation costs included (S 2.5.7; Pg 33)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5 and 2.6
Is a 100 year time horizon used?	N	50 years time horizon used (S 2.5.1; Pg 32)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Benefits at a discount rate of 3.5% for years 0-30 and 3% for years 31-50 (S 2.5.1; Pg 32)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	

Questions for Review of Appraisals (B1)

Are the main risks identified and described?	Y	S 2.5 notes that the EA's risk register process, Risk 2.2 was undertaken
Are any adjustments made for risk?	Y	Monte Carlo and costs contingency undertaken (S 2.5.13; Pg 34)
Is optimism bias included?	Y	Maintenance costs raised by a 52% optimism bias (S 2.5.5; Pg 32)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	On the preferred option (S 2.7.10; pg 45) on costs and benefits
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Different sea levels (S 2.7.11; pg 45) and costs and benefits values
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Based on economics only
Are the options set out in a way that allows for easy comparison?	Partly	S 2.6 (Pg 39) includes good summary Tables for the options but how options are brought forward is not always clear
Are costs and benefits assessed over the same period using the same base date?	Y	2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.6 (Pg 39)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.9 (pg 44)
Have indicative standards been taken into account?	Y	S 2.7.8 (Pg 44; table 2.22)
Is there discussion on key constraints?	Partly	Conflicts described in S 2.2.26 9Pg 18)
Are the conclusions supported by the results?	Y	In terms of ratios; S 2.7.9 (pg 44)
How does residual risk feature in the appraisal?	Y	Residual risk taken into account in risk register (Appendix D)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation for first screening of options and option development
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumption described in text (e.g. S 2.5.3; Pg 32) but not always presented alongside calculations
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N?	

Questions for Review of Appraisals (B1)

Do the results 'feel' right?	Y?	
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Hereford PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Area and affected properties/businesses and transport routes detailed and history of flooding provided p.4 - 8
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	Objectives stated in Section 3.1 p.27
Are there links to the hierarchy of decision-making?	N	Approval checklist and data sheets attached in Appendix 10
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Set out as do-nothing option. Appendix 3 Table 5 p.13 refers
Is a wide range of options and/or standards considered?	Y	Details provided
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Provides reasons for not proceeding with the various options in Section 2.3.3 p.9-12
Does the appraisal include option development through a learning process?	N	Sets out the options and provides reasons for rejecting each one. P9-12
Are the reasons for screening out acceptable/convincing?	Y	P.9-12
Is a do-minimum option included?	Y	2 do-minimum options set out, one taken forward for detailed appraisal and one not.
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Preferred option, do-nothing and do-minimum options are costed with detailed budgets
Are the costs broken down into capital, maintenance, etc.?	Y	Construction, Maintenance etc. costs clearly identified as separate budget lines p.17
Are depreciation and capital charges excluded (if relevant)?	N	Not relevant?
Are residual values included (if relevant)?	N	Not Relevant?
Option Benefits		
Are the benefits of each option identified?	Y	Table 2 p.12 for those considered for detailed appraisal and in Appendix 3 Table 1 p.7-9. Environmental benefits for preferred option also listed in section 2.4.5 p.14.
Is the likely significance/likely magnitude of the benefits taken into account before assessing	Y	Table of advantages and disadvantages in Appendix 3 p.17 provides information

Questions for Review of Appraisals (B1)

them in detail?		on all options, then the 3 main ones selected for detailed appraisal are then subjected to greater analysis, including economic.
Which benefits are valued in money terms?	Y	All are
Have benefits been assessed for both residential and non-residential properties?	Y	Table 1 – Range of Properties Affected by Flooding (1 in 200 year event) indicates all types of property affected by flooding
Have benefits for recreation been taken into account?	?	Recreation not specifically mentioned, but mentions opportunity for installing nesting boxes and interpretation boards (p.14), as well as environment mitigation measures to protect public parks
Is all of the key information used when valuing benefits given?	Y	Appears so but costings not broken down so cannot be demonstrated.
Has capping been undertaken?	Y?	p.22 refers to decrease in property capping level of 20% for purpose of sensitivity analysis, suggesting it has been undertaken
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	p.14
What non-monetised benefits are included?	Y	Improvements in air climate due to less queuing traffic, reduction in traffic using diversion route, protection of listed buildings from water damage, opportunities for archaeological investigations, prolonging life of old stone riverside walls
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description only. P. 14
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	Partly	Identifies 25 listed buildings that would be protected
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	All estimates have been prepared using a price date of September 2004 p.16
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	All costs have been discounted to present values
Is a 100 year time horizon used?	N	200 years
Does the guidance use a discount rate of 3.5%?	Y	. All costs have been discounted to

Questions for Review of Appraisals (B1)

(reducing)?		present values using a discounted rate of 3.5%
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	None relevant?
Are the main risks identified and described?	Y	Detailed risk assessment and risk register attached in Appendix 8. Residual project risks identified in 2.7.7 p.24-25
Are any adjustments made for risk?	Y	Section 5.4 Risk contingency p.18. Section 2.7.6 identifies adjustments using Monte-Carlo Simulation Approach.
Is optimism bias included?	Y	At 42% - figure justified on p.18
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Section 2.7.3 p. 22-23 details the sensitivity analysis undertaken for a range of key variables
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Section 2.7.3 looks at changes in costs of materials for construction, a decrease of 20% in property capping level, traffic figures decreasing by 20%, as well as looking at scenario with works proposed by ASDA not being carried out and increasing water flows as a result of climate change p.22,23.
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Mainly based on economics (costs and benefits)
Are the options set out in a way that allows for easy comparison?	Y	
Are costs and benefits assessed over the same period using the same base date?	Y	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Presented in Table 5 on p.22
Has the PAG3 decision rule been followed correctly?	?	
Have indicative standards been taken into account?	Partly	p.24 indicates that preferred option would follow Sustainable Construction Policy, would undergo local planning approvals. Construction (Design and Management) Regulations 1994 will be followed
Is there discussion on key constraints?	Y	Advantages and disadvantages of the various options for detailed appraisal are presented in Table 2 p.12 and

Questions for Review of Appraisals (B1)

		environmental issues are discussed in Appendix 3 p.7-9
Are the conclusions supported by the results?	Y	Section 2.7.1 provides detailed argument for the case of preferred option
How does residual risk feature in the appraisal?	Y	Residual risk register for preferred option presented in Appendix 8. Section 2.7.7 details risks and how plan to deal with them and contingency in project allows for these
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	Only the one option over zero and minimum action scenarios was considered for detailed appraisal
Has the consultation been undertaken at the decision-making stage?	Partly	States that preferred option was developed in consultation with Council, English Nature and English Heritage. Communications plan developed early on but no indication who was/would e involved in decision making
Presentation of Results		
Does the appraisal follow the PAR format?		
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Cost and benefit figures are presented but not detailed in how they have been calculated. Assumptions presented elsewhere in document but not together with calculations
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	?	£5m+ but limited detail on costings of preferred option.
Do the results 'feel' right?	Y	But only one realistic option being appraised.
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	?	

Review of High Knocke to Dymchurch

Questions for Review of Appraisals (B1)

Appraisal being reviewed: High Knocke to Dymchurch	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Partly	The problem describes a lot of technical issues, but does not give a good feel for what would happen on a breach. There is clearer description of the effects of overtopping. However, quantitative information (e.g. on numbers/types of properties) is available elsewhere in the PAR, e.g. S1
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives are given in S2.2.9, but they include objectives such as 'to maintain protection...with a minimum return period of 1 in 100 years for a period of 100 years', which seems to pre-judge the solution
Are there links to the hierarchy of decision-making?	Y	Links to the Beachy Head to South Foreland Shoreline Management Plan, which had a preferred policy of hold the line. The revised SMP2 is expected to conclude a hold the line policy for the next 100 years. The PAR develops further the proposals from the Folkestone to Rye Coastal Defence Strategy Study
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	Very brief description but includes when a breach would occur and number of properties affected, whether they would be written-off or intermittently flooded, etc. There is no mention of the heritage assets described in the executive summary
Is a wide range of options and/or standards considered?	Y	Section 2.3 discusses the options, with Section 2.3.7 discussing the number of options selected for each frontage
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Section 2.3.2 discusses why 'advance the line' has been discounted and Section 2.3.3 discusses why 'managed realignment' would be a higher cost option
Does the appraisal include option development through a learning process?	N	

Questions for Review of Appraisals (B1)

Are the reasons for screening out acceptable/convincing?	Y	The different types of option that could be used to provide the preferred standard are discussed with the reasons behind selecting the preferred option seeming appropriate
Is a do-minimum option included?	Y	But there is no sustain option (perhaps because of the condition of the current defences?)
Option Costs		
Does the appraisal describe how each option has been costed?	Y	The proposed contractor has been involved in the development of the scheme costs and a table is given (Table 2.4) showing the costs of each option
Are the costs broken down into capital, maintenance, etc.?	Y	Table 2.4 includes both capital and maintenance costs
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	
Option Benefits		
Are the benefits of each option identified?	Partly	There is a general description of the benefits, how and where they occur – much of the detail may be about the do-nothing option – it is not clear
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	No indication from PAR that significance of benefits was considered before valuation
Which benefits are valued in money terms?		Not very easy to identify from Section 2.6 what benefits have been valued in money terms. There is a summary of assets but it is not clear which of them have been valued (or not). Property damages are included. A CV study has been undertaken to estimate the amenity value of the existing beach (but how these benefits are allocated to each option is not explained)
Have benefits been assessed for both residential and non-residential properties?	N	Residential properties only – the only commercial properties included in the list of assets are caravans
Have benefits for recreation been taken into account?	Y?	The CV study looks at the amenity value of the beach in terms of maintaining Dymchurch as a tourist resort
Is all of the key information used when valuing benefits given?	N	The section on benefits is very unclear – it is difficult to determine which benefits have been calculated and for which options

Questions for Review of Appraisals (B1)

Has capping been undertaken?	Y	Section 2.6.2 notes that the majority of flood damage in the Do Nothing scenario has been capped (it is not clear why these properties have not been written-off, perhaps they are not flooded frequently enough?)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	There is no mention of non-monetised benefits
What non-monetised benefits are included?	None	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N/a	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	A CV study has been used to try to bring in the amenity value of the beach
Does the appraisal adjust for subsidies, etc.?	N	Not relevant
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No additional value seems to have been placed on the heritage aspects(e.g. Scheduled Ancient Monuments)
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	Costs are given to December 2003 base date. Details of the benefits is not given
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	But not in an easily comparable way
Is a 100 year time horizon used?	Y	Confirmed for costs in Section 2.5.3
Does the guidance use a discount rate of 3.5% (reducing)?	Y	As discussed in S2.6.1
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Significant uncertainties in terms of the costs of the options is discussed (S2.5.4)
Are any adjustments made for risk?	Y	Adjustments are made using optimism bias. No contingencies are included
Is optimism bias included?	Y	Table 2.4 shows the level of optimism bias used for each option (where this differs by option). Section 2.5.5 explains how optimism bias for each option has been estimated.
<i>Sensitivity Analysis</i>		

Questions for Review of Appraisals (B1)

Has sensitivity analysis been undertaken?	Y	Included in Section 2.6.10 (in the section on benefits, which seems strange). The main tests relate to timing of the works
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Partly	Scenarios are used to assess the effect of delaying the works on the costs and the benefits
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The PAR discusses each option in turn and why it is not considered to be the preferred option. There is consideration of the project objectives, but there is a lot of discussion and it is difficult to identify which options are being considered as preferred and which are not!
Are the options set out in a way that allows for easy comparison?	Partly	There is a discussion on each option in Section 2.7, it is not easy to identify which option has been identified as the preferred option on an initial reading
Are costs and benefits assessed over the same period using the same base date?	Y	Section 2.7.4 states that 'all costs and benefits have been assessed using a December 2003 base date'
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Benefit-cost ratio and MPV are given for the preferred options and for different phasings only. IBCR is not included
Has the PAG3 decision rule been followed correctly?	N	The preferred option is selected on other criteria, based on the project objectives
Have indicative standards been taken into account?	Y	The area is identified as Land Use Band B, but it is not easy to identify how indicative standards have been taken into account
Is there discussion on key constraints?	Y	S2.3.1 states that 'there were no specific constraints on the potential options...with a full range of options being considered'
Are the conclusions supported by the results?	Partly	The options selected 'feel right' but the explanation of how/why they have been chosen is not clear
How does residual risk feature in the appraisal?	Partly	Sections 2.7.25 and 2.7.26 consider risks to public health and safety and how these can be minimised
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	There is no mention of consultation except on the EIA
Presentation of Results		

Questions for Review of Appraisals (B1)

Does the appraisal follow the PAR format?	Y	General section headings are consistent
Does the appraisal include all assumptions alongside the calculations, etc.?	N	Some assumptions are given in detail, others appear to be missing
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N?	It is difficult to know – some areas seem to be in very great detail, others are rather glossed over in the PAR
Do the results 'feel' right?	Y	However, it is difficult to be sure that the economic case is robust without more information on the benefits, in particular
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of Hollesley Bay

Questions for Review of Appraisals (B1) Hollesley 2000

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Partly	Part of the strategy is to define the problem
Is the reason for the level of detail of the costs and benefits given?	X	
Are clear and measurable objectives given?	Partly	The reports use objectives of local and statutory bodies. This highlights the conflicting interests in the area (Sec. 13)
Are there links to the hierarchy of decision-making?	Y	Yes there is a strong link to the SMP (Sec. 10.2)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	This is set out in the Do Nothing case (Sec 14.2)
Is a wide range of options and/or standards considered?	Y	Due to the investigative nature of the strategy they look at Do Nothing, Retreat, Re-alignment, Hold the line and Advance (Sec 14.2)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Yes there is a discussion on the effects of each option and its acceptability with respect to natural and human environments and the ability to deliver the strategy (Sec 14.2)
Does the appraisal include option development through a learning process?	Y	Yes the introduction of the realignment is considered in addition to the initially proposed options (Sec 15)
Are the reasons for screening out acceptable/convincing?	Y	Yes they seem reasonable taking into account the coastal processes
Is a do-minimum option included?	X	
Option Costs		
Does the appraisal describe how each option has been costed?	Y	(App. H.)
Are the costs broken down into capital, maintenance, etc.?	Y	They are broken down into maintenance and reconstruction at the end of the defences' residual life (App. H)
Are depreciation and capital charges excluded (if relevant)?	X	Not applicable
Is a common time horizon used?	Y	They appear to be but not stated explicitly
Are residual values included (if relevant)?	Y	Yes (App. H)
Option Benefits		

Questions for Review of Appraisals (B1) Hollesley 2000

Are the benefits of each option identified?	Y	Yes they are taken into account in the discussion and economically (App. H)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	No it was considered that the assessment needs to be done on the same level for comparison across management units
Which benefits are valued in money terms?	Y	Properties, Land, Utilities, are looked at in terms of erosion and flooding (App. H)
Have benefits been assessed for both residential and non-residential properties?	Y	Yes, residential and services are looked at (App. H)
Have benefits for recreation been taken into account?	Partly	They have only been taken into account qualitatively (Sec 14.5)
Is all of the key information used when valuing benefits given?	Partly	The final damages are given, though not the detail working (App. H)
Has capping been undertaken?	X	As the damages have been taken at the write off values capping is not necessary (App. H)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	They are described qualitatively in the discussion of each of the options and the viable management approaches (Sec 14.2)
What non-monetised benefits are included?	Y	Influence on other parts of the coast, environment, recreation, historical sites. (Sec 14.2)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Qualitatively
Are approaches such as scoring and weighting used?	X	No
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	No
Does the appraisal adjust for subsidies, etc.?	X	No
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	No, this is due to the broad nature of the report
General Comment		The strategy looks at a number of areas which have a significant influence on adjacent areas and rivers/estuaries and the approaches need to join up which does not come out well in an economic assessment of each individual cells. The implication of the approach has wider influences, such as realignment in one section will prevent another area being hold the line. These interactions are described in the form of a number of joined up scenarios
Distributional Impacts		

Questions for Review of Appraisals (B1) Hollesley 2000

Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	They appear so, though they are not described explicitly (App. H)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Yes (App. H)
Is a 100 year time horizon used?	?	The time frame is not stated
Does the guidance use a discount rate of 3.5% (reducing)?	?	This is not stated, though they are likely to have used 6% which was recommended in PAGN
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	Not Applicable
Are the main risks identified and described?	X	Not Applicable
Are any adjustments made for risk?	X	
Is optimism bias included?	X	
General Comment		Only the type of approach is investigated in the strategy rather than a specific scheme or option
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	X	
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	Y	Different scenarios are considered depending on the uncertain decision of approach for other areas of the coastline (Sec. 15.2)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	X	
Are the options set out in a way that allows for easy comparison?	Y	Yes these are well laid out and the combination of options for each area (Sec. 15.2)
Are costs and benefits assessed over the same period using the same base date?	?	This appears so though not stated explicitly
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	The NPV is calculated for each of the scenarios (Sec. 14)
Has the PAG3 decision rule been followed correctly?	X	Not applicable
Have indicative standards been taken into account?	X	Not Applicable

Questions for Review of Appraisals (B1) Hollesley 2000

Is there discussion on key constraints?	Y	Yes there is thorough discussion on the key issues (Sec 14)
Are the conclusions supported by the results?	Y	Yes
How does residual risk feature in the appraisal?	Y	Residual damages are taken into account in the economics (App. H)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Y	Yes this is done well by looking at a number of scenarios (Sec. 15.2)
Has the consultation been undertaken at the decision-making stage?	Partly	There is comment on ongoing consultation at the time of the report, though this is not discussed (Sec 16)
Presentation of Results		
Does the appraisal follow the PAR format?	X	No.
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Yes the assumptions are implicit in the description of the methods used (App. H)
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	The level of detail appears to be appropriate
Do the results 'feel' right?	Partly	They appear reasonable, though the managed retreat does not incur any damages which appear in the do nothing; this may influence the results and decisions
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Un-known	This information is not available

Review of Humber Estuary Flood Defence Strategy. Overall Strategy PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Humber Estuary Flood Defence Strategy. Overall strategy	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Problem clearly set out, including residual life and standard (S 2.2; Pg 6-11)
Is the reason for the level of detail of the costs and benefits given?	Partly	S 2.1 notes that PAR is based on studies carried out before, up to March 2004, looking in the same level of detail. S 2.4.2 describes approach to costings (Pg 16) and benefits (Pg 22)
Are clear and measurable objectives given?	Partly	Not spelled out but indicative ranges for different management units given
Are there links to the hierarchy of decision-making?	Y	Links to CHaMP and Shoreline Management Plans (S 2.1; Pg 5 and S 2.2; Pg 10)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	Do nothing given as the baseline but limited quantification (S 2.3.3; Pg 12)
Is a wide range of options and/or standards considered?	Y	Three options for each management unit and preferred option reviewed in the light of strategic issues (S 2.3.1; Pg 12)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3.8 (Pg 14-15) discusses more important options that were not considered and the reasons for omitting them.
Does the appraisal include option development through a learning process?	Y	Preferred option reviewed in the light of strategic issues (S 2.3.1; Pg 12)
Are the reasons for screening out acceptable/convincing?	Y	On the basis of applicability to the whole of the estuary and costs (S 2.3.8; pg 15)
Is a do-minimum option included?	Y	But excluded for not being a realistic option for the whole estuary (S 2.3.8; pg 15)
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S 2.4 sets out the approach to costing and costs of works for different options, including assumptions (Pg 16-17)
Are the costs broken down into capital, maintenance, etc.?	Y	Annual monitoring and maintenance costs are given and costs of works over the next 100yrs. But these are not presented together by option (S 2.4; Pg 16-17)
Are depreciation and capital charges excluded (if relevant)?	Y	No details given

Questions for Review of Appraisals (B1)

Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.5 (Pg 24-28)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	Limited discussion on the magnitude of impacts before they are valued
Which benefits are valued in money terms?	Y	Damage to properties avoided, Intangibles,
Have benefits been assessed for both residential and non-residential properties?	Y	S 2.5.3 (Pg 24). Residential, non-residential and agricultural properties included
Have benefits for recreation been taken into account?	Partly	(From SEA) Annex C notes that there are significant number of formal and informal recreational and amenity facilities but these are not significant at strategic levels (Pg 6)
Is all of the key information used when valuing benefits given?	Partly	Intangibles are included whereas environmental are not valued
Has capping been undertaken?	Y?	All properties flooded more frequently than once every three years were written off (Pg 24). Damage was also capped if it exceeded the market value of the property (Pg 27)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Social and environmental impacts included for option appraisal (S 2.7.2; Pg 34-35)
What non-monetised benefits are included?	Y	Environmental, i.e. habitat losses and gains (Pg 33)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description for environmental impacts and valuation for intangibles (stress)
Are approaches such as scoring and weighting used?	Partly	For appraisal against environmental objectives and also risk assessment
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Environmental impacts could probably be given a value
Does the appraisal adjust for subsidies, etc.?	N?	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N?	Not mentioned in this PAR, but may have been included in accompanying documents listed in reference list as these are included under strategic environmental objectives
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2004 base date (S 2.4; Pg 16 and 2.5; Pg 22)
Are all costs and benefits presented in Present	Y	S 2.7.3 (Pg 35)

Questions for Review of Appraisals (B1)

Value (i.e. discounted) terms?		
Is a 100 year time horizon used?	Y	But PV over 50 years are also given (e.g. S 2.4.5; Pg 18)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 2.5.5 (Pg 25)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	A total of 78 risk identified and ranked by probability and impacts, the top 25 collated into groups and their impacts reviewed in terms of timing, delay and costs (S 2.7.6; Pg 36)
Are any adjustments made for risk?	Y	Allowance included for emergency works (S 2.7.6; Pg 36)
Is optimism bias included?	Y	Originally 60% optimism bias included (Pg 18) but then reduced to 40% for works in the first five years and to 50% or 55% for those in the next 10
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	S 2.7.6 (Pg 36-37), on the preferred option and changes in baseline assumptions: reducing damages; increasing damages; excluding optimism bias; including the value of stress
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Climate change: sensitivity of the business case assessed by examining the implications of sea level rising at a rate of 10 rather than 6mm/yr (Pg 37)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	Economic appraisal encompasses with environmental impacts to choose the preferred options (Appraisal Summary Tables not included in this PAR though) (S 2.7.1; pg 34)
Are the options set out in a way that allows for easy comparison?	Partly	PAR does not contain summary of all options and MU benefits and costs. S 2.7 only present summary for the preferred option for each management unit
Are costs and benefits assessed over the same period using the same base date?	Y?	100 years, 2004 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Incremental CB ratios not given in main text; but BC ratios are (S 2.7.2; pg 34)
Has the PAG3 decision rule been followed correctly?	Y?	Presumably, but incremental costs ratios are not given in the available text (maybe in references provided)

Questions for Review of Appraisals (B1)

Have indicative standards been taken into account?	Y	Under description of problem (S 2.2.2; Pg 6-7)
Is there discussion on key constraints?	Y	S 2.6.4 (pg 30)
Are the conclusions supported by the results?	Partly	Information in this PAR as to the selection of option is limited, e.g. lack of incremental CB ratios
How does residual risk feature in the appraisal?	Partly	No specific details given on residual risk although other considerations include planning conditions, modelling of coastal squeeze, etc (S 2.8; Pg 39-41)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation has been undertaken extensively, but uncertain about its impact on the decision-making
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Most assumptions given in text; but not always clear how figures are arrived at (S 2.5)
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	Appraisal will benefit from more comparison of options for different MU
Do the results 'feel' right?	Partly	Appraisal will benefit from more comparison of options for different MU
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Lincshore Review of PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Detailed analysis of coastal flooding problems and existing flood defence mechanisms in Section 2.2 p.9-11
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	Objectives given on p.11
Are there links to the hierarchy of decision-making?	N	
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?		
Is a wide range of options and/or standards considered?	Y	4 broad options are considered p.12. Do nothing, hold the existing defence line, advance the line, retreat the line. Argument made to hold line and then 8 options considered for how to do this p.
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	All 8 options identified under the "hold the line" scenario have undergone detailed assessment p.20 section 2.4.1 for environmental advantages and disadvantages, p.23-24 for risk assessment, p.24 for cost, p.26 for benefits
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Y	Clear reasons for opting for "hold the line" are given in Section 2.3 p.12
Is a do-minimum option included?	Y	Option 2, Maintain the sea walls only (p.14), is considered as the do-minimum option
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Costs are provided in Table 2-3 on p.24 and detailed in Appendix H of Appendix K(?) Based on similar scheme costs in the area and information available for the existing Lincshore contract.
Are the costs broken down into capital, maintenance, etc.?	Partly	Only overall figures are given on p.24 for the different options. Section 2.8 p.29-35 provides detailed costing broken down by expenditure type, including specification for maintenance
Are depreciation and capital charges excluded (if relevant)?	?	

Questions for Review of Appraisals (B1)

Are residual values included (if relevant)?	?	
Option Benefits		
Are the benefits of each option identified?	Y	Tangible benefits identified as reduced damage from flooding and values set out in table 2-5 on p.26. Appendix H of Appendix K provides details (not attached here)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	Lincshore strategy is part of the wider long-term Lincolnshire Shoreline Management Plan (p.12) and significance. Benefits/drawbacks of different options considered p.14-16 prior to detailed cost/benefit analysis
Which benefits are valued in money terms?	Y	Tangible benefits identified as reduced damage from funding and values set out in money terms table 2-5 on p.26. Categories of damage valued in money terms are residential, caravans, commercial/industrial, agricultural land
Have benefits been assessed for both residential and non-residential properties?	Y	Table 2-5 on p.26 sets out the PV benefits for each option and these are based on PV damages from flooding in Table 2-4 on p.26 which includes both residential and non-residential properties
Have benefits for recreation been taken into account?	Y	Recreational benefits included in Table 2-5 on p.26
Is all of the key information used when valuing benefits given?	?	
Has capping been undertaken?	?	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Only set down for preferred option in detail on p.27 (intangible benefits) but not for other options except in earlier table 2-2 on p.20 where environmental advantages and disadvantages of each option are presented
What non-monetised benefits are included?		p.27 intangible benefits listed as: reduced risk of distress and disruption, protection of amenity value, protecting assets (though this is probably a tangible benefit and is costed), meeting sediment shortfall to maintain high beach levels, reducing adverse effects on wildlife, reduced risk to public safety from hard defence structures
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Done by description and categorised as a "gain" or "Avoidance related" benefit
Are approaches such as scoring and weighting used?	N	No such systems used
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Recreational benefit valued in Table 2-5 on p.26. Has followed DEFRA

Questions for Review of Appraisals (B1)

		guidelines (Section 2.6 p.24)
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	Partly	Not explicitly, although some of the effects of the preferred option are considered from the perspective of fishermen and local community/beach users p.21-22
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	The base date for costs and benefits is April 2004 (section 2.5.2 p.24 and p.26 above table 2-4). PAR dated September 2004.
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	
Is a 100 year time horizon used?	N	50 year time horizon for implementation of a 200yr standard
Does the guidance use a discount rate of 3.5% (reducing)?	Y	p.24 under section 2.5.2 confirms
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	?	Not mentioned
Are the main risks identified and described?	Y	Section 2.5 p.23 refers to risk assessment and register and Appendix I gives details on the process., but risk register not included in this version of the document. Table 3-3 on p.45 highlights the main residual risks and proposed mitigation strategies for preferred option
Are any adjustments made for risk?	Y	Optimum bias values determined by looking at risk register and used to make adjustments to costs p.24
Is optimism bias included?	Y	p.24 identifies the optimum bias values used for each of the options
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	p.28 Sensitivity analysis carried out with respect to changes in costs and strategy lifetime
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	climate change
Comparing Options		
Are all of the costs, benefits, adjustments,	Partly	Preferred option is selected "due to it

Questions for Review of Appraisals (B1)

sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?		having the highest benefit cost ratio" p.27. Sensitivity analysis then completed to verify. But no specific reference back to original objectives.
Are the options set out in a way that allows for easy comparison?	Partly	In terms of benefit cost analysis p.27. But environmental advantages/disadvantages p.20 not explicitly catered for
Are costs and benefits assessed over the same period using the same base date?	Y	Base date April 2004. Period = 50 years.
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Reference made to the fact that the "incremental benefit cost ratio for the Option 6 to a 1 in 300 year defence standard is only 0.27" on p.27 but figures are not provided elsewhere or for other options. Possibly in Appendix H.H.5 of Appendix K
Has the PAG3 decision rule been followed correctly?	Y	Preferred option is that with highest benefit cost ratio and decision not to opt for higher standard follows procedure p.27
Have indicative standards been taken into account?	Y	As above p.27
Is there discussion on key constraints?	Y	Section 3.2 p.42 sets out constraints for the programme
Are the conclusions supported by the results?		
How does residual risk feature in the appraisal?	Y	Under the detailed risk assessment in Appendix G and summarised in the main text in Table 3-3.
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Partly	Recommended option includes preferred option (nourishment only) and adds some extra elements e.g. removal of ineffective groynes, replacement of promontory elements, maintenance of existing sea walls.
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation has taken part at the point of conducting the environmental assessment and a more selective consultation was conducted prior to selecting the preferred option for presentation in this PAR. p.23
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	?	
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		

Questions for Review of Appraisals (B1)

Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known
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Review of Lower Lancaster PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Lower Lancaster	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. sets out the problem, with description of current defence standards below indicative standards of protection and number of units affected (Pg 8)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.2.5 sets out indicative standard as an objective; more general objectives are also included, e.g. to protect and conserve the existing natural, cultural, social and commercial environment , to reduce the risk to people, etc (Pg 8-9)
Are there links to the hierarchy of decision-making?	Y	S 2.1.3 describes the legislative framework, i.e. the defence works will be carried out by the EA using its permissive powers under Section 165 of the Water Resources Act (pg 5)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is set out as the baseline option (S 2.3.2; Pg 9), and includes description of properties and units affected
Is a wide range of options and/or standards considered?	Y	8 options considered
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	All 8 options are brought forward
Does the appraisal include option development through a learning process?	Y	S 2.7.5 sets out environmental enhancement opportunities as part of the preferred option (Pg 19)
Are the reasons for screening out acceptable/convincing?	Y	Based on ratios
Is a do-minimum option included?	Y	As Option 3
Option Costs		
Does the appraisal describe how each option has been costed?	N	S 2.5 summarises costs for the options but does not provide details about how each option has been costed (Pg 14)
Are the costs broken down into capital, maintenance, etc.?	N	Table 2.5.1 summarises total costs, discounted and undiscounted, but these are not broken down into capital, maintenance, etc.
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given

Questions for Review of Appraisals (B1)

Option Benefits		
Are the benefits of each option identified?	Y	Benefits from 8 options considered in terms of 'avoidance of loss/damage'. Indirect effects from traffic-related delays and emergency services costs have also been included (Pg 17)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Avoidance of loss/damage; traffic related and emergency services; and reduction in damages from flood warning service
Have benefits been assessed for both residential and non-residential properties?	Y	(S 2.6.4) Industrial properties included (Pg 17)
Have benefits for recreation been taken into account?	Partly	S 2.3.2 describes them qualitatively but they are not included in the economic appraisal (S 2.6.4)
Is all of the key information used when valuing benefits given?	N	Recreational, environmental and other intangible impact are not valued
Has capping been undertaken?	Y	A number of industrial and residential properties are capped
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	Environmental, recreational and agricultural enhancement benefits have not been quantified or included in the economic justification of the preferred scheme (Pg 3) but positive and negative impacts from the options are described (Pg 12)
What non-monetised benefits are included?	Y	Intangible benefits from implementation of the preferred option (Pg 18) and other environmental described qualitatively
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description, Recreational impacts not included monetarily; intangibles are acknowledged for the preferred option and environmental benefits are described under 'other issues' (Pg 19)
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Intertidal habitat creation, intangibles and recreational impacts could, potentially, be valued
Does the appraisal adjust for subsidies, etc.?	Y	Compensation is included (S 1.5; Pg 2)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No archaeological or heritage designation within the study area (Pg 6)
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	

Questions for Review of Appraisals (B1)

Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2004 base date (Pg 3)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5; 2.6 and 2.7 (costs, benefits and choice of preferred option respectively)
Is a 100 year time horizon used?	Y	Pg 14 , in accordance with Defra Guidance
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Pg 14 , in accordance with Defra Guidance
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	(S 2.5.2) Risk-based project contingency assumed to be similar for all options, as the principal difference is height (Pg 15)
Are any adjustments made for risk?	Y	Risk 2.2. used, in accordance with FCDPAG4 (Pg 15)
Is optimism bias included?	Y	Optimism bias of 60% added to all future costs (S2.5.2; Pg 15)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	S 2.7.3, describes sensitivity analysis undertaken; this consists of: increase construction costs; reduction in construction costs; change in project contingency
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Partly	Model scenarios have been run to determine present day water levels and also future levels allowing for 4mm sea level rise per year (S 2.2.2; Pg 7)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Compared against indicative standards of protection
Are the options set out in a way that allows for easy comparison?	Y	All options are brought forward and all ratios presented
Are costs and benefits assessed over the same period using the same base date?	Y	2004 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	For all options (S 2.7.1)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7
Have indicative standards been taken into account?	Y	Throughout the report

Questions for Review of Appraisals (B1)

Is there discussion on key constraints?	Partly	Not in great detail in main body of PAR; but environmental constraints are shown in Appendix I
Are the conclusions supported by the results?	Y	S 2.7
How does residual risk feature in the appraisal?	Y	Project contingency sum is included within the costs to cover the financial implications of the residual risks (S 1.12; Pg 4)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	For EIA (S 2.4; Pg 13)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	N	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Although it could benefits from breaking down the costs and including summary of assumption. The PAR reads well however.
Do the results 'feel' right?	Y	The preferred option has the highest benefit cost ratio and is above indicative standards of protection. It would not be possible to promote a standard of protection above that of the preferred option (S 2.7; Pg 17-18)
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of Lower Parrett & Tone Flood Management Strategy PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
Lower Parrett & Tone Flood Management Strategy		
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2.1 sets out the problem including number of properties at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives are given (S 2.2.5.4) but these may not be easily measurable
Are there links to the hierarchy of decision-making?	Y	Links to EA's Strategy for Flood Risk Management 2003-2008 and other management plans (S 2.1.1, S 2.1.3)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing given as the baseline S 2.4.2
Is a wide range of options and/or standards considered?	Y	Eight short listed possible options reviewed (S 2.3.3)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	S 2.3.3. notes that other combination were looked at, but disregarded on technical and environmental grounds
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Partly	May benefit from further discussion
Is a do-minimum option included?	N?	Not clearly spelled out but Option B, 'secure embankments' could be regarded as 'do minimum'
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Costs elements are described for each option and PV costs given (S 2.4.1)
Are the costs broken down into capital, maintenance, etc.?	Y	Capital costs and 'other costs', with latter including annual maintenance costs, capitalised over 50 years, compensation, site investigation, internal stuff costs and fees (S 2.4.1)
Are depreciation and capital charges excluded (if relevant)?	Y	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.5
Is the likely significance/likely magnitude of the benefits taken into account before assessing	Y	Impacts are described in terms of magnitude and some are not valued on

Questions for Review of Appraisals (B1)

them in detail?		the basis of them being negligible
Which benefits are valued in money terms?	Y	Property assets, mainly residential, road assets, agricultural assets, environment as ESA surrogates for don nothing only, railway assets, utility assets
Have benefits been assessed for both residential and non-residential properties?	N?	7 Commercial and 1 public; and identified but uncertain whether these are included in economic appraisal (mainly residential properties in the area; 590)
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Y	Impacts are described and reasons for valuation and not-valuation given on the basis of magnitude
Has capping been undertaken?	Y	Transport damages have been capped at replacement costs (S 2.3.3.1)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	S 2.5
What non-monetised benefits are included?	Y	Environmental, risk to life, regional impacts
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description
Are approaches such as scoring and weighting used?	N?	The environmental appraisal of option however does include a system of pluses and minuses
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Most of impacts are valued including environmental impacts; but maybe risk to life could have been included
Does the appraisal adjust for subsidies, etc.?	Y	Compensation included under other costs
Does the appraisal include valuation of legally protected elements at risk (if any)?	N?	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 base date for costs and benefits of main options although 2004 is used for costs of stand alone options
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.4 and S 2.7
Is a 100 year time horizon used?	N	S 2.1.4: 50 years used (but PAR notes that outcome will not be affected by adoption a 100 years period)
Does the guidance use a discount rate of 3.5% (reducing)?	N	3.5% used

Questions for Review of Appraisals (B1)

Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Key risk described briefly (executive summary) and in S 2.8
Are any adjustments made for risk?	Partly	Risk mitigation measures proposed but not adjustment on costs and benefits. timeframe of 50 years is proposed to address uncertainties and risk
Is optimism bias included?	Y	Optimism bias included at 60% of capital costs and include management costs
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	Risk are identified but robustness of preferred option not tested
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Based on costs and benefits only
Are the options set out in a way that allows for easy comparison?	Y	A summary of discounted costs and benefits of each short listed option is provided (S 2.7.2)
Are costs and benefits assessed over the same period using the same base date?	Y	2003 base date, 50 years timeframe
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7.2
Has the PAG3 decision rule been followed correctly?	Partly	FCPAG3 seems to have been applied but uncertain about decision process as indicative standards are not given
Have indicative standards been taken into account?	N	There is some discussion but these are not linked to the options
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Partly	Not sure about the decision making process (no mention of indicative standards)
How does residual risk feature in the appraisal?	N	
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	Some combinations were looked at earlier in the process but these were screened out
Has the consultation been undertaken at the decision-making stage?	N	
Presentation of Results		

Questions for Review of Appraisals (B1)

Does the appraisal follow the PAR format?	Partly	Some elements are missing, e.g. residual risk
Does the appraisal include all assumptions alongside the calculations, etc.?	N	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N	Decision process unclear and robustness of preferred option not properly tested
Do the results 'feel' right?	N?	Decision process unclear and robustness of preferred option not properly tested
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Lower Todmorden and Walsden Water

Questions for Review of Appraisals (B1)

Appraisal being reviewed Lower Todmorden and Walsden Water (2003)	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	The problem is clearly defined with number of properties and other assets potentially affected set out (S2.2, pg 7)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S2.3.2 sets out scheme objectives, which are partly measurable (include reduce, significantly increase, etc.)
Are there links to the hierarchy of decision-making?	Partly	Links are given to the Upper Calder Improvements Strategy and the Calderdale MBC Local Plan
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	Paras 2.6.3 to 2.6.12 set out the do-nothing option, including timings of failure. The description of impacts also includes wider (non-monetisable) impacts, but not the number of properties that would be affected over time (although numbers affected by a 1 in 100 year flood are given elsewhere)
Is a wide range of options and/or standards considered?	Y	A range of different approaches for alleviating flooding problems are considered (Section 2.6.13). They have also been combined into combinations to give 16 generic options
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Models were applied to determine technical and economic feasibility, while Table 4 sets out activities associated with options and why they have been discarded
Does the appraisal include option development through a learning process?	Partly	The options are built up from a series of measures that could be used to minimise flood risk, but the options themselves do not seem to be revisited once they have been identified
Are the reasons for screening out acceptable/convincing?	Y	Although it is not easy to compare them back to the generic list of options given in Table 3

Questions for Review of Appraisals (B1)

Is a do-minimum option included?	Y	But it is screened out in Table 4 as being unacceptable as it would lead to an increase in the frequency and severity of flooding (comparing against current situation rather than do-nothing baseline) – but then do-minimum is included at the selection of the preferred option stage
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Based on a phased construction sequence over 5 years, but costs are not broken down and are only given for three options 'chosen for detailed appraisal'
Are the costs broken down into capital, maintenance, etc.?	Partly	The PAR mentions maintenance costs, but excludes them from the total costs as all of the options require the same amount of maintenance
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	N	PAG3 spreadsheets give an indication but there is no discussion of benefits of each option individually – only general assumptions
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	Traffic disruption costs are considered but are not monetised due to the short duration of flooding and because a significant part of the traffic network would not be affected
Which benefits are valued in money terms?	Y	Property damages Rail disruption Loss of employment (calculated as loss of staff costs) Emergency services
Have benefits been assessed for both residential and non-residential properties?	Y	PAG3 spreadsheets include values for both industrial and residential property, but this is not brought out very clearly in the PAR
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Y	Quantitative information relating to how the benefits have been estimated is given in Section 2.9
Has capping been undertaken?	N?	No suggestion that capping has been undertaken – it is also not clear if properties are written off at any time or what the market value of the properties are

Questions for Review of Appraisals (B1)

Are non-monetised benefits included in the appraisal (e.g. social, environmental)?		There are listed buildings in the floodable area, but these are not mentioned at all in the economic appraisal – only in the Project Plan (S3.5.25)
What non-monetised benefits are included?	?	Traffic disruption is mentioned, while there is also an indication of environmental and aesthetic enhancements, and regeneration
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Only those impacts that can be valued are taken into account during decision making, although an attempt is made to value social impacts from loss of employment
Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given (although the Project Plan does mention listed buildings)
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	All costs and benefits are given to a base date of April 2003 (Section 2.9.14)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Section 2.9 notes that the present value of damages has been calculated, while the PV costs are given in Table 6
Is a 100 year time horizon used?	Y?	PAG3 spreadsheets included in appendices suggest so
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Again suggested by PAG3 spreadsheets – not confirmed in PAR?
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	Major residual project risks are identified in Section 1.14
Are any adjustments made for risk?	Y	A risk contingency is included within the construction cost estimates
Is optimism bias included?	N?	The 50%ile value as calculated by @Risk 2.2 is included
<i>Sensitivity Analysis</i>		

Questions for Review of Appraisals (B1)

Has sensitivity analysis been undertaken?	Y	States only on the preferred option because 'all options use traditional engineering techniques', therefore, 'it is considered that the sensitivity analysis will give proportionate variations and will not affect the choice of scheme' (S2.8.1) <u>but</u> sensitivity analysis looks at changes in BCR and IBCR, therefore, must test all options
Does the sensitivity analysis include calculation of switching values?	Partly	The PAR discusses how much the costs would have to increase by or benefits decrease by to change the decision (but only in terms of moving to the next higher option). It includes consideration of removal of benefits from the largest source (a commercial property)
Are different scenarios used to take into account specific uncertainties?	Partly	Climate change has been taken into account by looking for additional flood storage (change in flood flows and frequencies has not been taken into account due to a lack of data)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Section 2.10 discusses why the preferred option has been selected. It refers back to the indicative standard and considers the incremental benefit-cost ratio but does not refer back to the project objectives specifically
Are the options set out in a way that allows for easy comparison?	Partly	The PAG summary table is included, but the options have been renumbered from previous tables making it confusing. There is also no real discussion on how the decision rule has been applied
Are costs and benefits assessed over the same period using the same base date?	Y	April 2003, assessed over a 100 year period
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Summary Table included as Table 6
Has the PAG3 decision rule been followed correctly?	Y	The explanation of how it has been applied is not clear
Have indicative standards been taken into account?	Y	The area is assigned to Land Use Band B
Is there discussion on key constraints?	Partly	Some of the constraints are included in the objectives (e.g. not increase the rate or volume of floodwater passing down the Rochdale Canal)
Are the conclusions supported by the results?	Y	Although there are some concerns over the approach used to estimate the benefits – particularly in terms of whether properties are written off or not, and use of staff costs to estimate social costs of loss of a major employer

Questions for Review of Appraisals (B1)

How does residual risk feature in the appraisal?	N	There is no mention of residual risk
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	For the Environmental Impact Assessment (S2.7)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	It follows the structure of the PAR
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some key assumptions are given while other key information (e.g. whether the properties are written-off or not) is not
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	It is difficult to tell from the PAR itself, there is the suggestion that a lot of detail and effort has been put in but this is not really supported by the PAR
Do the results 'feel' right?	Y	There is clearly need for improvements to the defences and the scheme is an interesting one (involving flood storage areas)
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of River Lymington PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: River Lymington	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. sets out the problem (Pg 7) including properties affected by flooding
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives are set out (S 2.2.4) but these are not easily measurable (e.g. to reduce fluvial risk to people)
Are there links to the hierarchy of decision-making?	Y	Links to Coastal Habitat Management Plan (CHaMP) and other European funded projects (LIFE 3)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	The do-nothing option is described in S2.3.1 including the reason why it is not appropriate. Quantification given under problem description
Is a wide range of options and/or standards considered?	Y	Originally 10 options considered and down to five
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3 explain reasons why some options were disregarded, based on, e.g. costs, political acceptability and technical viability
Does the appraisal include option development through a learning process?	Y	Mitigation measures proposed to deal with residual risks
Are the reasons for screening out acceptable/convincing?	Y	S 2.3 gives reasons for screening out option based on risk, health and safety, costs, etc.
Is a do-minimum option included?	Y	Do minimum similar to the existing situation in which basic maintenance and clearance works are undertaken (S 2.3.2)
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S 2.5 and Table 2.1 sets out how the options have been costed, including assumptions made
Are the costs broken down into capital, maintenance, etc.?	Y	Table 2.1 describes capital and maintenance costs (Pg 26-27)
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.6 describes the benefits

Questions for Review of Appraisals (B1)

Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	Benefits are described (S 2.4.3; Pg 22) but uncertain how they are carried forward.
Which benefits are valued in money terms?	Y	Property depth flood damages, property write-off and transportation damages
Have benefits been assessed for both residential and non-residential properties?	N?	No details given although disruption to transport is included– TF: could not find in text
Have benefits for recreation been taken into account?	Partly	S 2.4.3
Is all of the key information used when valuing benefits given?	N	Intangible benefits seem an add-on and are not valued (S 2.6.2; Pg 29); other impacts described in S 2.4.3 but not valued
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Included but uncertain whether they have been thoroughly taken into account for selection of option
What non-monetised benefits are included?	Y	Local people and property; verderers and grazing, recreation and tourism; traffic and transport; flora and fauna; landscape and visual; cultural heritage, archaeology and material assets; water resources and other planned initiatives (S 2.4.3; Pg 22-23)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description (S 2.4.3; Pg 22)
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Probably the value of the railway line could be valued
Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	Impact to cultural heritage acknowledged in S 2.4.3 but not valued
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Costs and benefits presented in PV terms in summary Tables (Pg 30)
Is a 100 year time horizon used?	Y?	Assessment in accordance with requirements of PAG3 (Pg 28). Cannot find in text the timeframe
Does the guidance use a discount rate of 3.5% (reducing)?	Y?	Assessment in accordance with requirements of PAG3 (Pg 28). Cannot

Questions for Review of Appraisals (B1)

		find in text the discount rate
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	No details given
Are the main risks identified and described?	Y	S 1.7 describes residual project risks and measures for mitigation
Are any adjustments made for risk?	Y	Monte Carlo risk assessment undertaken, in accordance with Risk 2.2 (Pg 5)
Is optimism bias included?	Y	Optimism bias of 60%
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y?	FlairX3 undertaken (Pg 3). A sensitivity analysis has been undertaken on the preferred option based on construction methodology (Pg 30) and also on damages under the Do-Nothing (+/- 100mm on water level varying flooded property numbers by 0 and 1 respectively; Pg 8)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	N	
Are the options set out in a way that allows for easy comparison?	Partly	Good summary Tables but text is difficult to follow
Are costs and benefits assessed over the same period using the same base date?	Y?	Likely but this is not spelled out
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	
Has the PAG3 decision rule been followed correctly?	Y	Highest BC ratio for Do-minimum but this does not meet indicative standards thus next highest option with Benefit/Costs ratio robustly >1 as the preferred option (Pg 2 and 30)
Have indicative standards been taken into account?	Y	Indicative standard taken into account (S 2.2; Land Use A)
Is there discussion on key constraints?	Y	Constraints and environmental issues described for each option (S 2.3)
Are the conclusions supported by the results?	Y	Conclusions supported by ratios
How does residual risk feature in the appraisal?	Y	Residual risks described (S 1.7) and included in Monte Carlo risk assessment and 60% optimism bias risk contingency

Questions for Review of Appraisals (B1)

		(Pg 5)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	S 2.4.6 describes consultation process; this with regard to the EIA. One option was screening out on the basis of opposition from stakeholders (Pg 20)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Assumptions included in text and Tables
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	Some of the arguments do not follow throughout; e.g. environmental and socio-economic impacts very well. Report is difficult to read; maybe because of layout
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of Melton Mowbray Flood Alleviation Scheme PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Melton Mowbray Flood Alleviation Scheme	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S A1.3 (Pg 1) sets out the problem including number of properties at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	A 2.1 (Pg 2) and B2(Pg 809) Objectives are clear but these are not easily measurable
Are there links to the hierarchy of decision-making?	Y	A 2.1 (Pg 2): Links to Agency's policy and LEAP Action Plans
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	B 4.1 (Pg 13) Do nothing is given as the baseline, including description of probability of flooding. There is no quantification of properties at risk in this Section but these are given under problem description
Is a wide range of options and/or standards considered?	Y	A 3.1 (Pg 2) lists a large range of options and standards of defence
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	A 3.1 (Pg 2): Screened out on the basis of environmental opportunities, impacts, consistency with the project strategy, technical feasibility and costs
Does the appraisal include option development through a learning process?	Y	Some options involve combinations of options (e.g. Option 10-11, Pg 16). Other options added as a result of discussion with stakeholders to be used individually or in combination (Pg 18). Mitigation also proposed based on EIA findings
Are the reasons for screening out acceptable/convincing?	Y	A 3.1 (pg 2): Screened out on the basis of environmental opportunities, impacts, consistency with the project strategy, technical feasibility and costs
Is a do-minimum option included?	Y	Do minimum included (A3; Pg 2) but screened out on the basis of not meeting project objectives
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Appendix D8 (Pg iV)
Are the costs broken down into capital, maintenance, etc.?	Y	Appendix D8, table E, G and G gives breakdown of whole life costs, grant eligible costs and project costs but only

Questions for Review of Appraisals (B1)

		whole life costs are included in the appraisal
Are depreciation and capital charges excluded (if relevant)?	Y	
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	B 4.4 (Pg 28)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Damage avoided
Have benefits been assessed for both residential and non-residential properties?	Y	Appendix D8 (Pg ii): Residential, commercial and industrial properties
Have benefits for recreation been taken into account?	Partly	Impacts of public footpaths taken into account under environmental considerations and mitigation measures (Pg 25) but not valued on the basis that recreational activity will be maintained
Is all of the key information used when valuing benefits given?	N	Environmental impacts (SSSI) could potentially have been valued
Has capping been undertaken?	N?	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Initially for option screening and then described for the preferred option 9S b5; pg 33); but not for comparison of short-listed options
What non-monetised benefits are included?	Y	Intangibles (reduction in human stress and anxiety) and environmental (e.g. water quality, reduction in silt deposition in the SSSI)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	E.g. recreation, environmental impacts
Does the appraisal adjust for subsidies, etc.?	Y	Compensation costs are included (A6; Pg 5)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2000 base date (Pg 4)
Are all costs and benefits presented in Present	Y	S B4.4 (Pg 28)

Questions for Review of Appraisals (B1)

Value (i.e. discounted) terms?		
Is a 100 year time horizon used?	N	50 years used (Appendix D8, Pg iii)
Does the guidance use a discount rate of 3.5% (reducing)?	N	6% used (Appendix D8, Pg iii)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	C5. Risk register included in Appendix D11.
Are any adjustments made for risk?	Y	S A3.2 (Pg 4) 10% contingency on costs for most work, but increased to 20% for the work needed for the railway embankment. This equates to 11% overall contingency. The contingency was calculated using a probability assessment
Is optimism bias included?	N	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Appendix D8 (Pg v-vi): Sensitivity for the preferred option assuming closure of factory
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Screening does this for full list of options but selection among short-listed based on economic appraisal
Are the options set out in a way that allows for easy comparison?	Y	Summary of Benefits and Costs given in B4.4 (Pg 28); further comparison in annex D8.
Are costs and benefits assessed over the same period using the same base date?	Y	50 years, 2000 base date (Appendix D8)
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S B4.4 (Pg 28)
Has the PAG3 decision rule been followed correctly?	Y	B 4.4 (Pg 28-29)
Have indicative standards been taken into account?	Y	B 4.4 (Pg 28-29) and Appendix D8 (Pg v)
Is there discussion on key constraints?	Y	B3 (Pg 10-11) describes the existing situation and constraints
Are the conclusions supported by the results?	Y	As based on incremental BC ratios
How does residual risk feature in the appraisal?	N	
Does the appraisal include maximising benefits/	Partly	Some options involve combinations of

Questions for Review of Appraisals (B1)

minimising costs by combining the best bits of a number of options?		options (e.g. Option 10-11, Pg 16) but uncertain whether this is based on economic grounds
Has the consultation been undertaken at the decision-making stage?	Y	Consultation undertaken (Pg 26) and preferred option modified based on consultation with EN (Pg 29)
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Some elements included but grouped differently (e.g. problem, constraints) but other omitted (residual risk); new sections added (benefit realisation)
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Little detail in main body of PAR; more details in Annex D8.
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Although it may benefit from further discussion of economic appraisal in main body of text
Do the results 'feel' right?	Y	As based on incremental CB ratios; through discussion of other impacts too
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of the Middle Medway Strategy Study for Flood Risk Management PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: The Middle Medway Strategy Study for Flood Risk Management	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 3 (Pg 12) sets out the problem, including number of properties at risk of flooding
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.8 sets out the objectives but these may not be easily measurable (e.g. to develop a flood risk management strategy for the next 100 years; to further identify and appraise flood mitigation options; to scope and investigate significant environmental impacts of these options, etc.)
Are there links to the hierarchy of decision-making?	Y	S 2.9 sets out the legislative framework
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is given as the baseline (S 3.5; Pg 14), and sets out no of properties flooding in the 1 % annual probability event and annual average damages
Is a wide range of options and/or standards considered?	Y	S 4.1.1 (Pg 19) : Stage 1 of the project consisted of a generation of long list of potential options consistent with policies established and measures considered in the Catchment Flood Management Plan (CFMP).
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Stage 2: Generation of short list of options for detailed evaluation on the basis of stakeholder consultation and Multi-Criteria Analysis.
Does the appraisal include option development through a learning process?	Y	Mitigation measures included as part of options development (Pg 30)
Are the reasons for screening out acceptable/convincing?	Y	S 4.2, Pg 21 sets out reasons why options from long-list are screened out on the basis of, e.g. scale of impacts and, impacts on the environment, etc
Is a do-minimum option included?	Y	S 3.6 (Pg 16)
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S 6.1 includes spend profile and spells out assumptions

Questions for Review of Appraisals (B1)

Are the costs broken down into capital, maintenance, etc.?	Y	Table 6.2 (Pg 41)
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 6.2.2 sets out the benefits for each option in terms of the number of properties removed from existing flood risk in the 4% and 1% annual probability flood events (Pg 45)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	For screening of options, but based primarily on level of protection provided (S 4.2; Pg 21)
Which benefits are valued in money terms?	Y	Damages avoided
Have benefits been assessed for both residential and non-residential properties?	Y	S 6.2 (Pg 42)
Have benefits for recreation been taken into account?	N	Not in the economic appraisal but yes as part of the Strategic Environmental Assessment (SEA) (S 5.2)
Is all of the key information used when valuing benefits given?	Partly	These are based on damages avoided; may benefit from other considerations, i.e. social, environmental although these were used for screening out options in Stage 1
Has capping been undertaken?	Y	Residential and non-residential properties have been capped to the write-off value of a property whenever this would be exceeded (pg 43)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	Damages such as transport, clean-up, and indirect damages have not been evaluated in the economic appraisal; report notes that the evaluation is conservative.
What non-monetised benefits are included?	Y	Recreation, conservation, amenity, fisheries, water quality (as part of SEA and screening of options)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	Qualitative description in the SEA
Are approaches such as scoring and weighting used?	Y	S 4.1.2 notes that MCA was undertaken to screen out options from the original list and describes process (greatest weight was given to technical effectiveness followed by environmental acceptability; the lowest weighting was given to stakeholder acceptability and economic efficiency).
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Recreational benefits could, potentially, be valued

Questions for Review of Appraisals (B1)

Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2004 prices; report produced in 2005
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 7 (Pg 49-56)
Is a 100 year time horizon used?	Y	Costs and benefits discounted over a 100 years
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 6.2.1 (Pg 43)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	S 7.3 sets out the main risks and sources of uncertainty
Are any adjustments made for risk?	Y	In sensitivity testing
Is optimism bias included?	Y	Optimism bias of 60% has been applied to all operation and maintenance and renewal costs, apart from the Do Minimum operation and maintenance costs where a reduced 30% has been applied (S 6.1.1; Pg 40)
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	S 7.4 (Pg 59): Sensitivity testing on costs, benefits and water levels for all options in detailed appraisal
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	E.g. Climate change and water levels S 7.4
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The final selection of the options comprising the preferred strategy is made in accordance with FCDPAG series of documents and is primarily based on the economic effectiveness and environmental acceptability (s 7.1; Pg 49).
Are the options set out in a way that allows for easy comparison?	Y	Good summary Tables
Are costs and benefits assessed over the same	Y	100 years and 2004 prices.

Questions for Review of Appraisals (B1)

period using the same base date?		
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 7 (pg 49)
Has the PAG3 decision rule been followed correctly?	Y	S 7 (pg 49)
Have indicative standards been taken into account?	Y	S 7.1 (Pg 49)
Is there discussion on key constraints?	Partly	Some constraints identified, e.g. Constraints from local policies (S 9; Pg 93). But no detailed discussion
Are the conclusions supported by the results?	Y	FCDPAG rule followed
How does residual risk feature in the appraisal?	Y	Mitigation strategies proposed to deal with residual risk (S 9.7 and 9.8; Pg 92-93)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Y?	Some options consists of a combination of different options for which benefits and costs are presented (S 7.2.3; Pg 53). The preferred option is a combination of different options
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation undertaken at the beginning of process including stakeholder workshop but not as much at the decision making stage
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Assumption included in text but not always alongside calculations
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Appraisal seems quite thorough
Do the results 'feel' right?	Y	Stepwise approach to decision making (S 7) seems quite thorough
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Morecambe Coastal Works Phases VI and VII PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Morecambe Coastal Works Phases VI and VII	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2 (Pg 8) describes the problem
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	S 2.1.9 sets out the objectives including number of properties to be protected.
Are there links to the hierarchy of decision-making?	Y	S 2.12 sets out the strategic context; reference to EU Directive in introductory section too and in S 2.1.6
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is given, includes number of properties at risk (S 2.2.4; Pg 11 describes do nothing but does not explicitly notes this as the baseline)
Is a wide range of options and/or standards considered?	Y	12 options considered (S 2.3.1; Pg 13)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3.3 shows screening of options on the basis of land-take and impact on amenity
Does the appraisal include option development through a learning process?	Partly	Some of the options seem to have been revisited on the basis of environmental impacts (S 2.3.2)
Are the reasons for screening out acceptable/convincing?	Y	Screen out of the basis of impacts (S 2.3.3)
Is a do-minimum option included?	Y	Included as maintain
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Some of the assumptions included for some of the options but not all
Are the costs broken down into capital, maintenance, etc.?	N	
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	
Option Benefits		
Are the benefits of each option identified?	Y	S 2.6.2 (Pg 27)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	Earlier sections describes magnitude of some impacts such as recreation, conservation, etc; these are included in the appraisal but not valued
Which benefits are valued in money terms?	Y	S 2.6 (Pg 26)

Questions for Review of Appraisals (B1)

		Flood damage and erosion loss to permanent assets; Costs of using emergency services after a flood event; Transport costs (diversions due to eroded roads)
Have benefits been assessed for both residential and non-residential properties?	N	Residential, including basements (S 2.2.4)
Have benefits for recreation been taken into account?	Y	S 2.6.3 but not valued
Is all of the key information used when valuing benefits given?	Partly	Non-valued impacts also included in the assessment (S 2.6.4) but not valued
Has capping been undertaken?	Y	Damages capped at the national average property price in January 2003 (S 2.6.2; pg 28)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Included in the economic appraisal but not valued (S 2.6.1)
What non-monetised benefits are included?	Y	Environmental impacts, Indirect costs to businesses , Lost recreation trips, Reduction of social stress
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description (S 2.6.4)
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Some values for recreation are given in S 2.1.7 so these could have been re-stated in the economic appraisal section
Does the appraisal adjust for subsidies, etc.?	Y	Cost of providing compensatory habitats included (S 2.5.1; Pg 23)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.6 and 2.7
Is a 100 year time horizon used?	Y	S 2.5
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 2.7 (Pg 31)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	Not in the main report but risk register included in the Appendices

Questions for Review of Appraisals (B1)

Are any adjustments made for risk?	Partly	Not in the costs section; although the cost for which grant application will be made is the base cost of the preferred option for each Phase plus a 20% contingency (S 2.5.1)
Is optimism bias included?	Y	Optimism Bias has been included at 30%, 50% and 70% as a sensitivity test within the economic analysis 9S 2.5; Pg 23)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	S 2.7.2 (Pg 33) Sensitivity analysis on the preferred option, consisting of: changing the optimism bias to 30% and 50%; and assuming do-nothing for Phase VI would result in breaching in year 5 or 15 (from year 10).
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Economics only
Are the options set out in a way that allows for easy comparison?	Y	S 2.7
Are costs and benefits assessed over the same period using the same base date?	Y	Over 100 years, 2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7.1 (Pg 32)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.1 (Pg 32)
Have indicative standards been taken into account?	N	
Is there discussion on key constraints?	Partly	Brief discussion in S 2.1.8
Are the conclusions supported by the results?		
How does residual risk feature in the appraisal?	Y	S 2.7.4 (Pg 37) describes residual risk.
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Extensive consultations have been undertaken with local statutory and non-statutory bodies to assess environmental impacts but uncertain about consultation at the decision making stage
Presentation of Results		

Questions for Review of Appraisals (B1)

Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some of the assumptions in text (S 2.6)
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Discussion on impacts very thorough; quite good discussion on non-valued impacts
Do the results 'feel' right?	Y	As based on ratios and FCDPAG3 rule
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Mortlake Embayment PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Mortlake Embayment Strategy	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. describes the problem and the state of current defences and estimated useful life
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.1.2 (Pg 6) sets out objectives but these are not easily measurable
Are there links to the hierarchy of decision-making?	Y	S 2.1.4 (Pg 8) sets out the strategic context in terms of legislation and other plans
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is given (S 2.3; Pg 12)
Is a wide range of options and/or standards considered?	Y	7 options considered, including the do nothing option and one other 'reactive option'
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	2.3.2-2.3.4 (Pg 13-14) explains why options are screened out
Does the appraisal include option development through a learning process?	Y	Mitigation and remediation are planned (S 2.4; Pg 19)
Are the reasons for screening out acceptable/convincing?	Y	2.3.2-2.3.4 (Pg 13-14)
Is a do-minimum option included?	Partly ?	Maybe reactive option (No maintenance. Replacements in response only to failures) can be deemed as a do minimum (S 2.3.7; Pg 16)
Option Costs		
Does the appraisal describe how each option has been costed?	N	
Are the costs broken down into capital, maintenance, etc.?	N	Not in main text; maybe in accompanying documents
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.6 (Pg 21-22)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	Y	Damages avoided (residential and non-residential properties) S 2.6
Have benefits been assessed for both residential and non-residential properties?	Y	S 2.6; commercial and public properties included (pg 22)
Have benefits for recreation been taken into account?	N	Not in the economic appraisal; but included in SEA (APPENDIX 5.5)
Is all of the key information used when valuing benefits given?	N	Little consideration to socio-economic impacts
Has capping been undertaken?	N?	Write-off damages from the do-nothing option used
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	The intangible benefits or damages have not been included, and in addition, environmental economics have not been taken into account (S 2.6; Pg 22)
What non-monetised benefits are included?	Partly	As part of the SEA and environmental constraints and opportunities there is a series on non-monetised benefits: recreation; landscape; water quality, biology, heritage etc
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	Included in the SEA
Are approaches such as scoring and weighting used?	Partly	A Weighting Factor ranging from 0 to 1 has been applied to a defence element and indicates the proportion of potential damage attributed to a zone that may be caused by failure of that element (Pg 22)
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Probably recreational and other environmental
Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2004 prices (All costs have been updated using the quarterly Construction Output Price Index to Q1 2004. Unplanned costs (replacement and mobilisation) have been increased by 30% where expenditure is unplanned to allow for rapid procurement, the likelihood of a non-optimum design, and the fact that retrospective environmental mitigation measures will probably be required (Pg 21)

Questions for Review of Appraisals (B1)

Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.7.3.1 (Pg 25)
Is a 100 year time horizon used?	Y	S 2.5 (Pg 21)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 2.5 (Pg 21)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	N	
Are any adjustments made for risk?	Y?	S 2.5: Costs for a new defence element make allowance for it being designed to accept raising of up to 500mm at some point in time within its design life to allow for increases in the Statutory flood defence level as a consequence of climate change and sea level rise.
Is optimism bias included?	Y	42% (S 2.5; Pg 20)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Sensitivity tests were undertaken on the preferred option for each sub embayment (S 2.74; Pg 24). The tests were as follows: automated model sensitivity test; imposed intervention test; and deterioration profile sensitivity test)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N?	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	N	
Are the options set out in a way that allows for easy comparison?	Partly	Section 2.7.3 has good summary Tables but not clear why these are presented after sensitivity analysis
Are costs and benefits assessed over the same period using the same base date?	Y	2004 base date over a 100 years
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7. 3 (Pg 25-29)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.3 (Pg 25)
Have indicative standards been taken into account?	Y	S 2.7.3 (Pg 25)
Is there discussion on key constraints?	N	

Questions for Review of Appraisals (B1)

Are the conclusions supported by the results?	Y?	
How does residual risk feature in the appraisal?	N?	No details given
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N?	No details given
Presentation of Results		
Does the appraisal follow the PAR format?	Y	Include all relevant section but very briefly
Does the appraisal include all assumptions alongside the calculations, etc.?	N	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N	
Do the results 'feel' right?	Y?	The level of detail in this PAR is quite poor; maybe there are supporting documents that justify the value of the project and provide more explanation as to the choice of option
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of NECAG SMP

Questions for Review of Appraisals (B1) NECAG SMP

Appraisal being reviewed:	Y/X	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	X	Part of the purpose of the SMP is to investigate what/where the problems are
Is the reason for the level of detail of the costs and benefits given?	Y	Costs and benefits are taken from previous strategies and studies. Quantification of Costs/benefits for SMP is not repeated
Are clear and measurable objectives given?	Y	(Sec 1.1.2) Sets out the objectives for the SMP process. (App. E) sets out the objectives for management of each feature; these are expressed in terms of being achieved or not being achieved
Are there links to the hierarchy of decision-making?	Y	There is reference to previous SMP and studies, schemes (Sec 1)
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Partly	There are two base cases, no active intervention and with present management. These are discussed as scenarios, not quantified (Sec 4)
Is a wide range of options and/or standards considered?	X	A scenario development approach is adopted. Scenarios are based upon a combination of retreat, hold the line, advance the line and no active intervention (Sec 4)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Yes, for each of the areas there is a discussion on the scenarios (Sec 4)
Does the appraisal include option development through a learning process?	Y	Yes the two base cases are considered with respect to objectives; there is then iteration to a preferred scenario (Sec 4)
Are the reasons for screening out acceptable/convincing?	Y	Each area is assessed in turn along with their implications on adjacent section, property, environment, etc. (Sec 4)
Is a do-minimum option included?	X	Not applicable
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	X	Scenarios are costed at a high level information taken from previous reports, strategies, where available
Are the costs broken down into capital, maintenance, etc.?	X	Only as considered appropriate
Are depreciation and capital charges excluded (if relevant)?	X	Not applicable

Questions for Review of Appraisals (B1) NECAG SMP

Is a common time horizon used?	Y	100 year, and extended where considered necessary
Are residual values included (if relevant)?	X	
Option Benefits		
Are the benefits of each option identified?	Y	Benefits are assessed against objectives
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	Objectives were not prioritised, a composite approach was adopted
Which benefits are valued in money terms?	Y	Based on MDSF; Residential, commercial
Have benefits been assessed for both residential and non-residential properties?	Y	(Sec 4)
Have benefits for recreation been taken into account?	Y	Through objectives (Sec 4)
Is all of the key information used when valuing benefits given?	Part	Based on MDSF, and summaries taken from strategies
Has capping been undertaken?	X	Not applicable
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Through objective led scenario development (Sec 4.)
What non-monetised benefits are included?	Y	Environment, Amenity, Social, Coastal stability, Heritage, Community, Cultural, etc.
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Discussion (Sec 4.)
Are approaches such as scoring and weighting used?	X	Prioritisation of objectives found to be not applicable to the range of scale of critical decision making
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	X	
Does the appraisal include valuation of legally protected elements at risk (if any)?	Y	Inherent within objective led approach
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	Y	Inherent within objective led approach
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Within the scale appropriate to the SMP
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	(Sec 4.)
Is a 100 year time horizon used?	Y	(Sec 4.)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	(Sec 4.)

Questions for Review of Appraisals (B1) NECAG SMP

Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	Not Applicable to scale of the valuation
Are the main risks identified and described?	Y	
Are any adjustments made for risk?	X	
Is optimism bias included?	X	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Inherent in objective led scenario approach
Does the sensitivity analysis include calculation of switching values?	Y	
Are different scenarios used to take into account specific uncertainties?	Y	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	X	Delivery of objectives within approach
Are the options set out in a way that allows for easy comparison?	Partly	The options are assessed qualitatively and compared in a discussion (Sec 4.)
Are costs and benefits assessed over the same period using the same base date?	Y	Within the scale appropriate to the SMP
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Benefit-Cost Ratio is given as an indication of economic feasibility (Sec 4.)
Has the PAG3 decision rule been followed correctly?	X	Not applicable at this level
Have indicative standards been taken into account?	X	Not applicable
Is there discussion on key constraints?	Y	Constraints are discussed in the objective led approach (Sec 4.)
Are the conclusions supported by the results?	Y	Yes and summarised in (Sec 6)
How does residual risk feature in the appraisal?	X	Not applicable
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	X	Not considered applicable to scenario approach
Has the consultation been undertaken at the decision-making stage?	Y	Various, with project management group, stakeholders and public (App B)
Presentation of Results		
Does the appraisal follow the PAR format?	X	Not Applicable
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Only significant assumptions, others are implied in the level of detail given
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	X	SMP do not have a whole project value
Do the results 'feel' right?	Y	They seem reasonable and reasoned

Questions for Review of Appraisals (B1) NECAG SMP

		(Sec 6)
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	Partly	SMP2 is a review and update of SMP1. As this SMP2 is still in development no post project appraisal has been undertaken

Review of Nottingham Trent PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Nottingham Trent Flood Alleviation Scheme (includes left bank PAR)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. explains the problem, including description of current condition grade of defences and number of properties at risk (Pg 8-10)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 1.5 (Pg 4) sets out some objectives but these are not easily measurable (e.g. to improve and protect inland waters; to restore and protect land; to adapt to climate change; to reduce flood risks, etc)
Are there links to the hierarchy of decision-making?	Partly	No links given clearly although some higher policy do get a mention ,e.g Defra target to protect houses as well as to increase biodiversity habitat in accordance with Defra High Level Target
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is given as the baseline (S 2.3; Pg 11)
Is a wide range of options and/or standards considered?	Y	18 generic option reduced to seven (S 2.3; Pg 11) and finally three
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Table including showing appraisal on the basis of technical feasibility, economic viability and environmental viability (S 2.3; pg 11)
Does the appraisal include option development through a learning process?	Y	Mitigation is proposed (Table 2.11; Pg 21)
Are the reasons for screening out acceptable/convincing?	Partly	May benefit from further explanation rather than a system of ticks
Is a do-minimum option included?	Y	Option 2 is the do minimum (S 2.3; Pg 11)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Appendix E gives costs breakdown with assumptions and estimates; but not in the main text
Are the costs broken down into capital, maintenance, etc.?	Partly	For the preferred option S 2.4.2 (Pg 14)
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given

Questions for Review of Appraisals (B1)

Option Benefits		
Are the benefits of each option identified?	Y	S 2.5.3 (Pg 17)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Damages avoided
Have benefits been assessed for both residential and non-residential properties?	Y	Commercial properties included (Pg 9)
Have benefits for recreation been taken into account?	N	Not valued in the economic appraisal but included under environmental impacts
Is all of the key information used when valuing benefits given?	Partly	Non-monetary values seem to be included under choice of the preferred option (S 2.7) but uncertain about the extent
Has capping been undertaken?	Y	Appendix D
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Not in the economic appraisal but included as key issues for option selection (S 2.7.1; Pg 23)
What non-monetised benefits are included?	Y	Biodiversity, amenity, recreation
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Probably recreational impacts could have been valued
Does the appraisal adjust for subsidies, etc.?	Y	Compensation included (S 1.3; Pg 3)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N?	No details given
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2005 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	E.g. S 1.3 (Pg 3)
Is a 100 year time horizon used?	Y	100 years used (Appendix D)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Appendix D
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	Residual risks are briefly described but

Questions for Review of Appraisals (B1)

		not detailed discussion on main risks
Are any adjustments made for risk?	Y	Risk contingency included as Monte Carlo 95% or similar on costs
Is optimism bias included?	Y	a 30% optimism bias added to the construction cost estimates (S 2.4.4; Pg 13) and 60% to all other costs
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Sensitivity analysis on the construction cost, increasing optimism bias to 60% (s 2.7; Pg 24)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y?	Effects of climate change assessed by increasing the flow for the 1 in 100 annual chance event in the hydraulic model by the recommended 20%. Option to deal with effects deemed to be neither environmentally or economically viable (S 2.2.4; Pg 10)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Based on costs and benefits only
Are the options set out in a way that allows for easy comparison?	Y	Table 15.A and B (Pg 23-24) presents summary of economic analysis
Are costs and benefits assessed over the same period using the same base date?	Y	110 years, 2005 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Table 15.A and B (Pg 23-24)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7 (Pg 24)
Have indicative standards been taken into account?	Y	S 2.2.3 (Pg 10)
Is there discussion on key constraints?	Y	As part of the EIA (Table 11; Pg19 presents a summary of environmental constraints with this including no of ha of different types of land affected, e.g. SSSI, archaeological area, etc.)
Are the conclusions supported by the results?	Y	As based on FCDPAG3
How does residual risk feature in the appraisal?	Y	Residual risks are identified (S 1.7);; Measures to reduce residual project risks included, e.g.: inclusion of a risk contingency sum; consultation; site investigation and desk studies, etc.
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	

Questions for Review of Appraisals (B1)

Has the consultation been undertaken at the decision-making stage?	Partly ?	Consultation undertaken with statutory consultees on the approach but uncertain about consultation at the decision-making stage
<i>Presentation of Results</i>		
Does the appraisal follow the PAR format?	Partly	Environmental considerations after costs and benefits
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Not as much in the main text; more information in Appendices
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y?	PAR deals with aspects quite briefly, more as a summary than a development of arguments
Do the results 'feel' right?	Y	As based on FCDPAG3 decision rule
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Oath Lock Sluice PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Oath Lock Sluice	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. sets out the problem, including quantitative information on the impacts from flooding (ha of agricultural land affected)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.2.6 sets out the objectives; but not all are easily measurable (e.g. minimise impact on human beings)
Are there links to the hierarchy of decision-making?	Y	S 2.1.5 sets out the legislative framework (Pg 4)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing set out as the baseline option but without much quantitative information (S 2.3.2; Pg 9)
Is a wide range of options and/or standards considered?	Y	6 options considered with option 5 and 6 sub-divided (Pg 9)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3.2 sets out the reasons for the initial screening (Pg 9-10)
Does the appraisal include option development through a learning process?	Y	Mitigation measures developed (S 2.3.3; Pg 10)
Are the reasons for screening out acceptable/convincing?	Partly	Option 1 and 2 excluded on environmental grounds but uncertain about reasons why other options have been excluded
Is a do-minimum option included?	Y	As reactive maintenance with current operating regime (S 2.3.1; Pg 9)
Option Costs		
Does the appraisal describe how each option has been costed?	N	
Are the costs broken down into capital, maintenance, etc.?	Partly	For the preferred option only; information provided in Appendix E, volume 2
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	N	
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	Y	ESA values used as a surrogate for environmental value and damage for loss of integrity (S 2.6.3; pg 17)
Have benefits been assessed for both residential and non-residential properties?	N?	Not applicable for the area of concern
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	N?	Section on benefits is quite brief (pg 17-18; some impacts could have been valued)
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Environmental value included (ESA values as surrogates)
What non-monetised benefits are included?	Y	Environmental benefits
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Quantitatively and some monetarily (ESA values)
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Loss of abstraction and impacts of flooding on agricultural land could, potentially, be valued
Does the appraisal adjust for subsidies, etc.?	Y	Compensation payment included in the costs breakdown for the preferred option (Appendix E)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Base date 2003 (S 1.5; pg 1)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.7 Summary of economic appraisal with PV costs and benefits (pg 19)
Is a 100 year time horizon used?	N	50 years time horizon (S 2.6.2; Pg 17)
Does the guidance use a discount rate of 3.5% (reducing)?	N?	3.5% used for the 50 years period (Appendix E)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Only briefly in Vol 1 (S 1.8); but Vol 2, Appendix G, includes register of risk
Are any adjustments made for risk?	Y	50%ile risk costs for the preferred option (S 2.5.3; pg 15)
Is optimism bias included?	Y	60% of the total costs

Questions for Review of Appraisals (B1)

Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Only on costs of short-listed options; S 2.7.4 explains why sensitivity has not been undertaken on benefits (Pg 20)
Does the sensitivity analysis include calculation of switching values?	Y?	'The construction cost would have to rise by a factor of nearly eight to reduce the benefit costs ratio to unity' (S 2.7.4; Pg 20)
Are different scenarios used to take into account specific uncertainties?	N?	S 2.3.4 notes that the scheme is not sensitive to climate change or over-design events
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Compared against environmental objectives primarily, but other aspects such as minimisation of impacts on human beings are not mentioned
Are the options set out in a way that allows for easy comparison?	Y	S 2.7.1 presents good summary Table for benefits and costs of options brought forward for detailed appraisal (Pg 19)
Are costs and benefits assessed over the same period using the same base date?	Y	50 years, 2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7 (Pg 19)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.3 (Pg 20); Option 4 with highest BC ratio does not meet the indicative standard so next highest option with incremental BC ratio > 3 selected (Pg 20)
Have indicative standards been taken into account?	Y	S 2.7.3 Decision rule 9Pg 20)
Is there discussion on key constraints?	Partly	Some problems identified under the general description of problem (pg 6)
Are the conclusions supported by the results?	Y	As based on ratios
How does residual risk feature in the appraisal?	Y	Included in Monte Carlo analysis
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Although EN was consulted on aspects such as water level management, consultation does not seem to be part of the decision making process
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	E.g. costs regarding ESA payments
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	Volume 1 alone is not very detailed on the process; Volume 2 provides some added value but is not always easy to

Questions for Review of Appraisals (B1)

		follow
Do the results 'feel' right?	Y	As based on ratios
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Oxford Option Identification Report

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Oxford Option Identification Report	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Partly	Key problem areas are considered in S3.1. This does not give an indication of the number/type of properties at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	N	
Are there links to the hierarchy of decision-making?	Y	S4.1 notes the need to consider links with the CFMP for the Thames
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	N	Not included in the option identification report
Is a wide range of options and/or standards considered?	Y	S2 sets out the approach to identifying the options to be considered. This involved four stages: initial sifting of options against technical, environmental and cost considerations; more detailed sifting against technical, environmental, cost and risk considerations; modelling of remaining options; final appraisal of remaining options
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	The approach used is described, but not the options considered or the reasons why some options have been screened
Does the appraisal include option development through a learning process?	Partly	Some options were rejected as standalone schemes, with some aspects of these options taken forward alongside other options
Are the reasons for screening out acceptable/convincing?	N/a	Not known – reasons for screening out are not given
Is a do-minimum option included?	?	A total of 57 potential strategic flood alleviation schemes were identified. Only the short-listed 11 options are given in the report – it is unclear if any of these options would represent the do-minimum option
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Six options have been costed to give a wide range of potential scheme costs (S3.4)
Are the costs broken down into capital, maintenance, etc.?	N	
Are depreciation and capital charges excluded (if relevant)?	N	

Questions for Review of Appraisals (B1)

Are residual values included (if relevant)?	N	
Option Benefits		
Are the benefits of each option identified?	N	
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	N	
Have benefits been assessed for both residential and non-residential properties?	N	
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	N	
Has capping been undertaken?	N	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	An SEA has been undertaken as part of the strategy study and the results of the SEA are considered in the feasibility study (S4.2)
What non-monetised benefits are included?	N	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	Y	A scoring system has been used to identify which options to carry forward. No details are given as to what the scores represent or whether weights have been assigned
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	N	
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	N	
Is a 100 year time horizon used?	N	
Does the guidance use a discount rate of 3.5% (reducing)?	N	
Economic Adjustments		
Are any adjustments made for material	N	

Questions for Review of Appraisals (B1)

differences in tax (if relevant)?		
Are the main risks identified and described?	N	
Are any adjustments made for risk?	N	
Is optimism bias included?	N	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	N	
Are the options set out in a way that allows for easy comparison?	N	
Are costs and benefits assessed over the same period using the same base date?	N	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	N	
Has the PAG3 decision rule been followed correctly?	N	
Have indicative standards been taken into account?	N	
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	N	
How does residual risk feature in the appraisal?	N	
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N	
Presentation of Results		
Does the appraisal follow the PAR format?	N	
Does the appraisal include all assumptions alongside the calculations, etc.?	N	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N	
Do the results 'feel' right?	N	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	The option identification report sets out part of the approach to preparing the PAR

Review of Pevensey Bay (1997)

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Pevensey Bay Sea Defence Strategy 1997	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Section 1.3 provides an introduction to the area, its assets and flooding history. Section 2.2 discusses movement of the shoreline while Section 2.3 discusses the current state of defences
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	Section 3 sets out the strategic aims and objectives
Are there links to the hierarchy of decision-making?	Y	Section 2.4 discusses links with high level plans, including the SMP, Environment Agency plans and WLMP
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Section 2.6 sets out the do-nothing scenario, including all of the assumptions as to when the defences would breach and different assets would be written-off. Some details are not fully quantified (e.g. 'numerous' properties)
Is a wide range of options and/or standards considered?	Y	Options are organised by the level of investment that would be required (low/high) plus alternative defence line options
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Each option is discussed briefly, with some options screened out
Does the appraisal include option development through a learning process?	Partly	Some of the options are hybrids of the other options
Are the reasons for screening out acceptable/convincing?	Y	Most of the reasons are linked to providing the same/lower standard at a higher cost
Is a do-minimum option included?	Y	Discussed as 'maintain' in Section 4.4.2
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Section 5.2 gives base costs from which the option costs are developed.
Are the costs broken down into capital, maintenance, etc.?	Y	The make-up of costs, including capital, and maintenance costs is given in detail in Tables 5.3(b) and 5.3(c)
Are depreciation and capital charges excluded (if relevant)?	X	
Are residual values included (if relevant)?	X	Although new defences are suggested that would not be at the end of their life in year 50

Questions for Review of Appraisals (B1)

Option Benefits		
Are the benefits of each option identified?	Y	The damages under each option are first calculated in Section 6.2, with benefits calculated in Section 6.3
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	They are all calculated
Which benefits are valued in money terms?		Property damages, infrastructure damages (electricity, gas, water, road, rail) and agriculture
Have benefits been assessed for both residential and non-residential properties?	Y	Section 2.6.2 although the number of properties affected is not given
Have benefits for recreation been taken into account?	Y	Section 2.6.4, but only included in the sensitivity analysis
Is all of the key information used when valuing benefits given?	Partly	Damages under the do-nothing scenario are set in detail (although not all of the quantitative information is given). Damages under the do-something options are reported, with details provided in copies of spreadsheets
Has capping been undertaken?	Not known	Capping is not discussed
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Conservation benefits are described in qualitative terms only but are not brought into the discussion when selecting the preferred option
What non-monetised benefits are included?		Conservation benefits
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?		Description only, but Section 2.6.2 notes that 'it may be appropriate to quantify the environmental value...by a given valuation method'. This may suggest it was considered that a qualitative description could not be (easily) taken into account when choosing the preferred option
Are approaches such as scoring and weighting used?	X	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	Y	Write-off of agricultural land takes adjustment factors into account
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
Present Values and Discounting		

Questions for Review of Appraisals (B1)

Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	All values are updated to 1997 values, with details of calculation used included
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	This is clearly stated in Table 6.3(a)
Is a 100 year time horizon used?	X	A 50 year time horizon is used (report pre-dates new Treasury guidance)
Does the guidance use a discount rate of 3.5% (reducing)?	X	A discount rate of 6% is used (report pre-dates new Treasury guidance)
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	
Are the main risks identified and described?	Partly	Section 8 discusses risk in terms of uncertainty, which is then assessed in the sensitivity analysis
Are any adjustments made for risk?	X	
Is optimism bias included?	X	Predates Treasury guidance. It is not clear that the costs include a contingency but the sensitivity analysis includes variations in costs for all options mainly in terms of reducing the costs
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Sensitivity analysis is undertaken on the do-nothing scenario to give an indication of the minimum and maximum value of damage costs. Further sensitivity analysis is undertaken in Section 8.2 on costs and crest width (considered to be the areas of largest uncertainty)
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	X	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Option costs and benefits are used as basis for selection of preferred option. They are not specifically referred back to the project objectives. Section 9 describes the extent to which the preferred option meets the objectives
Are the options set out in a way that allows for easy comparison?	Y	Summary tables are used
Are costs and benefits assessed over the same period using the same base date?	Y	1997 values
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	In summary tables in Section 8.2
Has the PAG3 decision rule been followed correctly?	X	PAG3 rules not available at time, follows PAGN

Questions for Review of Appraisals (B1)

Have indicative standards been taken into account?	Y	Pg 51 notes indicative standard is 1 in 150 years
Is there discussion on key constraints?	Y	Section 2.7 discusses opportunities and constraints in terms of the do-nothing scenario
Are the conclusions supported by the results?	Y	
How does residual risk feature in the appraisal?	X	No discussion of residual risk
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	X	Option appraised is selected
Has the consultation been undertaken at the decision-making stage?	X	Section 9.2 suggests consultation is required in the next stage
Presentation of Results		
Does the appraisal follow the PAR format?	X	
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	There is a lot of detail in some sections
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Not known	

Review of Rawcliffe Pumping Station

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Rawcliffe Pumping Station	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Partly	There is no mention of the number of properties at risk or the current Standard of Protection provided by the available storage, although the potential cause of flooding is described
Is the reason for the level of detail of the costs and benefits given?	N	This is a relatively low cost scheme (£850k)
Are clear and measurable objectives given?	N	No objectives are given
Are there links to the hierarchy of decision-making?	N	
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	The do-nothing option is described briefly. More description and quantitative information (e.g. timing of failure, no. properties affected) would have been useful
Is a wide range of options and/or standards considered?	Y	Four options are considered, which seems appropriate for the size of the scheme
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	All four options are considered
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	N	Not relevant
Is a do-minimum option included?	Y	Option 2 is maintenance of the existing pumping stations and drainage infrastructure as at present, without major structural repairs
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S2.5 sets out detailed costs for each option
Are the costs broken down into capital, maintenance, etc.?	Y	S2.5 provides maintenance and capital costs, all broken down into very detailed estimates showing how the cost estimates have been built up
Are depreciation and capital charges excluded (if relevant)?	Partly	The value of assets after 30 years is considered, but this is given as the life of the asset, hence, it has no value
Are residual values included (if relevant)?	N	No residual value
Option Benefits		

Questions for Review of Appraisals (B1)

Are the benefits of each option identified?	Y	S2.6 sets out the benefits of each option. For the do-something options, there is no explanation as to how property benefits have been estimated
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	The benefits are assessed without consideration of their likely significance
Which benefits are valued in money terms?	Y	Agricultural damages, damages to properties and environmental gain
Have benefits been assessed for both residential and non-residential properties?	Y	Residential damages and commercial damages (to farms, public house and stud farm) are both included. Property write-off values have been updated by the Defra RE
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Y	The calculations used when estimating the benefits are fully set out
Has capping been undertaken?	N	Property write-off values only are included – it is not stated that there is no flooding under the do-something options, but there are no damages described in the PAR
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	The results of the Environmental Impact Assessment are summarised
What non-monetised benefits are included?	N	None included
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	None
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	Y	The agricultural damages are calculated following the examples set out in FCDPAG3
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	None described
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	The Defra RE's comments notes that social equity has not been considered
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	?	The base date for the benefits is not given. The Defra RE has updated the property write-off values and identified that benefits are likely to have increased by 2.3 times
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	A copy of the FCDPAG3 summary table is included

Questions for Review of Appraisals (B1)

Is a 100 year time horizon used?	N	A 30 year time horizon is used (S2.5.2)
Does the guidance use a discount rate of 3.5% (reducing)?	?	The discount rate used is not given in the PAR
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	N	
Are any adjustments made for risk?	N	The Defra RE has taken account of this in the costs (some allowances were included in the PAR)
Is optimism bias included?	Partly	The consultant's assessment includes 30% optimism bias; this was amended to 40% by the Defra RE (due to the time delay between production of the PAR and approval)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	No sensitivity analysis has been undertaken
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Only the costs and benefits are taken into account in the selection of the preferred option
Are the options set out in a way that allows for easy comparison?	Y	The FCDPAG3 summary table is given
Are costs and benefits assessed over the same period using the same base date?	?	Not stated in the PAR
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	The FCDPAG3 summary table is included
Has the PAG3 decision rule been followed correctly?	Partly	The PAR does not state what the preferred option is – instead it refers to Appendix H. The Defra RE has set out the choice of preferred option following the PAG3 decision rule
Have indicative standards been taken into account?	Y	Indicative standards are set out in S2.5 (costs)
Is there discussion on key constraints?	Partly	There is some discussion on constraints after the FCDPAG3 summary table
Are the conclusions supported by the results?	Y	The conclusions drawn by the Defra RE are supported by the results

Questions for Review of Appraisals (B1)

How does residual risk feature in the appraisal?	N	Residual risk is not discussed in any detail, although there is a note that flooding could occur to both agriculture and properties on a 1 in 50 year flood unless pumping is increased to 1.0 m ³ /s
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N	There is no mention of consultation in the PAR. The Defra RE comments suggest consultation has been undertaken on the Environmental Impact Assessment
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	The general headings are followed but some sections have been omitted (e.g. objectives) presumably due to the small size of the scheme
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some of the calculations are set out in very detailed fashion; other assumptions are given in one line (or not at all – e.g. flooding of properties under do-something options)
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	This is a small scheme so a short PAR is okay, but there is a large difference between details included in different sections
Do the results 'feel' right?	Y	The option selected seems right for the area, given the descriptions in the PAR
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	?	Not known

Review of Ripon Flood Alleviation Scheme PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Ripon Flood Alleviation Scheme	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 1.1. sets out the problem, including number of properties at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.2.7 sets out the objectives but not all of these are easily measurable, e.g. to achieve a sustainable solution, to minimise negative environmental impacts, etc.
Are there links to the hierarchy of decision-making?	Y	S 2.1.4 (Pg 5) sets out the legislative framework
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is given
Is a wide range of options and/or standards considered?	Y	6 options taken forward; three options screened out are briefly described (S 2.3.1; Pg 7-8)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	S 2.7.1 (Pg 7-8) notes that this was based on technical feasibility and costs but only briefly
Does the appraisal include option development through a learning process?	Y	Mitigation measures proposed (S 2.6.5) and residual environmental risks to be managed
Are the reasons for screening out acceptable/convincing?	Partly	May benefit from further explanation
Is a do-minimum option included?	Y	Option C (Pg 8)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Some assumptions on estimates given in S 2.4.2; more information should be available in Annexes but these were not available at the time of review
Are the costs broken down into capital, maintenance, etc.?	Y	For all options taken forward (S 2.4.2; Pg 12)
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.5
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	Y	Property damage avoided and tangible losses. The latter include parked vehicle damage, costs to the emergency services, costs of disruption to households, including clean-up, extra heating and de-humidifying and compensation and penalty costs for loss of power. There has been no inclusion of intangible losses.
Have benefits been assessed for both residential and non-residential properties?	Y	Commercial properties included
Have benefits for recreation been taken into account?	N	Not as part of the economic appraisal but included under environmental impacts
Is all of the key information used when valuing benefits given?	Partly	Uses qualitative description on non-monetised impacts (e.g. amenity, fisheries) to warrant option selection under the section on benefits but these are not valued
Has capping been undertaken?	Y	Two commercial properties have been capped (S 2.5; Pg 13)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	Not included in the economic appraisal
What non-monetised benefits are included?	Y	Amenity, recreation and other environmental impacts but not in the economic appraisal
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Probably recreational impacts
Does the appraisal adjust for subsidies, etc.?	Y	Compensation included (S1.7; Pg 3)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2005 prices (S 2.4 and 2.5)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.4 and 2.5
Is a 100 year time horizon used?	Y	S 2.2.2
Does the guidance use a discount rate of 3.5% (reducing)?	Y?	No details given, but presumably
<i>Economic Adjustments</i>		

Questions for Review of Appraisals (B1)

Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Risks have been evaluated in accordance with the Environment Agency's 'Risk Assessment and Management of Construction Projects, Version 2.2'
Are any adjustments made for risk?	Y	"Monte Carlo" analysis using @Risk software (95% and the 50% confidence limits used; S 2.4.2; Pg 12)
Is optimism bias included?	N?	No details given
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	S 2.7.4 (Pg 20) on costs of all options and sensitivity analysis on the hydraulic model
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	On the preferred option, impacts from climate change (a 20% increase in flows)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Based on costs and benefits only
Are the options set out in a way that allows for easy comparison?	Y	S 2.7 presents good summary Tables (Pg 18)
Are costs and benefits assessed over the same period using the same base date?	Y	100 years, 2005 price base
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7; (Table 2.7.2 is a summary table of discounted costs and benefits of each option with NPVs, benefit cost (B/C) ratios and incremental B/C ratios)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.2 (Pg 18)
Have indicative standards been taken into account?	Y	S 2.7.2
Is there discussion on key constraints?	Y	S 2.6.2 (Pg 14) sets out main environmental constraints
Are the conclusions supported by the results?	Y	As based on decision rule
How does residual risk feature in the appraisal?	Y	S 2.7.e these are described and management options proposed
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Environmental workshops have been held on site but uncertain about consultation at the decision making

Questions for Review of Appraisals (B1)

		stage
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumptions in text; more details may be provided in annexes, currently not available
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y?	May benefit from further development of some of the arguments, e.g. screening out the options
Do the results 'feel' right?	Y	As based on PAG3 decision rule
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Douglas through Wigan (2005)

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Douglas through Wigan (2005)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	The number and type of properties affected under different return period events (including actual flood events) is given. Other impacts such as access, traffic, etc. are also discussed (S2.2.1 and 2.2.2). The current condition of the defences is discussed in S2.2.4
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	N	No objectives are given
Are there links to the hierarchy of decision-making?	Y	S2.1 discusses the CFMP (in preparation) and the Strategic Planning Appraisal Report and their implications for/on the Wigan PAR
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	A brief description of what would happen under the do-nothing option is given in S2.3.2, but this does not include any quantitative information (e.g. year when the defences would collapse, etc.)
Is a wide range of options and/or standards considered?	Y	S2.3 sets out 12 options that were originally considered
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S2.3.1 identifies those options that were rejected after the preliminary assessment, with reasons why the options were rejected
Does the appraisal include option development through a learning process?	Partly	The appraisal includes sub-options combining different bits of options at different standards of protection, but this has not been undertaken because one option performs well in some areas, while another performs well in others
Are the reasons for screening out acceptable/convincing?	Y	S2.3.1 sets out detailed reasons explaining why the option were rejected – based on environmental, technical and costs grounds mainly
Is a do-minimum option included?	Y	The do-minimum option is carried forward for detailed assessment
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S2.4 describes how the costs have been estimated and includes Table 1 showing the costs of each option
Are the costs broken down into capital, maintenance, etc.?	Y	Table 2,1 sets out the capital and maintenance costs for each option.

Questions for Review of Appraisals (B1)

		Project costs, whole life costs and PV costs are also given. S2.4.1 describes the basis for the capital costs, with S2.4.2 setting out how maintenance costs have been estimated
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	Table 3 gives residual damage costs for each option
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Damages to property, emergency services, and intangible benefits (socio-economic equity and human-related impacts)
Have benefits been assessed for both residential and non-residential properties?	Y	S2.5.2 identifies that damages to both residential and non-residential properties have been assessed
Have benefits for recreation been taken into account?	N	These are identified as potential benefits in S2.5.2 but have not been included in the economic assessment
Is all of the key information used when valuing benefits given?	Partly	S2.5.1 gives some of the assumptions and data sources used when assessing the benefits
Has capping been undertaken?	Y	S2.5.1 discusses capping and proposes the use of national average property values to cap
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	An Appraisal Summary Table is included setting out the key constraints and benefits associated with each option, this allow qualitative impacts to be considered when selecting the preferred option (Table 6)
What non-monetised benefits are included?	Y	Results of the EIA, including potential for environmental enhancements, potential for adaptation to climate change, impact on urban area, likelihood of intercepting contaminated land, political support, etc.
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description with summary in an Appraisal Summary Table (Table 6)
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Some of the impacts that are not valued could have been but may have taken some time (e.g. traffic disruption) – no reason is given why the other impacts have not been included

Questions for Review of Appraisals (B1)

Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	Y?	S2.5.2 states that human related impacts have been included, but no further details are given (but may be given in an Appendix)
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Costs are given to Q3 2004 prices (S2.4, pg 11)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Table 5 sets out costs and benefits in PV terms
Is a 100 year time horizon used?	Y	Costs are discounted over 100 years (S2.4, pg 11)
Does the guidance use a discount rate of 3.5% (reducing)?	Y?	The discount rate used is not stated
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	No details given
Are the main risks identified and described?	Y	S2.4.4 sets out the risk allowances, which have been derived from workshops and relate to risks for costs
Are any adjustments made for risk?	Y	The project costs are adjusted for risk by including a project-specific risk budget (S2.4.4, pg 14)
Is optimism bias included?	Y	Optimism bias of 60% has been included (S2.4.2, pg 13) but only on future costs (e.g. maintenance) as a risk allowance has been added to the construction costs (S2.4.4, pg 14)
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	The impact of reducing/increasing the costs on has been assessed (S2.4.6) – mention is made of the use of sensitivity on benefits but no details are given
Does the sensitivity analysis include calculation of switching values?	N	No details given (in Appendix E)
Are different scenarios used to take into account specific uncertainties?	N	No details given
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	It is difficult to follow the argument for selecting the option chosen (although more explanation may be given in the Economic appendix). The do-minimum option has been excluded because it would not reduce flood risk

Questions for Review of Appraisals (B1)

Are the options set out in a way that allows for easy comparison?	Partly	Table 5 provides the key economic data, but the options are not set out in a clearly incremental way
Are costs and benefits assessed over the same period using the same base date?	?	The base date for benefits is not given
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	The PV costs, BCR and IBCR are given but not the NPV
Has the PAG3 decision rule been followed correctly?	?	The do-minimum option has been excluded, but the IBCR of the next option is sufficient to move above the do-minimum option. Above that, it is difficult to compare options as they are not all incremental to each other
Have indicative standards been taken into account?	Partly	The options selected do not include an option at the low end of the indicative standard (i.e. 50 years)
Is there discussion on key constraints?	Y	Table 6 includes key constraints of some of the options
Are the conclusions supported by the results?	Y	The preferred option performs well economically and also has significant other benefits
How does residual risk feature in the appraisal?	N	Residual risk is not taken into account once the option has been selected
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	Support for the scheme from the local council and Members of Parliament has been obtained, as has the agreement of English Nature
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Some key sections are missing, e.g. objectives, sensitivity analysis is included in costs, etc.
Does the appraisal include all assumptions alongside the calculations, etc.?	N	Reference is made to the supporting appendices, but more detailed could have been drawn from these to make the arguments easier to follow without increasing the length of the PAR too much
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	It is difficult to tell from the PAR alone, but the descriptions of what has been undertaken suggest so, even if this is not always supported by the level of detail included in the PAR
Do the results 'feel' right?	Partly	It is difficult to get a feel for the options, but it is clear that action is necessary to reduce the flood risk
Other Reviews of the Guidance		

Questions for Review of Appraisals (B1)

Has a post project appraisal been undertaken been? If so, what were the findings?	N?	None known
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Review of Roach and Crouch Flood Management Strategy (Consultation Draft) 2003

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Section 1 (essence of the problem) and Section 2.2 set out the problem
Is the reason for the level of detail of the costs and benefits given?	X	
Are clear and measurable objectives given?	Partly	Objectives are given on pg 10-11, but not all are measurable
Are there links to the hierarchy of decision-making?	Y	The PAR notes the conclusions of the SMP
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	The do nothing case is discussed clearly but not much quantitative information is given
Is a wide range of options and/or standards considered?	Y	Options include do nothing, maintain, sustain, improve, cease maintenance and achieve strategic objectives
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Appendix F considers a long-list of options, it is not clear how the long-list has been reduced to a shorter list
Does the appraisal include option development through a learning process?	X	
Are the reasons for screening out acceptable/convincing?	N	Not known – reasons for screening do not appear to be given
Is a do-minimum option included?	Y	Maintain option is included
Option Costs		
Does the appraisal describe how each option has been costed?	Y	Appendix G3 discusses costs in detail
Are the costs broken down into capital, maintenance, etc.?	Y	Unit costs are given
Are depreciation and capital charges excluded (if relevant)?	X	
Are residual values included (if relevant)?	N	
Option Benefits		
Are the benefits of each option identified?	Y	Appendix G5 discusses benefits in detail
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	The likely significance of traffic disruption costs is considered to be small, therefore, they are not included

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	Y	Benefits are calculated for residential, commercial/industrial property, agricultural land, caravan sites and emergency services. Costs associated with contaminated land have been included in the option costs
Have benefits been assessed for both residential and non-residential properties?	Y	Appendix G5
Have benefits for recreation been taken into account?	X	
Is all of the key information used when valuing benefits given?	Y	Appendix G describes how the benefits have been estimated in a lot of detail (particularly for agricultural damages)
Has capping been undertaken?	Y	Capping was undertaken for residential, commercial/industrial properties and caravan site damages if their combined present value damages exceeded their combined total write-off values
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	X	
What non-monetised benefits are included?	None	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	X	
Are approaches such as scoring and weighting used?	X	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	There is no discussion on what other benefits might occur
Does the appraisal adjust for subsidies, etc.?	Not sure	There is no discussion of adjustment of subsidies in the discussion on agricultural damages
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Costs and benefits are both to base date of August 2003
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Table 2.3 present PV costs, Table 2.6 presents PV benefits (there is no table comparing PV costs and benefits)
Is a 100 year time horizon used?	X	50 year time horizon is used (PAR completed in August 2003)
Does the appraisal use a discount rate of 3.5% (reducing)?	Y	Discount rate of 3.5% is used (in accordance with Treasury guidelines)
Economic Adjustments		

Questions for Review of Appraisals (B1)

Are any adjustments made for material differences in tax (if relevant)?	X	
Are the main risks identified and described?	Y	A small number of key risks are set out on page 18
Are any adjustments made for risk?	Partly	The PAR notes that each risk is significant in its own right and justifies the prudent and practical approach to implementation of the strategy
Is optimism bias included?	Y	At 60%
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Partly	Two economic sensitivity tests have been undertaken on all options, but these relate only to costs (not benefits)
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	X	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	X	Difficult to tell, but seems not
Are the options set out in a way that allows for easy comparison?	X	No PAG summary table is included, costs and benefits of all options are not presented side-by-side, only the preferred options
Are costs and benefits assessed over the same period using the same base date?	Y	
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Probably, but Table G6-1 only presents NPV, BCR and IBCR for 'most economically robust option' for each flood management unit
Has the PAG3 decision rule been followed correctly?	Y	Section G6.2 (page G38) says so but there is no evidence in the Appendix
Have indicative standards been taken into account?	Not known	Land use bands not discussed
Is there discussion on key constraints?	Y	Brief note on constraints that may affect the most economically viable options (G6.3, pg G38)
Are the conclusions supported by the results?	Not known	Difficult to follow the arguments and much of basic information needed to verify decision is not given
How does residual risk feature in the appraisal?	X	Not discussed

Questions for Review of Appraisals (B1)

Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Partly	The appraisal recommends short term measures be put in place (e.g. maintain) while further information is collected on impacts of managed realignment in other locations
Has the consultation been undertaken at the decision-making stage?	Y	The document is the consultation draft
Presentation of Results		
Does the appraisal follow the PAR format?	Y	The section on choice of the preferred option could be supported by more information (although it states that this is available in spreadsheets)
Does the appraisal include all assumptions alongside the calculations, etc.?	X	Most of the assumptions are given but not the calculations
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	Some areas of the report are in great detail, but others are rather glossed over
Do the results 'feel' right?	Not known	Difficult to get a feel for the area with the information given. Options selected seem a little piecemeal, with no overall 'strategy' – more flood management unit by flood management unit
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Not known	

Review of Robertsbridge (2002)

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/X	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	Section 1.1 and Section 2.2 set out the problem
Is the reason for the level of detail of the costs and benefits given?	X	
Are clear and measurable objectives given?	Y	The objective of the proposed scheme is given in Section 2.1 as 'the development of a scheme to protect properties in Robertsbridge that are at risk of flooding'. Further strategic objectives are given in Section 2.3 (bullet points)
Are there links to the hierarchy of decision-making?	Y	The PAR notes that 'there is neither a CFMP nor a Strategy Study for the River Rother, but the proposals have been assessed against and in accordance with the Strategic Review of the fluvial reach of the river and the strategic objectives defined therein'
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Partly	Discussion of the do-nothing option starts by stating why do-nothing would not be appropriate. Details of the number of properties that would be affected, and how often is not given (although some of this information is included in Section 2.2)
Is a wide range of options and/or standards considered?	Partly	Do-nothing, maintain and improve are included (there are currently no defences, therefore, sustain is not an option). Five different standards of protection are also assessed.
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	A long-list of options is given for 'improve', with reasons why options are not considered further given.
Does the appraisal include option development through a learning process?	X	
Are the reasons for screening out acceptable/convincing?	Partly	The discussion in Section 2.4 (options selection) includes reasons why options may not be sufficient to protect property, which seems to pre-judge the appraisal somewhat. It is not clear that these reasons include consistent consideration of environmental, social and economic issues such that hard defences is the only option left after screening
Is a do-minimum option included?	Y	Although as there are no defences, this is limited to maintenance works

Questions for Review of Appraisals (B1)

Option Costs		
Does the appraisal describe how each option has been costed?	Y	Section 2.6 (Costs of options) , but are only included in a table in an Appendix
Are the costs broken down into capital, maintenance, etc.?	Y	Text in Section 2.6 suggests so
Are depreciation and capital charges excluded (if relevant)?	Not known	
Are residual values included (if relevant)?	Not known	
Option Benefits		
Are the benefits of each option identified?	X	The PAR does not discuss the benefits of each option under consideration
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Not known	But few benefits types are considered
Which benefits are valued in money terms?	Limited	There is only mention of damages avoided to residential and non-residential properties
Have benefits been assessed for both residential and non-residential properties?	Y	Section 2.7 notes which non-residential properties have been included
Have benefits for recreation been taken into account?	X	Section 2.7 notes that 'any small gains to be realised from environmental/recreational enhancements have not been included'. It is not clear what this means since there is no discussion of whether there would be losses of recreation/environment under the do-nothing baseline
Is all of the key information used when valuing benefits given?	Y	FLAR data was used and verified with questionnaire survey data from the Autumn 2000 floods
Has capping been undertaken?	Not known	There is no discussion of capping
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	X	There is no discussion of social or environmental benefits (other than they may be 'small gains')
What non-monetised benefits are included?	N	None
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	Not included
Are approaches such as scoring and weighting used?	X	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	X	None discussed

Questions for Review of Appraisals (B1)

Does the appraisal include valuation of legally protected elements at risk (if any)?	X	None discussed
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	None discussed
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Costs are given to Quarter 4 2001 prices (PAR produced in 2002) – but benefits may be in early 2002 estimates (Section 2.7)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Section 2.8, summary table
Is a 100 year time horizon used?	X	A scheme life of 50 years has been used. Benefits are assumed to begin in year 1
Does the guidance use a discount rate of 3.5% (reducing)?	Not known	
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	None discussed
Are the main risks identified and described?	X	None discussed
Are any adjustments made for risk?	X	None discussed
Is optimism bias included?	X	None discussed
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Partly	Section 2.8.3 discusses sensitivity analysis – but this has only been carried out on the preferred option
Does the sensitivity analysis include calculation of switching values?	X	None discussed
Are different scenarios used to take into account specific uncertainties?	Partly	The impact of compartmentalising has been taken into account, but only for the 1:100 year option
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Costs and benefits are compared
Are the options set out in a way that allows for easy comparison?	Partly	Summary table is given, but no discussion of other benefits/costs (e.g. environment, social). For example, no discussion is given on the environmental consequences of stopping flooding of the floodplain, or whether the defences are set back from the river to allow continued flooding

Questions for Review of Appraisals (B1)

Are costs and benefits assessed over the same period using the same base date?	Partly	Costs may be in Q4 2001 and benefits in Q1 2002, but this is unlikely to make a significant difference to the results
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Summary table included
Has the PAG3 decision rule been followed correctly?	Partly	The 1:200 year option has the highest benefit-cost ratio, but as it is above the indicative standard a pragmatic approach has been used (taking into account similarities between the benefit-cost ratios and uncertainty within the appraisal)
Have indicative standards been taken into account?	Y	Robertsbridge was allocated to Land Use Band B
Is there discussion on key constraints?	X	
Are the conclusions supported by the results?	Partly	The option selected is 1:100 years, but without sensitivity applied to all options, the robustness of the choice cannot be determined. Also compartmentalising suggests there may not be economic justification for protecting some areas (although the extent to which they are discrete compartments is not discussed)
How does residual risk feature in the appraisal?	Partly	Some mention is made of residual risk in terms of the 1:200 year option
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	X	
Has the consultation been undertaken at the decision-making stage?	Not known	No discussion is included in the PAR
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some sections of the PAR give very little detail making it difficult to judge the appropriateness of the appraisal
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	The section on benefits is very short and gives very little detail on how the damages have been estimated, etc.
Do the results 'feel' right?	Partly	More discussion on the effect of compartmentalising would have been useful, as would sensitivity analysis on all of the options. Discussion of environmental and social impacts is also needed – e.g. effect of stopping flooding of floodplain (unless the defences are on a retired line?)
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	Not known	

Review of Rumney Great Wharf

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Rumney Great Wharf	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Partly	The description given explains what is happening but there is no mention of assets protected (or at risk). More of this information is given in Section 2.2.3 (Scope of Problem) - could be more concise. Seems as if the proposal is to provide defences to protect defences?
Is the reason for the level of detail of the costs and benefits given?	Partly	Section 2.6.6 gives reasons why certain benefits have not been included
Are clear and measurable objectives given?	Y	Section 2.2.6 includes engineering and environmental objectives
Are there links to the hierarchy of decision-making?	Y	Section 2.2.5 reports the findings of the SMP for the area as well as the Gwent Levels Foreshore Management Plan recommendations
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	Section 2.3.2.1 gives a brief description of the do-nothing option. More details on what would be affected is given in Section 2.2.3 (Scope of the Problem)
Is a wide range of options and/or standards considered?	Partly	Section 2.3 introduces the representatives who have identified the options to be considered. This includes seven option types. However, the option descriptions suggests each option type was considered only broadly and sub-options that may have been viable (e.g. limited managed realignment) have not been considered at all
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	Section 2.3.3 states that judgements were made on environmental, engineering, cost and timescale grounds. Details are given in an Appendix – a lot of options have been screened out and more explanation is needed. The inference is that the PAR is moving towards justifying a pre-determined option
Does the appraisal include option development through a learning process?	N	Options are considered in broad terms only. Most are then screened out. Some supplementary options are included to add value to the short-listed options

Questions for Review of Appraisals (B1)

Are the reasons for screening out acceptable/convincing?	N	The broad nature of the options described in Section 2.3.2.1 does not appear to compare options on an equal basis. There are also numerous inconsistencies throughout the report (whole area versus part of the area) that could have resulted in different options being screened out
Is a do-minimum option included?	Y	Not very clearly explained. Reverts to the do-nothing option in year 14, but then there is discussion of need for further rock armouring in the future (not clear if this is in year 14 or later – if later, doesn't make much sense!)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Scheme costs have been built up by the contractor, checked and verified by the cost consultant. A summary of details is provided in an Appendix
Are the costs broken down into capital, maintenance, etc.?	Not sure	Mention is made of maintenance for the do-minimum option, but not otherwise discussed
Are depreciation and capital charges excluded (if relevant)?	Not sure	No details given
Are residual values included (if relevant)?	Not sure	No details give
Option Benefits		
Are the benefits of each option identified?	Partly	There is a lot of discussion on proportioning benefits between different lengths of defence (due to previous schemes). Details of when properties are written-off or flooded intermittently are given
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?		Residential and commercial properties Agricultural land (write-off only) Emergency services costs Temporary accommodation costs Disruption to railway line Write-off of electricity supply networks
Have benefits been assessed for both residential and non-residential properties?	Y	See above
Have benefits for recreation been taken into account?	N	There is no discussion of recreation
Is all of the key information used when valuing benefits given?	Partly	Flood levels are given but other assumptions are not
Has capping been undertaken?	N	Capping is not mentioned

Questions for Review of Appraisals (B1)

Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	Section 2.6.6 describes how and why unquantified benefits could not be included. There is no attempt to describe the benefits in qualitative or quantitative terms. It is interesting the agricultural write-off is included but potential environmental benefits from do-nothing are not discussed (there seems to be an assumption that flooding with seawater would 'destroy' and that different habitats would not be created)
What non-monetised benefits are included?	N	None – if a reason could be found as to why a benefit could not be monetised it was excluded from the appraisal – not all of the reasons given appear reasonable
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	They are excluded
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Potentially significant benefits such as creation of new environmental areas on what is currently agricultural land are completely ignored. Also, damages from the landfill are excluded as there is a 'lack of guidance by Defra'. No professional judgement has been applied where there is no guidance from Defra
Does the appraisal adjust for subsidies, etc.?	N	Economic appraisal (Section 6.3) suggests that subsidies have not been removed from the write-off of agricultural land
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	Loss of SPAs, etc. is discussed in the environmental assessment but not considered in the economic appraisal
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	There is no mention of distributional issues – perhaps because the options considered are only those that would either flood (do-nothing) or protect all
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	All costs and benefits are given to 2003 Q4 prices
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Section 2.7
Is a 100 year time horizon used?	Y	Section 2.7.2 confirms this
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Described in Section 2.7.2
<i>Economic Adjustments</i>		

Questions for Review of Appraisals (B1)

Are any adjustments made for material differences in tax (if relevant)?	N	Not relevant?
Are the main risks identified and described?	Partly	Environmental risks are described in Section 2.4.5 Risks in terms of costing the options are discussed in Section 2.5.3. No discussion is given on residual risks from events greater than the standard provided (although changes in the standard due to climate change are given)
Are any adjustments made for risk?	Y	Costs include contingencies. Environmental risks are considered in terms of timing of the works
Is optimism bias included?	Y	Adjusted optimism bias is included (Section 2.5.4)
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Section 2.7.4 considers five different sensitivity tests
Does the sensitivity analysis include calculation of switching values?	N	Changes made are in terms of increasing/decreasing damages, costs and probability of failure, as well as removing damages due to loss of electricity supply and raising embankments in year 20
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Reviewing the document suggests that the preferred option had already been determined and that the PAR was to show this. It seems strange to choose an option to protect defences, even if this has environmental benefits. If the environmental benefits of do-nothing (or realignment) had been included, would a different option have been selected
Are the options set out in a way that allows for easy comparison?	Y	Summary table is given. Table of advantages and disadvantages of options is good (but don't agree with all of the advantages and disadvantages recorded)
Are costs and benefits assessed over the same period using the same base date?	Y	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	
Has the PAG3 decision rule been followed correctly?	Y	Welsh scheme – follows decision rule revised by WAG (highest benefit-cost ratio within indicative standard of protection). Note puts the area into Land Use Band B – but this is whole area, not sure if this is realistic looking at

Questions for Review of Appraisals (B1)

		area immediately behind defence? (less than 10 properties)
Have indicative standards been taken into account?	Y	See above
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Partly	The document reads as if it is to justify a predetermined decision. It seems as if there are other options that could have been considered that have not (e.g. limited managed realignment). If non-monetised benefits had been included, could a different option have been selected? (note though that the need to stabilise the foreshore is noted – this needs to be emphasised if this is the reason that managed realignment is not feasible)
How does residual risk feature in the appraisal?	N	There is no mention of residual risk in terms of above design events (although the PAR does note that the standard provided will decline as a result of climate change)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	Partly ?	Supplementary options are included suggesting this may have gone on to some extent
Has the consultation been undertaken at the decision-making stage?	Partly	Section 2.4.7 mentions consultation on the environmental report
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Many of the assumptions are in appendices. It may have been useful to include more discussion in some areas to avoid the reader feeling confused as to why a scheme is being proposed to protect defences
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	The level of detail that seems to have been used appears appropriate. It would have been useful to have described the non-monetised benefits
Do the results 'feel' right?	N	In terms of the short-listed options, the preferred option is 'right' – but it is not clear that the best set of options has been short-listed
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Sandwich PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Sandwich Bay Coastal and Tidal Defence Strategy Plan	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2 (Pg 6) sets out the problem including description of assets at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objectives are given (S 2.1.32; Pg 5) but these may not be easily measurable (e.g. • to manage the frontage and associated defences in a manner that is consistent with the natural processes occurring within the process unit)
Are there links to the hierarchy of decision-making?	Y	S 2.1.2 (Pg 4) and S 2.2.5 (Pg 13) makes reference to shoreline and beach management plans
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing given as the baseline, including quantification of assets at risk
Is a wide range of options and/or standards considered?	Y	S 2.3.1 (Pg 16 and 17): 8 options for coastal benefits units and 5 for inland benefit units and one for both coastal and inland
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3.1 (Pg 16 and 17) sets out reasons for screening out based on impacts and standards of defence and S 2.3.2 (Pg 18) summarises the reasons for options shortlisted
Does the appraisal include option development through a learning process?	N?	
Are the reasons for screening out acceptable/convincing?	Y	S 2.3.1 (Pg 16 and 17) sets out reasons for screening out based on impacts and standards of defence
Is a do-minimum option included?	N	
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	The costs for all the options together with a full description are covered in Technical Report 5 - Option Description and Costs but they are only summarised in the PAR
Are the costs broken down into capital, maintenance, etc.?	Y	S 2.5 (Pg 32) breaks down costs for different options into capital and annual maintenance (Table 2.12)
Are depreciation and capital charges excluded (if relevant)?	Y?	No details given

Questions for Review of Appraisals (B1)

Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	The damages associated with the options taken forward to detailed appraisal are detailed in Technical Report 7 – Economic Analysis (TR7)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	
Which benefits are valued in money terms?	Y	Damage avoided (inc. listed buildings) and value of recreational area as at the cost of purchasing an equivalent area of land (not at risk of flooding) and recreating the conservation area and golf course and facilities.
Have benefits been assessed for both residential and non-residential properties?	Y	Industrial properties also included (Pg 33); value of recreational areas and agricultural land
Have benefits for recreation been taken into account?	Y	Considered for the selection of option and in the SEA
Is all of the key information used when valuing benefits given?	Y	E.g. Includes recreation, agricultural land Report 7 – Economic Analysis
Has capping been undertaken?	Y	The value of the recreational area has been capped at the cost of purchasing an equivalent area of land (not at risk of flooding) and recreating the conservation area and golf course and facilities (Report 7; Pg 19) as well as other damages from the do-nothing option (e.g. the write-off of residential properties, recreational benefits, agricultural land and service, road and rail replacement)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	Included for the selection of option (Pg 38), as described in SEA
What non-monetised benefits are included?	Y	Landscape Ecology Cultural Heritage Recreation Agriculture Population
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Described qualitatively (Slight adverse Large adverse, Moderate adverse, Slight beneficial, Moderate beneficial)
Are approaches such as scoring and weighting used?	N?	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	

Questions for Review of Appraisals (B1)

Does the appraisal adjust for subsidies, etc.?	Y	Value of agricultural land excludes subsidies (report 7; Pg 19)
Does the appraisal include valuation of legally protected elements at risk (if any)?	Y	The heritage value for the listed properties in Sandwich Town has not been the subject to a detailed assessment, but a value of £250,000 per property was used to take some account of their increased value over and above the Market Value (Pg 33)
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 base date (report produced in 2004)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 6 (Pg 28) gives summary tables with PV costs and benefits
Is a 100 year time horizon used?	Y	S 2.5 (Pg 32) and Technical Report 7 – Economic Analysis
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 2.5 (Pg 33)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	Discussion on risk under the selection of option (Pg 39) and Risk register as an Annex (not available); but not discussion of main risk in text
Are any adjustments made for risk?	N?	Risk with regard to costs included in sensitivity analysis
Is optimism bias included?	Y	S 2.6 (Pg 34) and Technical Report 7 – Economic Analysis (included at 60%)
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	Technical Report 7 – Economic Analysis, S 5 (Pg 22): doubling the costs and removing the heritage value on all options
Does the sensitivity analysis include calculation of switching values?	Y	The sensitivity analysis undertaken in Technical Report 7 – Economic Appraisal has shown that costs would need to rise by over 150% for the preferred option for Sandwich Town to reduce to 1:100 (Pg 39)
Are different scenarios used to take into account specific uncertainties?	N?	
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and	Partly	Not clear comparison against objectives although impacts considered for

Questions for Review of Appraisals (B1)

compared back against the original objectives to select the best option?		selection of option relate back to the objectives (e.g. recreational activities)
Are the options set out in a way that allows for easy comparison?	Y	S 2.7.2 (Pg 34) includes good summary tables, with CB and incremental CB ratios
Are costs and benefits assessed over the same period using the same base date?	Y?	2003 base date (Technical Report 7 – Economic Appraisal: pg 8)
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7.2 (Pg 34)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.2 (Pg 34)
Have indicative standards been taken into account?	Y	For option selection, S 2.7.2 (Pg 34)
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	As supported by incremental CB ratios and consideration of other benefits
How does residual risk feature in the appraisal?	N?	
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation undertaken on the preferred strategy but uncertain about whether this has influenced the decision
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Not all sections included, e.g. risk, constraints, as yet but other are, e.g. problem, options, costs and benefits sections
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Some assumption In text; more details given in Technical Report 7 – Economic Appraisal
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Seems quite thorough in discussion of benefits and other impacts
Do the results 'feel' right?	Y	As based on CB ratios and consideration of non-monetised impacts
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Appraisal costs have been reviewed; uncertain about rest of report

Review of South-East Weather Radar PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: South-East Weather Radar	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2 (Pg 17) explains the problem. A summary of problem is also included
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	S 2.2.3 (Pg 19) sets out the objectives and these are quite specific albeit not measurable due to nature of project
Are there links to the hierarchy of decision-making?	Partly	S 2.4.1 explains legislative framework in support of the planning application and EIA
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is given as the baseline (Pg 20)
Is a wide range of options and/or standards considered?	Y	7 options considered, including do nothing and another six sites for radar location
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	All options brought forward to the appraisal
Does the appraisal include option development through a learning process?	Y	Mitigation is proposed as a result of the conclusions from EIA
Are the reasons for screening out acceptable/convincing?	Y?	
Is a do-minimum option included?	N	Due to character of project
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S 2.5 (Pg 29-30) sets out how options have been costed and provides breakdown of costs for all options
Are the costs broken down into capital, maintenance, etc.?	Y	S 2.5 (Pg 29-30). Costs broken down into capital and other costs (e.g. project management, processing development, processing evaluation)
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.3.1 describes the benefits for each option
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	

Questions for Review of Appraisals (B1)

Which benefits are valued in money terms?	Y	Financial loss avoided in terms of damage avoided for the properties at risk (S 2.6; Pg 31), benefits from the evaluation of the potential for measurements and products
Have benefits been assessed for both residential and non-residential properties?	N?	No details given
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Partly	Other components such as the value of the radar in providing information for severe weather warning and its value as a back-up are included but uncertain about how
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	S 2.6.1 (Pg 32-33) includes other factors for the choice of option: e.g. coverage of catchments, of high-profile areas, operational cover, etc. but none of these scenarios is specifically allowed for or valued in the methodology
What non-monetised benefits are included?	Y	coverage of catchments, of high-profile areas, of short-lead time catchments, operational cover, uniformity of coverage; S S 2.6.1 (Pg 32-33) and others under general environmental issues ((S 2.4.2; Pg 26; 27), visual intrusion, adverse health effects
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description (S 2.4.2; Pg 26; 27)
Are approaches such as scoring and weighting used?	N?	Although there is some ranking of the options in terms of benefits to Met office and the EA from the evaluation of the potential for measurements and products
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N?	Non-monetised impacts seem difficult to value; but limited information in PAR as to assess this with accuracy
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2003 prices
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	N?	Whole life costs are given but not spelled out whether these have been

Questions for Review of Appraisals (B1)

		discounted (S 2.5; Pg 29)
Is a 100 year time horizon used?	N	10 years
Does the guidance use a discount rate of 3.5% (reducing)?	N?	
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Risk register provided in Appendix 5 in accordance with the Agency document "Risk Assessment and Management for Construction Projects, Version2 .2"
Are any adjustments made for risk?	Y	Contingency on costs of 19%
Is optimism bias included?	N	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Preferred option is selected on the basis of meeting the objectives but not clear comparison with other options against objectives (S 2.7; Pg 34)
Are the options set out in a way that allows for easy comparison?	Y	S 2.7
Are costs and benefits assessed over the same period using the same base date?	Y	2003 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	N	
Has the PAG3 decision rule been followed correctly?	N	BC ratios presented but the decision has not been made on BC ratios alone and other considerations have been taken into account (objectives, functional and technical criteria, etc.) S 2.7 (Pg 34)
Have indicative standards been taken into account?	N	Not applicable
Is there discussion on key constraints?	Partly	Some mentioned when describing the sites under general environmental issues (S 2.4.2; Pg 26)
Are the conclusions supported by the results?		
How does residual risk feature in the appraisal?	Y	S 3.11 (Pg 42) sets out measures to reduce residual risks
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	

Questions for Review of Appraisals (B1)

Has the consultation been undertaken at the decision-making stage?	N?	
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	N	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	N?	Little details on calculations and selected option is not that of the highest BC ratio but is selected on other grounds such as environmental impacts and other objectives
Do the results 'feel' right?	Partly	Although consideration of other impacts rather than financial issues alone is welcome; it is not very clear why the preferred option is selected. There is little discussion on selection process or comparison with other options
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of Seahouses (2004, 2005)

Questions for Review of Appraisals (B1) SEAHOUSES strategy and appraisal, 2004/ 2005

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		The comments are written in two fonts, the plain refers directly to the appraisal doc, <i>and the italics refers to the broader strategy that has gone into some detail on information that might have been included in the appraisal.</i>
Is the problem clearly defined?	Y	<i>Describes the bigger picture and background to the problem well (Sec 4)</i> Poor condition of defences and risk of 45 properties through flooding and erosion, and loss of mooring facilities. Does not include a bigger picture (Sec 2)
Is the reason for the level of detail of the costs and benefits given?	Partly	The level of detail appears appropriate and is implicit from the report.
Are clear and measurable objectives given?	Y	<i>The strategy describes aims and objectives well which are both clear and measurable (Sec 5)</i> Clear though not specific enough, therefore difficult to measure (Sec 1.3)
Are there links to the hierarchy of decision-making?	Y	The appraisal refers to the strategy study, and the strategy study refers to the SMP (Sec 1, Sec 1)
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Described in the do nothing damages (Sec 4.2, Sec 2.2)
Is a wide range of options and/or standards considered?	Partly	<i>Different standards are not considered as coast protection scheme only delay erosion though a range of approaches are looked at (Sec 6).</i> A range of options are considered in the strategy of which the preferred option is taken to the detailed appraisal.
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	<i>The strategy develops a list of options from which an appropriate course of action is identified (Sec 6).</i> Covered previously in strategy
Does the appraisal include option development through a learning process?	Partly	<i>The options presented indicated they have developed through a learning process, though it is not explained explicitly (Sec 6).</i> Covered Previously in strategy

Questions for Review of Appraisals (B1) SEAHOUSES strategy and appraisal, 2004/ 2005

Are the reasons for screening out acceptable/convincing?	Y	<i>The selection was screened economically and qualitatively on engineering performance, health and safety and environmental grounds, therefore not repeated in detailed appraisal (Sec 6.3.7)</i> Covered previously in strategy
Is a do-minimum option included?	X	<i>No (though the current condition is described suggesting it is worse than a do minimum case) (Sec 6)</i> No
Option Costs		
Does the appraisal describe how each option has been costed?	Y	<i>Yes the options are broadly costed using SPONS (App E)</i> Covered Previously in strategy
Are the costs broken down into capital, maintenance, etc.?	Y	Yes (App E)
Are depreciation and capital charges excluded (if relevant)?	N	N/A
Is a common time horizon used?	Y	Yes, base date used June 2004 (App E)
Are residual values included (if relevant)?	X	Not appropriate.
Option Benefits		
Are the benefits of each option identified?	Y	<i>Yes, these are well laid out (App D)</i> Covered previously in strategy
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Y	<i>Yes, these are well laid out and consider property, traffic and recreation (App D)</i> Covered previously in strategy
Which benefits are valued in money terms?	Y	Damages presented in monetary terms include residential, commercial properties and recreation (App D App A, B)
Have benefits been assessed for both residential and non-residential properties?	Y	Yes using FLAIR and the multicolour manual (App D App A, B)
Have benefits for recreation been taken into account?	Partly	Recreation has been in part by including and assessing the moorings in the harbour (App D, App A, B)
Is all of the key information used when valuing benefits given?	Y	All information has been given as required and laid out in the PAG 3 economic spreadsheets (App D, App A, B)
Has capping been undertaken?	X	No. Though this is queried and a sensitivity check done, stating that it will not affect the conclusions
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	X	None.
What non-monetised benefits are included?	X	N/A

Questions for Review of Appraisals (B1) SEAHOUSES strategy and appraisal, 2004/ 2005

How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	X	N/A
Are approaches such as scoring and weighting used?	X	None
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	
Does the appraisal adjust for subsidies, etc.?	X	
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	The reports look at the distribution impact of boats and the distance/cost to alternative facilities (App E)
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	Yes the costs were updated though not dated, but the benefits were that from the strategy dated June 2004. The appraisal was issued in October 2005 (App D, E, App A, B)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Yes (App D, E, App A, B)
Is a 100 year time horizon used?	Y	Yes (App D, E, App A, B)
Does the guidance use a discount rate of 3.5% (reducing)?	Y	As calculated in PAG spreadsheets (App D, E, App A, B)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	X	Not discussed
Are the main risks identified and described?	X	Not discussed
Are any adjustments made for risk?	X	Not discussed
Is optimism bias included?	Yes	At 40% due to improved calculation method (Sec 3)
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	X	Not discussed
Does the sensitivity analysis include calculation of switching values?	X	Not discussed
Are different scenarios used to take into account specific uncertainties?	X	Not discussed
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	X	No
Are the options set out in a way that allows for easy comparison?	Y	Yes (Sec 6.3.7) Covered previously in strategy

Questions for Review of Appraisals (B1) SEAHOUSES strategy and appraisal, 2004/ 2005

Are costs and benefits assessed over the same period using the same base date?	Y Partly	Yes the strategy uses costs and benefits all to June 2004, this is the basis for the comparison of the options (Sec 6.3.7) Cost updated though date not stated and benefits to June 2004. This is unlikely to affect the results (Sec 4)
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y Partly	Net Present Value, Benefit-Cost Ratio is calculated for the options and Incremental Benefit-Cost Ratio is included for a single option, though the method (Sec 6.3.7) Net Present Value, Benefit-Cost Ratio is calculated (Sec 4)
Has the PAG3 decision rule been followed correctly?	Partly X	Yes up to the incremental c/b which is used to differentiate different scheme approaches though they are not related to either standard of protection or design life (Sec 6.3.7) Options discussed in strategy
Have indicative standards been taken into account?	Y	Yes, though this is not described in the report
Is there discussion on key constraints?	Partly	Only constraint of local SSSI is discussed (Sec 5.3)
Are the conclusions supported by the results?	Partly	Yes, the proposed scheme appears to be the most reasonable though there is limited assessment of risks, constrains and uncertainties to confirm the robustness of the decision (Sec 5)
How does residual risk feature in the appraisal?	Partly	It is assumed there is no residual risk once the scheme has been completed as the erosion has been delayed (Sec 4)
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	X	
Has the consultation been undertaken at the decision-making stage?	Partly	Initial consultation with English Nature (Sec 5)
Presentation of Results		
Does the appraisal follow the PAR format?	X	No, as it has partly been covered in previous strategy
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumptions given, though full details not given, but seem implicit in the methods used
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	The expected information has been included, through brief qualitative discussion of constrains and issues
Do the results 'feel' right?	Partly	The report and strategy does not exhaust the possibility of an option not presented being better, though this seems unlikely

Questions for Review of Appraisals (B1) SEAHOUSES strategy and appraisal, 2004/ 2005

<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	Un- know n	Not Known

Review of South West Regional Coastal Monitoring Programme PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: South West Regional Coastal Monitoring Programme	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	S 2.1 sets out the problem, including extent of areas and population at risk
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.1.6 sets out the objectives but these are not easily measurable
Are there links to the hierarchy of decision-making?	Y	Key aim is related to both policy & strategic planning (S 1.1.1; Pg 4). Other links are given in Appendix A (S 1.5)
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	N	Baseline presumably do nothing; but this is not explained very well in either main text or appendix A (although appendix A explains why this is not an acceptable option)
Is a wide range of options and/or standards considered?	Partly	6 options considered including do nothing and do minimum (Appendix A)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	S 4 Appendix A: screening based on BC ratios
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	N?	No enough details provided about magnitude of benefits as to warrant the screening on ratios
Is a do-minimum option included?	Y	Appendix A, S 3.2
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	Partly	Some brief explanation given in Appendix A, S4 but not a great level of detail
Are the costs broken down into capital, maintenance, etc.?	N	
Are depreciation and capital charges excluded (if relevant)?	N?	No details given
Are residual values included (if relevant)?	N?	No details given
<i>Option Benefits</i>		
Are the benefits of each option identified?	Partly	Discounted benefits given in Appendix A, S 4
Is the likely significance/likely magnitude of the benefits taken into account before assessing	N	

Questions for Review of Appraisals (B1)

them in detail?		
Which benefits are valued in money terms?	Y	Expected savings to projected region wide cost estimates of delivery of flood defence and coast protection, over a 50-year period.
Have benefits been assessed for both residential and non-residential properties?	Y?	Likely, although this is not explicitly mentioned
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	N?	Not enough details given
Has capping been undertaken?	N?	Not enough details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	
What non-monetised benefits are included?	Y	Long list of additional non tangible benefits acknowledged (e.g. consistency of approach to data collection and management; high quality data management; widening local involvement and experience, etc.). Appendix A,S 4.6
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Description (brief)
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	Not enough details given
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N?	Not enough details given
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2005 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Appendix A, S 4
Is a 100 year time horizon used?	N	50 years timeframe (Appendix A, S 4)
Does the guidance use a discount rate of 3.5% (reducing)?	Y?	3.5% used but uncertain about whether this is declining (Appendix A; Pg 38)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	S 1.7 (Pg 5) summarises key risks and mitigation

Questions for Review of Appraisals (B1)

Are any adjustments made for risk?	Y	Contingency of 95 percentile (S 1.11; pg 7)
Is optimism bias included?	N?	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	Sensitivity of programme benefits to duration; Figure 1 in Appendix A shows incremental improvements in benefit cost ratio with time for alternative monitoring programmes (Pg 27)
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Lower, mid and upper bounds provided (Appendix A; S 4) for uncertainty on estimates on costs and benefits
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	N	
Are the options set out in a way that allows for easy comparison?	N	B/c ratios for each option given separately (Appendix A, S 4)
Are costs and benefits assessed over the same period using the same base date?	Y	50 years
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	No incremental costs ratios calculated
Has the PAG3 decision rule been followed correctly?	Partly	Based on CB ratios alone
Have indicative standards been taken into account?	N	Not really applicable; options related to different monitoring programmes
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Partly	As based on CB ratios; but this is quite a different PAR in nature so case for the preferred option still holds without incremental CB analysis
How does residual risk feature in the appraisal?	Y	The derived initial and residual risk values are 8.53% and 5.63% respectively. Contingency is included in the approval sum (Pg 8)
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation undertaken (Appendix G and F) but uncertain about consultation at the decision making stage
Presentation of Results		
Does the appraisal follow the PAR format?	Y	But the level of detail in the main body of PAR is limited and keeps referring to Appendices for further

Questions for Review of Appraisals (B1)

		information/details
Does the appraisal include all assumptions alongside the calculations, etc.?	N	
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	The level of detail provided in the PAR in comparison with Appendix A is very disproportionate.
Do the results 'feel' right?	Partly	As based on CB ratios, but could have benefited from further explanation
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of Southwold 2005

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Southwold Coastal Frontage	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	The problem is clear with quantitative and monetary information supporting it
Is the reason for the level of detail of the costs and benefits given?		
Are clear and measurable objectives given?	Y	The project objectives are linked to those of the SMP and Strategy. Further project specific objectives are also given, although the first (provide an acceptable standard of defence to the frontage) is not really measurable
Are there links to the hierarchy of decision-making?	Y	Links are made to the Lowestoft to Harwich SMP and the Lowestoft to Thorpeness Coastal Process and Strategy Study. Links are also included to take account of the findings of the Blyth Estuary Strategy Study
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Do-nothing is used as the baseline. The description of the effects include details on numbers of properties affected and when (although information on timing of impacts following erosion is less detailed)
Is a wide range of options and/or standards considered?	Y	The range of options (do-nothing, do-minimum, maintain, sustain and improve) is considered. The improve option is considered at high standards (1 in 150, 1 in 200 and 1 in 300) due to the high standard provided by sustain (1 in 100). Different engineering solutions are included as alternative ways of providing the standards
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S2.5.2 discusses reasons for selecting one type of construction over another
Does the appraisal include option development through a learning process?	Partly	The PAR selects a combination of rock and timber groynes due to cost/aesthetic factors
Are the reasons for screening out acceptable/convincing?	Y	Mainly on cost (rock groynes preferred over timber groynes) and aesthetic/landscape factors for timber groynes over rock groynes
Is a do-minimum option included?	Y	The do-minimum option allows for maintenance with no capital works. This is distinguished from the maintain option, which includes capital works

Questions for Review of Appraisals (B1)

Option Costs		
Does the appraisal describe how each option has been costed?	N	Full details of the costs of all options are given in an Appendix. The costs of the preferred option are given in detail and include the costs of reviewing and preparing the PAR, as well as compensation payments for fishermen
Are the costs broken down into capital, maintenance, etc.?	Y	S2.5.2 gives details of the capital and maintenance costs
Are depreciation and capital charges excluded (if relevant)?	N	Not known
Are residual values included (if relevant)?	N	None included
Option Benefits		
Are the benefits of each option identified?	Partly	A general discussion is given on how the benefits have been estimated, with total benefits for each option given
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	Benefits were estimated according to what was possible to monetise
Which benefits are valued in money terms?		Residential and commercial property damages avoided due to flooding and erosion, and damages avoided for the emergency services (taken as 10.5%) Recreation benefits
Have benefits been assessed for both residential and non-residential properties?	Y	The number of residential and commercial properties affected is included, e.g. in Section 2.4.1
Have benefits for recreation been taken into account?	Y	The benefits from a CV survey at Corton are used as being similar in terms of attractiveness of beach and location
Is all of the key information used when valuing benefits given?	Partly	Damages due to flooding of the only access road to Southwold are not taken into account as there is no diversion route – this may have significant social implications for residents which are not taken into account
Has capping been undertaken?	Y	Section 2.6.2, pg 23 states that 'flood damages were capped at the write-off value of property flooded'
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	The preferred option is selected on the basis of the monetised costs and benefits only
What non-monetised benefits are included?	None	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	
Are approaches such as scoring and weighting used?	N	

Questions for Review of Appraisals (B1)

Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Only those benefits/damages that are easily valuable (and accepted) have been included
Does the appraisal adjust for subsidies, etc.?	N	Not relevant
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	There is one Grade I and four Grade II* listed buildings at risk from erosion
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	N	There is no information on the base date for the economic appraisal
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	All costs and benefits are given in PV terms, but it is not clear what year this refers to
Is a 100 year time horizon used?	Y	Section 2.6.1 (and others) refers to a 100 year period
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Section 1.3 confirms the discount rate used
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Section 2.5.4 sets out the risk assessment and contingency
Are any adjustments made for risk?	Y	The risk value (in £) is assessed and taken account of using the @risk program
Is optimism bias included?	Y	Optimism bias of 30% is used
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	Sensitivity analysis is undertaken using different levels of optimism bias (21% and 35%) and decreasing/increasing the benefits by 20%
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The selection of the preferred option is based on costs and benefits only. There is no consideration of the project objectives during the discussion of selection of the preferred option
Are the options set out in a way that allows for easy comparison?	Y	The PAR includes summary tables setting out the key economic information

Questions for Review of Appraisals (B1)

Are costs and benefits assessed over the same period using the same base date?	Y?	All are given in PV terms, but a base date is not specified
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Tables equivalent to the FCDPAG3 Summary table
Has the PAG3 decision rule been followed correctly?	Y	A discussion is given as to how the decision rule has been followed. The target incremental benefit cost ratio is given as 5
Have indicative standards been taken into account?	Partly	Indicative standards are mentioned only in terms of the current standard provided. The Land Use Band for the project is not given in the PAR
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	The option selected appears appropriate, although there are some issues (e.g. social due to access road flooding) that could have been included. The sensitivity analysis is rather limited – it is unclear what would happen to the preferred option if the benefits were decreased further and switching points analysis would have been useful to explore this further
How does residual risk feature in the appraisal?	Partly	Residual risks are considered in terms of affecting the costs of the project. There is no discussion of the risks resulting from events greater than the design standard
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	Partly	The need to take account of aesthetic/landscape benefits drives the option selection down a more costly route
Has the consultation been undertaken at the decision-making stage?	Y	Consultation has been undertaken throughout the process as discussed in Section 2.4.1
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	Although the section headings are not very clear, making it difficult to navigate through the document
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	There are many references to supporting appendices. The do-nothing is described in detail
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	There are some simplifying assumptions used (e.g. residual life before erosion is assumed to be the same across the whole frontage), but this appears appropriate
Do the results 'feel' right?	Y	The preferred option would provide a high standard of protection to an urban area with high leisure/recreation value

Questions for Review of Appraisals (B1)

<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known, but appraisal is 2005 report so unlikely

Review of St Clears PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: St Clears	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.1.4 (Pg 7) and S 2.2 (Pg 8); includes number of properties at risk
Is the reason for the level of detail of the costs and benefits given?	Partly	Description about process for estimating costs is given (S 2.5.1)
Are clear and measurable objectives given?	Partly	Objectives clearly given but these may not be easily measurable (S 2.2.6; Pg 9)
Are there links to the hierarchy of decision-making?	Y	S 2.2.4 (Pg 9) describes the regulatory context to the flood alleviation strategy
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	S 2.3.2 (Pg 11): Do nothing is given
Is a wide range of options and/or standards considered?	Y	7 options considered (S 2.3: pg 11-13)
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3 (pg 11-13) gives reasons for screening. Advantages and disadvantages for each option given in Table 2.2
Does the appraisal include option development through a learning process?	Y	S 1.8 (Pg 2) describes mitigation measures for the preferred option
Are the reasons for screening out acceptable/convincing?	Y	Based on indicative standards of protection, expenditure, environmental impacts, etc
Is a do-minimum option included?	Y	S 2.3.2 (Pg 11)
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Main text only gives general costs elements and breakdown for the preferred option but a detailed breakdown of the annualised spend profiles is included in Appendix 4.
Are the costs broken down into capital, maintenance, etc.?	Y	S 2.5.3 (Pg 22): Main text gives breakdown on the preferred option only
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Y	S 2.6.4 (Pg 23)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	PV damages avoided

Questions for Review of Appraisals (B1)

Have benefits been assessed for both residential and non-residential properties?	Y?	Commercial, public properties included and major infrastructure included (S 2.1.4; Pg 7)
Have benefits for recreation been taken into account?	Partly	Impacts are qualitatively described but they are not valued
Is all of the key information used when valuing benefits given?	Partly	As based on damages avoided alone
Has capping been undertaken?	N?	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	List of Intangible benefits included early in the report (S 1.9) and environmental benefits in S 2.6.5 (Pg 25), under the benefits section but not in economic appraisal
What non-monetised benefits are included?	Y	Environmental and other intangibles
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Qualitative description
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Probably recreational and other environmental
Does the appraisal adjust for subsidies, etc.?	Y	Compensation is included (S 2.5.3; Pg 21)
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	2004 base date
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5 and 2.6
Is a 100 year time horizon used?	Y	S 2.5.1 (Pg 20)
Does the guidance use a discount rate of 3.5% (reducing)?	N	3.5% but not reducing (Pg 24 notes <i>The resulting Average Annual Damage was compounded over the 100-year project design life using a discount rates of 3.5% for years 0 to 100.</i>)
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Risk assessment in accordance with the Environment Agency guidance document "Risk Assessment and Management for Construction Projects Version 2.2 (S 2.5.2; Pg 21)

Questions for Review of Appraisals (B1)

Are any adjustments made for risk?	Y	S 2.5.2 (Pg 21) Risk contingency 95%ile on Agency's approval costs and 50%ile risk on WAG approval costs
Is optimism bias included?	Y	S 2.5.2 (Pg 21): 34% of the scheme cost estimate
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	S 2.7.4 (pg 28): Sensitivity of costs and benefits estimates
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	The impact of climate change on the preferred option is detailed in Section 2.7.4.
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Costs and benefits only
Are the options set out in a way that allows for easy comparison?	Y	S 2.7 (Pg 26)
Are costs and benefits assessed over the same period using the same base date?	Y	Over 100 years; 2004 base date
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 2.7.2 (Pg 26)
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.3 (Pg 26)
Have indicative standards been taken into account?	Y	S 2.7.3 on selection of preferred option (Pg 26)
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	As based on FCDPAG3 rule; but also discussed with WAG
How does residual risk feature in the appraisal?	Y	The residual risks associated with the project are presented in Appendix 7.
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation undertaken for EIA but uncertain about consultation at decision making stage
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumption given in text but not always alongside calculations
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y?	
Do the results 'feel' right?	Y	As based on PAG3 rule. Process is

Questions for Review of Appraisals (B1)

		easy to follow and well described
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Review of St Ives and the Hemingfords

Questions for Review of Appraisals (B1)

Appraisal being reviewed: St Ives and the Hemingfords Flood Alleviation Scheme	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S 2.2. (Pg 6) sets out the problem , including the number of properties at risk under the current situation
Is the reason for the level of detail of the costs and benefits given?	Partly	S 2.2.4 (Pg 8) sets out the reasons why the economic assessment considers different banks as separate compartments; but also the reason why the combined arithmetical economic viability for the whole area is presented. The reasons however remain a bit unclear.
Are clear and measurable objectives given?	Y	S 2.2.5; this also includes a description of the standard of protection to be achieved
Are there links to the hierarchy of decision-making?	Partly	S 2.4.2 sets out the legislative framework for the EIA
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	S 2.3.1.1 (Pg 8-9) sets out 'do nothing' as the baseline. Quantification under problem description
Is a wide range of options and/or standards considered?	Y	7 options considered, Option 5-7 consists of increasing standards of protection to different standards. Other options were also considered at the pre-feasibility stage.
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S 2.3.2 (Table 2.3) includes a description of other flood alleviation measures considered and the reasons why the were screened out at an early stage
Does the appraisal include option development through a learning process?	Y	Mitigation measures for negative impacts are considered (Table 2.6; Pg 17)
Are the reasons for screening out acceptable/convincing?	Y	S 2.3.2 (Table 2.3; Pg 11) includes reasons for excluding the measures according to technical feasibility, flood risk, costs, environmental impacts, etc.
Is a do-minimum option included?	Y	S 2.3.1.1, (Pg 9). This option involves carrying out reactive maintenance
Option Costs		
Does the appraisal describe how each option has been costed?	Y	S 2.5 (Pg 19-20) includes costs estimates for each of the scheme options

Questions for Review of Appraisals (B1)

Are the costs broken down into capital, maintenance, etc.?	Y	S 2.5 - Capital costs, maintenance costs, landowner compensation costs and risk contingency allowance included
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Partly	S 2.6.2 (Pg 24) and 2.7 set out the PV damages avoided for each option; but there is no consideration/ detailed discussion of other benefits, e.g. environmental, intangibles
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Just damages avoided, S 2.6.4
Have benefits been assessed for both residential and non-residential properties?	Y	Residential and commercial properties included
Have benefits for recreation been taken into account?	N	No, S 2.6.2 notes: no numerical evaluation of recreational, environmental and amenity benefits has been included in the economic assessment
Is all of the key information used when valuing benefits given?	N	Recreational, indirect and other intangible are not included in the benefits
Has capping been undertaken?	Y	Damages from inundation have been capped by assessing the write-off value of the property; the write-off value has been taken as the market value of the property, from the land registry database. For commercial properties, these are based on the rateable value for that property as set by the Valuation Office Agency (VOA)
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	Refer above
What non-monetised benefits are included?	N	None
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	N/a
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	S 2.6.2 notes the possibility of valuing intangibles but does not value these. It notes: <i>the initial appraisal indicated the scheme viability to be very robust and therefore the additional benefits have not being included.</i>
Does the appraisal adjust for subsidies, etc.?	Y	S 2.5.4 notes that compensation will accrue to landowners for a total value of

Questions for Review of Appraisals (B1)

		£200k
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Costs has been inflated to 2004 values
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5.7
Is a 100 year time horizon used?	Y	S 2.5.7, whole life costs over a scheme life of 100 years
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 2.5.7
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	N	
Are any adjustments made for risk?	Y	S 2.5.5 (Pg 20). A Monte Carlo' risk analysis is carried out to derive a contingency value; a 25% risk value is applied to the PV costs of each option which includes both capital and maintenance expenditure
Is optimism bias included?	N	There is some discussion about optimism bias though (Pg 20) but this is not applied
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Y	S 2.7.5 (P29). A sensitivity analysis was undertaken to determine the robustness of the preferred option. The tests includes: influence of increase rainfall due to climate change on the damages and SoP provided by each option; reduction in modelled levels for each return period by 150mm; increase in PV costs
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Effects of climate change due to increases in rainfall considered (S 2.2.3 and 2.3.4)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to	Partly	Options are discounted on economic grounds and failing to meet indicative standards; but there is little reference to environmental impacts and Option 6 is

Questions for Review of Appraisals (B1)

select the best option?		not discussed in detail in main body of the PAR
Are the options set out in a way that allows for easy comparison?	Y	All option included in summary tables (Table 2.11-2.13, Pg25-26)
Are costs and benefits assessed over the same period using the same base date?	Y	2004 base date used
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	S 7 - Summary Tables (Pg 25-26) presents PV costs and benefits, benefit costs ratios and incremental costs ratios
Has the PAG3 decision rule been followed correctly?	Y	S 2.7.2, option with higher level of protection and incremental benefits costs ratio > 3
Have indicative standards been taken into account?	Y	For options exclusion
Is there discussion on key constraints?	Y	The environmental impacts from the preferred option are discussed and mitigation measures proposed accordingly; as well as a summary of the negative impacts from the other options.
Are the conclusions supported by the results?	Y	The preferred option has the highest incremental BC ratio
How does residual risk feature in the appraisal?	Y	Residual risks are described (Pg 3). The PAR notes that these are to be mitigated
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	S 2.4.3 - Consultation with landowners and other stakeholders, such as EN, local residents, etc.
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumption are given, e.g. regarding capping of values and timing; but the report may benefits from presenting them alongside the calculations and summary Tables
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of Swanage Coast Protection Scheme

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Swanage CP Scheme	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	S 2.2 number of properties and description of assets and erosion rates
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	N	
Are there links to the hierarchy of decision-making?	Y	S 2.1.2 links to SMP and strategies in 2000 & 2002
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	S 2.3.1 Do nothing
Is a wide range of options and/or standards considered?	Y	But in previous strategies
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Partly	Refers to b/c ratio and technical and env. objectives
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	Partly	Refers to information in previous reports
Is a do-minimum option included?	Y	S 2.3 maintain existing defences
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	Y	S 2.5 but mainly in Appendix D
Are the costs broken down into capital, maintenance, etc.?	Y	In Appendix D
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	
<i>Option Benefits</i>		
Are the benefits of each option identified?	Partly	S 2.5 and Appendix but not much detail
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?		Built assets and amenity (but no info. on how)
Have benefits been assessed for both residential and non-residential properties?	Y	Residential and commercial
Have benefits for recreation been taken into account?	Y	S 2.1.3 but no detail as to what or how
Is all of the key information used when valuing	NK	

Questions for Review of Appraisals (B1)

benefits given?		
Has capping been undertaken?	NK	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	
What non-monetised benefits are included?		
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?		
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	NK	
Does the appraisal adjust for subsidies, etc.?	N/A	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	NK	Not mentioned
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5
Is a 100 year time horizon used?	N	S 2.1.1 50 year as prior to 100 year instruction
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S 2.5
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	NK	
Are the main risks identified and described?	Partly	Some discussion on erosion and failure rates
Are any adjustments made for risk?	N	
Is optimism bias included?	Y	S 2.5 34% OB but no reasons given
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	S 2.7 costs, residual life, removal of valuable asset.
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to	Partly	S 2.7 and Appendix E b/c ratio and results of consultation

Questions for Review of Appraisals (B1)

select the best option?		
Are the options set out in a way that allows for easy comparison?	Y	Appendix E has Defra summary table
Are costs and benefits assessed over the same period using the same base date?	NK	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Appendix E has Defra summary table
Has the PAG3 decision rule been followed correctly?	Y	
Have indicative standards been taken into account?	Y	S 2.1.1 Land use band A
Is there discussion on key constraints?	Y	Refers to consultation
Are the conclusions supported by the results?	Partly	Not a great deal of information given in the PAR
How does residual risk feature in the appraisal?	NK	
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	Before and after
Presentation of Results		
Does the appraisal follow the PAR format?	Y	Follows PAR headings
Does the appraisal include all assumptions alongside the calculations, etc.?	N	Not well laid out
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Appears to be for short frontage and 106 properties
Do the results 'feel' right?	Y	PAR is very technical biased with little consideration of objectives, benefits and discussion of preferred option
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	

Review of Tadcaster (2002)

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Tadcaster (2002)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S2.2.2 sets out the mechanisms of flooding, with S2.1 providing quantitative information on the numbers/types of properties that would flood. It would have been useful to also state what return period the events in 2000 and 2002 represented
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	S2.2.4 sets out objectives that are clear and could be measurable although no base data are given against which to measure them
Are there links to the hierarchy of decision-making?	N	It is not clear if the 1 in 100 standard has been selected based only on the indicative standard in PAG3 or whether there is an overarching strategy
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Partly	The do-nothing option is described, but the full extent of the potential damages is not fully quantified
Is a wide range of options and/or standards considered?	Y	This includes consideration of flood warning and flood storage (although flood warning is already in place and flood storage was considered insufficient to reduce water levels in the town, so neither was considered further). However, options providing a 1 in 100 standard only are considered
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S2.3 discusses those options that have not been considered further – it also references an options report
Does the appraisal include option development through a learning process?	Partly	A range of different option compositions are considered, but not from the viewpoint of what is the best bits of each option
Are the reasons for screening out acceptable/convincing?	Y	S2.3.3 explains why flood warning, flood storage and increased channel conveyance have not been considered further
Is a do-minimum option included?	Y	S2.3.2
Option Costs		

Questions for Review of Appraisals (B1)

Does the appraisal describe how each option has been costed?	Partly	S2.5.1 gives the overall costs (PV and whole life costs) with further details given in Appendices E and F
Are the costs broken down into capital, maintenance, etc.?	Partly	S2.5.1 notes that future maintenance costs are included
Are depreciation and capital charges excluded (if relevant)?	N	No details given
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Partly	Benefits of each option are given in tables, e.g. Table 2.6, but little description is given as to how the benefits have been calculated for each option
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Property damages Traffic-related delays Emergency service costs All other indirect costs have been ignored (not stated if this is because they are insignificant – e.g. no mention of heritage assets (listed buildings mentioned previously)). ‘Gain’ benefits of environmental, recreational or agricultural enhancements have not been included
Have benefits been assessed for both residential and non-residential properties?	Y	Residential and commercial damages have been calculated, with details of how damages for the brewery site have been estimated
Have benefits for recreation been taken into account?	N	Recreation benefits have not been included, although a brief description of the potential recreational benefits is given
Is all of the key information used when valuing benefits given?	Partly	The number of properties flooded under different events is not given
Has capping been undertaken?	Y	S2.6.3 notes that 10 residential property were capped
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Intangible benefits are described in S2.7.2 when determining the preferred option
What non-monetised benefits are included?	N	None, although a brief description of stress caused by previous flooding events is given
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Partly	Intangible benefits such as distress and stress to residents are described

Questions for Review of Appraisals (B1)

Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	
Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No mention is given to the five listed Grade II buildings in the benefits section
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	To December 2002 (updated using the RPI)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	
Is a 100 year time horizon used?	N	Not stated in the PAR, but the FCDPAG spreadsheets suggest a 50 year time horizon has been used
Does the guidance use a discount rate of 3.5% (reducing)?	Y	S2.6.3 confirms the use of the reducing discount rate
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Partly	Risks are considered in terms of their impact on the costs of the scheme, with Table 2.4 describing the risk based contingency allowances for all options
Are any adjustments made for risk?	Y	Risk is taken account of in the costs
Is optimism bias included?	N?	No mention of optimism bias in the PAR – a risk based contingency is used
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Y	S2.7.3 includes tests on the brewery damage figures (as these represent 38% of total damages) and the assumption the flood warning would not reduce damages
Does the sensitivity analysis include calculation of switching values?	Partly	S2.7.3 discusses how much the brewery damages could reduce by and the option still remain preferred
Are different scenarios used to take into account specific uncertainties?	N	
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	The choice of preferred option is based on the economics and is tested through sensitivity analysis

Questions for Review of Appraisals (B1)

Are the options set out in a way that allows for easy comparison?	Y	Table 2.7 sets out the costs, benefits, NPVs and benefit-cost ratios
Are costs and benefits assessed over the same period using the same base date?	Y	The same base date is used (December 2002) but the time horizon used does not appear to be given
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	NPV and benefit-cost ratios are calculated but not IBCRs
Has the PAG3 decision rule been followed correctly?	Partly	The preferred option is selected as that with the highest benefit-cost ratio – without consideration of other standards so IBCR is not included
Have indicative standards been taken into account?	Y	But have been used to identify the standard to be considered (i.e. 1 in 100). S2.7.9 notes that 'Option 3 ...meets the indicative standard of service as prescribed in FCDPAG3'
Is there discussion on key constraints?	Partly	Particular issues affecting the type of options that could be used is discussed, e.g. in S2.7.6
Are the conclusions supported by the results?	Y	The preferred option provides the same standard of defence to all properties and avoids knock-on effects elsewhere
How does residual risk feature in the appraisal?	Partly	Residual risk is considered in terms of the costs. The impact of minor over design events is discussed briefly
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Partly	Consultation has been undertaken on the Environmental Impact Assessment, while the proposed scheme has also been discussed with statutory planning authorities
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Some assumptions, e.g. number of properties flooded on different return period events, are not given
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	The section on costs is much more detailed than the section on benefits
Do the results 'feel' right?	Y	The standard provided seems right, although it is difficult to judge whether this is the 'best' standard as others have not been considered. The inclusion of opportunities for environmental enhancement is good
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known

Thames Barrier and Gates Review of PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	Flood risk, asset description, standards of reliability, annual probability of failure etc. set out p.13-16
Is the reason for the level of detail of the costs and benefits given?	Partly	Detailed short-term (5 year) programme of work presented alongside a longer term indicative programme. PARs to be developed for individual work packages due to their substantial nature p.13
Are clear and measurable objectives given?	Y	Given as "maintain the Annual Probability of Failure (APF) for each barrier at, or better than, the current level, given increasing demand in the period to 2100" on p.13
Are there links to the hierarchy of decision-making?	Partly	Not explicit, but identifies role of Port of London Authority (p.15) as well as submission process under section 3.6.4 on p.41.
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	Current standards of protection and APF outlined
Is a wide range of options and/or standards considered?	Y	See below
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	Document states "Options arising from the Strategy Study were discussed at two Options Workshops, whereby internal and external stakeholders contributed to the development of a shortlist of options for consideration in this PAR" but no details provided on what these were or who attended
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	?	Other options and reasons not given.
Is a do-minimum option included?	Y	Under this option, the barriers would be operated, but not maintained. p.18
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	Y	Estimates of option costs for all the barriers have been derived from

Questions for Review of Appraisals (B1)

		<p>consideration of data from such sources as:</p> <p>Thames Barrier – costs of temporary works and maintenance;</p> <p>Contractors and Suppliers – quotations for replacements such as control equipment, hydraulic and electrical equipment, valves, motors, gearboxes, etc;</p> <p>Previous studies – costs for temporary works and installation of replacement equipment; and</p> <p>Specialist advice – costs of protective coatings, installation of bearings and other major equipment. p.41</p> <p>Environment Agency costs and those associated with consultants have been based on experience gained on similar projects undertaken at the barriers. p.20</p>
Are the costs broken down into capital, maintenance, etc.?	Y	<p>Key Information for preferred option presented on p.11 shows costs by budget line including separate lines for construction and maintenance.</p> <p>Breakdown for other options not presented in main PAR but might be available in Appendix 4. “Economic appraisal with data and detailed workings” or Appendix 5. “Cost breakdowns and clarifications”</p>
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	No mention
Option Benefits		
Are the benefits of each option identified?	Y	<p>The benefits arising from the options are based on the avoidance of damages due to overtopping or out-flanking of fixed defences caused by the failure of the barriers to close during a tidal surge event. Damage estimates are approximate and are based on interpolation of Direct Damage values obtained from the Embayment Studies, separately commissioned by the Environment Agency. p.21. PVs for benefits for each option provided on p.23.</p> <p>Possibly some error in tables presented as states on p. 23 that damages for option 2 are greater than for option 1 but the tables are exactly the same for both options?</p>
Is the likely significance/likely magnitude of the	Y	Since barriers/gates are already in

Questions for Review of Appraisals (B1)

benefits taken into account before assessing them in detail?		existence, information on potential damages/benefits was well known. "Damage estimates are approximate and are based on interpolation of Direct Damage values obtained from the Embayment Studies, separately commissioned by the Environment Agency." p. 21
Which benefits are valued in money terms?	Y	Avoided damages p.21 and detailed in Appendix 4.
Have benefits been assessed for both residential and non-residential properties?	Y?	Appears so – statement on p.23-24 says "The damages presented in Tables 2 to 4 are those pertaining to property. Whilst the damages suffered by the infrastructure, rail, road, schools, hospitals, etc. and the environment have been considered, it was not necessary for the assessment of the strategy to evaluate their economic value."
Have benefits for recreation been taken into account?	N	
Is all of the key information used when valuing benefits given?	Partly	As stated above, not considered necessary to value damages to infrastructure, schools, hospitals etc.
Has capping been undertaken?	N	No mention in PAR. Possibly in Appendix 4?
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	Only monetised benefits considered in economic appraisal. p. 23-24 "Whilst the damages suffered by the infrastructure, rail, road, schools, hospitals, etc. and the environment have been considered, it was not necessary for the assessment of the strategy to evaluate their economic value."
What non-monetised benefits are included?	N	p.23-24 "Whilst the damages suffered by the infrastructure, rail, road, schools, hospitals, etc. and the environment have been considered, it was not necessary for the assessment of the strategy to evaluate their economic value."
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N	See above.
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	See above
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
Distributional Impacts		

Questions for Review of Appraisals (B1)

Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	January 2005 p.20
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Presented in Tables 8,9,10,11 p.30-32
Is a 100 year time horizon used?	Y	Strategy life is designed for 100 years p.33-34
Does the guidance use a discount rate of 3.5% (reducing)?	Y?	Footnote at bottom of p.11 referring to key information tables states "No inflation allowance used. Costs discounted in accordance with H M Treasury 'Green' Book Guidelines."
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y?	Risk register included as Appendix 7 (but not seen). Procedures for identifying risk management strategy and main risks considered laid out on p.21
Are any adjustments made for risk?	Partly ?	PAR states "Risk contingency costs have been evaluated using a Monte Carlo analysis and added to costs for the short and long-term investment programmes, plus an Optimism Bias of 60%". p.10 "The present value cost of the investment strategy to 2100 is £469M. This figure includes risk of (£206M) p.8" But states "The costs for improvements and replacements do not include Optimism Bias or risk". p.20
Is optimism bias included?	Y?	APR states "Risk contingency costs have been evaluated using a Monte Carlo analysis and added to costs for the short and long-term investment programmes, plus an Optimism Bias of 60%. p.10
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	Partly	Section 2.8.4 p.34 refers. States "The result of each of the sensitivity tests was that there was no change in the choice of preferred option for each of the structures in the TB&AGs", but no presentation of data to back up (possibly in Appendices?).

Questions for Review of Appraisals (B1)

		Figure 3 on p.34 only provides analysis on Cost and Damage Adjustment by $\pm 50\%$ for the preferred option.
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Sensitivity tests done for: Plus or minus 25% and 50% in costs estimates; • Plus or minus 25% and 50% in damage estimates; • Plus 25% in cost estimates and minus 25% in damage estimates; and • 60 barrier/gate closures and 160 barrier/gate closures in 2100. p. 34
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Based on costs and benefits
Are the options set out in a way that allows for easy comparison?	Y	Tables 8-11 on p.30-32 compares each option for each individual structure
Are costs and benefits assessed over the same period using the same base date?	Y	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Tables 8,9,10,11 p.30-32 summarises for all options on all structures
Has the PAG3 decision rule been followed correctly?	Partly	See below
Have indicative standards been taken into account?	N	PAR states “Whilst the requirement of the Defra Decision Rule to refer to the indicative standard is not appropriate in this analysis, the decision rule has otherwise been applied to ensure that the best value is attained through the preferred option.” This is justified with the following reference: “...in the Defence Standards Report (Appendix 1), the Strategy Study has concluded that the most appropriate SoP to be provided by the TB&AGs is for an event probability of 0.1% (1,000 year return period event) at 2100 – an improvement over the current standard, which is 0.1% at 2070”
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Y	
How does residual risk feature in the appraisal?	Y	Risks identified in p.21 and Appendix 7. Used to make adjustments to cost of options
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a	N	

Questions for Review of Appraisals (B1)

number of options?		
Has the consultation been undertaken at the decision-making stage?	N	
<i>Presentation of Results</i>		
Does the appraisal follow the PAR format?	?	
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Assumptions detailed at each stage of costing and benefit calculation
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	?	Large investment but Appendices not available for assessment
Do the results 'feel' right?	?	
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	?	

Review of Thames Estuary Flood Risk Management Plan Phases 2-4 (2004)

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/X	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Section 2.2
Is the reason for the level of detail of the costs and benefits given?	Y	Section 2.1 sets out how the report has changed, where additional data, etc. have been added
Are clear and measurable objectives given?	Partly	Tools to manage flood risk are given on pg 23, bullets. Some objectives are given in the Project Plan (Section 3.1)
Are there links to the hierarchy of decision-making?	Y	Bullet (iii) on pg 21 notes the need to identify how the strategy fits with related strategies and plans
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Table 2.4 sets out the key risks under the do-nothing option and includes a lot of quantitative information
Is a wide range of options and/or standards considered?	Partly	Four options are considered that relate more to policy/how to develop the strategy plan
Does the appraisal indicate how the long-list was reduced to a short-list of options?	X	Not relevant
Does the appraisal include option development through a learning process?	Partly	The preferred option includes mechanisms for incorporating the results of research, etc. to inform implementation
Are the reasons for screening out acceptable/convincing?	X	Not relevant
Is a do-minimum option included?	Y	Continue current practice forms the do-minimum option
Option Costs		
Does the appraisal describe how each option has been costed?	Partly	Some detail of the make-up of the costs for Option 4 is given in the Executive Summary, but not for the other options
Are the costs broken down into capital, maintenance, etc.?	Partly	Option 4's costs are divided into Agency's revenue costs, costs for specialists and an allowance for risk
Are depreciation and capital charges excluded (if relevant)?	X	Not relevant
Are residual values included (if relevant)?	X	Not relevant
Option Benefits		

Questions for Review of Appraisals (B1)

Are the benefits of each option identified?	Partly	Table 2.4 and discussion in Section 2.6 set out a comparison of the options with do-nothing, but there is no section on benefits. More detail is given on the benefits of Option 4 (numbered bullets, pg 26)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	X	Benefits are not quantified as such, partly due to the nature of the plan but descriptions are given
Which benefits are valued in money terms?	X	None
Have benefits been assessed for both residential and non-residential properties?	X	Numbers of properties that could be affected have been described, but damages are not calculated – mainly due to plan being related to justifying spending to develop the strategy
Have benefits for recreation been taken into account?	X	Not relevant
Is all of the key information used when valuing benefits given?	Partly	Benefits relate mainly to value of information and are described in words only
Has capping been undertaken?	X	Not relevant
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	All benefits are described qualitatively only
What non-monetised benefits are included?		Not specified as such but relate to risk of flooding and change in risk of flooding under each option
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?		All benefits are described
Are approaches such as scoring and weighting used?	X	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	X	Not relevant
Does the appraisal adjust for subsidies, etc.?	X	Not relevant
Does the appraisal include valuation of legally protected elements at risk (if any)?	X	Not relevant
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	X	Distributional issues are not discussed
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	Costs are given in January 2003 prices – they have been reviewed but not updated into 2004 prices
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	X	Benefits are not monetised. It is not stated if costs are in PV terms (but presumably are)
Is a 100 year time horizon used?	Y	Pg 21

Questions for Review of Appraisals (B1)

Does the guidance use a discount rate of 3.5% (reducing)?	Not known	Not stated
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	X	
Are the main risks identified and described?	Y	Approaches to managing risk are set out in Section 3.4.3
Are any adjustments made for risk?	Y	The plan includes risk management measures
Is optimism bias included?	X	Section 3.5.2 notes that it was considered inappropriate to use optimism bias, as this does not relate to the development of a large project where the major procurement exercise is for professional services. Instead a contingency of 24% has been used
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	X	
Does the sensitivity analysis include calculation of switching values?	X	
Are different scenarios used to take into account specific uncertainties?	X	Although the PAR recognises the potential socio-economic pressures in the Thanet Estuary
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	X	The decision is made by comparing Option 3 with Option 4
Are the options set out in a way that allows for easy comparison?	Partly	The options are discussed sequentially and summarised in Table 2.4
Are costs and benefits assessed over the same period using the same base date?	X	Not relevant – benefits are described qualitatively
Is the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	X	As benefits are given in qualitative terms only, calculation of NPV, BCR and IBCR is not possible
Has the PAG3 decision rule been followed correctly?	X	Not relevant – decision is based on value of information provided by Option 4 over Option 3
Have indicative standards been taken into account?	X	Not relevant
Is there discussion on key constraints?	Partly	Section 3.4 on project management considers the potential impact of uncertainty and risk and role of programme management, gateway reviews, procurement, stakeholder engagement

Questions for Review of Appraisals (B1)

Are the conclusions supported by the results?	Y	Although the discussion is not as emphatic as it could be, the use of indicative benefits helps to justify Option 4 over Option 3
How does residual risk feature in the appraisal?	X	Not relevant
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	X	Although Option 4 is itself a learning process
Has the consultation been undertaken at the decision-making stage?	Not known	Not described in the PAR, although future stakeholder engagement is covered
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	The PAR notes that it follows the PAR template as far as is possible for a strategy study, supplemented to cover information requirements for preliminary studies
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Very few calculations have been undertaken
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	Some more quantitative data may have been useful
Do the results 'feel' right?	Y	
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	X	

Review of Tidal River Nene PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Tidal River Nene	Y/N	Comments/Description/Reference
<i>Rationale and Objectives</i>		
Is the problem clearly defined?	Y	The problem is clearly defined (Pg 14-18). It describes the current situation and the number of properties affected is set out.
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	The objective is clearly set out in the executive summary and a more detailed list under the scope of the study (Pg 13).
Are there links to the hierarchy of decision-making?	Partly	There are references to previous strategies and documents and how the methodologies have been considered and carried on but the decision hierarchy is not clearly set out
<i>Options and Screening of Options</i>		
Is the base case set out clearly, quantified where possible?	Y	Do nothing is developed as the benchmark case for damage assessment and provides the basis for benefits evaluation (Pg 20) but without much quantitative information. Quantitative information given under description of problem.
Is a wide range of options and/or standards considered?	Y	Six options considered, described in S3, including the do-nothing and do-minimum options.
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	S3 explains reason from screening out the options, on the basis of them not meeting the objective
Does the appraisal include option development through a learning process?	N	The options do not seem to be revisited once they have been identified
Are the reasons for screening out acceptable/convincing?	Partly	S3 could benefits from inclusion of probabilities of risk to justify exclusion
Is a do-minimum option included?	Y	This is included originally but as it does not meet the primary objective is not considered further (Pg 20).
<i>Option Costs</i>		
Does the appraisal describe how each option has been costed?	Partly	Detailed breakdown only given for the two of the options in the main body of the report
Are the costs broken down into capital, maintenance, etc.?	Partly	Capital and maintenance costs are only given in the main text for two of the option
Are depreciation and capital charges excluded (if	N	No details given

Questions for Review of Appraisals (B1)

relevant)?		
Are residual values included (if relevant)?	N	No details given
Option Benefits		
Are the benefits of each option identified?	Partly	Only for two of the options (S 6.1; Pg 29)
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	Y	Agriculture (as capital value of land); domestic and commercial properties (latter factored into house equivalent)
Have benefits been assessed for both residential and non-residential properties?	Y	Industrial and commercial properties are included (Pg 29-30)
Have benefits for recreation been taken into account?	Y	But these are not monetised
Is all of the key information used when valuing benefits given?	Partly	Environmental benefits are not monetised but they are evaluated in the SEA; indirect and non-quantifiable benefits are also mentioned but unclear about how they have been incorporated (Pg 30-31)
Has capping been undertaken?	N	No details given
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	indirect and non-quantifiable benefits are also mentioned but unclear about how they have been incorporated (Pg 30-31)
What non-monetised benefits are included?	Partly	Environmental impacts; and under indirect/non-quantifiable: disruption to transport links, damage to health and loss of life; and damage/loss to the environment, including recreation, heritage and landscape. Unclear though about how these have been included in the appraisal
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Partly	Description but not detailed
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Partly	Some of the impacts could probably be valued
Does the appraisal adjust for subsidies, etc.?	N	No details given
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	No details given
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
Present Values and Discounting		

Questions for Review of Appraisals (B1)

Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Costs and benefits seem to be presented at current values; but breakdown of costs present stream of costs over different time periods apparently at nominal prices (Pg 9)
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	Costs and benefits are presented in PV terms
Is a 100 year time horizon used?	Y	The economic analysis has been carried out over a 100 year period, as this reflects the longest lived asset (Pg 8).
Does the guidance use a discount rate of 3.5% (reducing)?	Y	
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	No details given
Are the main risks identified and described?	Y	S 2 includes a description of the existing situation, constraints and problems (Pg 15- Pg 19)
Are any adjustments made for risk?	Y	A 20% contingency figure has been applied to the construction costs per linear metre (Pg 33)
Is optimism bias included?	Y	A maximum optimism bias figure of 60% has been applied to the PV costs
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	Allowances have been incorporated for the future predictions of sea level rise (Pg 18)
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Partly	Some of the options are screened out on the grounds that they do not meet the objective (Pg 39)
Are the options set out in a way that allows for easy comparison?	Partly	Only Option 4 and 5 are compared against the 'do nothing'. Managed realignment (Option 6) is considered but it is unclear why it is not considered further
Are costs and benefits assessed over the same period using the same base date?	Y	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y	Table 6.9, Pg 39
Has the PAG3 decision rule been followed correctly?	Y	FCDPAG3 rule has been applied, option with highest benefit/cost ratio selected (with next highest option's incremental ratio below 3) (Pg 40)

Questions for Review of Appraisals (B1)

Have indicative standards been taken into account?	Y	S 2.3 (Pg 18)
Is there discussion on key constraints?	Y	S2
Are the conclusions supported by the results?	Y	Although it is not always clear how the benefits have been estimated
How does residual risk feature in the appraisal?	Y	20% general contingency included in the per metre length and £100k residual risk figure for every year of construction capital costs. Pg 37 includes a list of residual risks
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	Y	A comprehensive consultation exercise was undertaken for the SEA involving statutory, local and interested parties (Pg 27)
Presentation of Results		
Does the appraisal follow the PAR format?	Y	
Does the appraisal include all assumptions alongside the calculations, etc.?	Y	Assumptions described in text (Pg 30-36)
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	It may benefit from more discussion on indirect benefits
Do the results 'feel' right?	Y	Although more justification as to why managed realignment has not been included will be beneficial
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N?	Not known

Review of Tyne CFMP

Questions for Review of Appraisals (B1)

Appraisal being reviewed: River Tyne FMP	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	S3.1 sets out the history of flooding in the catchment, with the sources and probability of flooding given in S3.2. The consequences of flooding are described in S3.3. S3.4 sets out a summary of the flood risk, including indications of the social, economic and environmental impacts, with quantitative information in a summary table (Table 3.3)
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Y	S1.2 sets out the aims and scope of the CFMP, with the main objective of a CFMP also given. The CFMP notes that specific objectives have been drawn up for the catchment as part of the plan, so that sustainable policies can be developed and measured (these are given in S5 of the CFMP). Nine objectives are given in S5 and are used to appraise the alternative policies for flood risk management
Are there links to the hierarchy of decision-making?	Y	S1.4.1 sets out how the CFMP fits into the three stage flood risk management planning framework, and the wider socio-economic and land use planning framework. S1.4.3 sets out links to other high level plans and legislation
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	N	
Is a wide range of options and/or standards considered?	Y	Six policy options are considered
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	All six policy options are assessed
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	N	Not relevant
Is a do-minimum option included?	Y	Could be considered equivalent to the 'reduce existing flood risk management actions'
Option Costs		

Questions for Review of Appraisals (B1)

Does the appraisal describe how each option has been costed?	N	
Are the costs broken down into capital, maintenance, etc.?	N	
Are depreciation and capital charges excluded (if relevant)?	N	
Are residual values included (if relevant)?	N	
Option Benefits		
Are the benefits of each option identified?	Partly	The benefits are given by comparing each policy option against the objectives
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?	N	None
Have benefits been assessed for both residential and non-residential properties?	Y?	No distinction is made in the CFMP between residential and commercial properties
Have benefits for recreation been taken into account?	Y	The results of the SEA includes recreation as one of the receptors
Is all of the key information used when valuing benefits given?	Partly	Summary descriptions are given in the CFMP, with the full assessment given in Appendix B
Has capping been undertaken?	N	Not relevant
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Y	All of the benefits (and dis-benefits) are described, with the results of the SEA taken into account in the appraisal
What non-monetised benefits are included?	Y	Receptors in the SEA are: people (health), people (life), property, communications, community, biodiversity, water quality, cultural heritage, landscape and recreation (Table 6.4)
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	A description of the impact is given together with two ratings: one to indicate whether there is a beneficial or adverse effect and one to highlight the significance (Table 6.4)
Are approaches such as scoring and weighting used?	N	The appraisal does not use scores and weights
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	Y	Every receptor is considered in qualitative/quantitative terms
Does the appraisal adjust for subsidies, etc.?	N	Not relevant
Does the appraisal include valuation of legally protected elements at risk (if any)?	Y	The appraisal notes areas that are legally protected
Distributional Impacts		
Are distributional impacts taken into account (e.g. vulnerable groups)?	Partly	Social impacts are considered in the appraisal

Questions for Review of Appraisals (B1)

Present Values and Discounting		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	N	No money values are given, therefore, not relevant
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	N	Not relevant
Is a 100 year time horizon used?	N	Future scenarios are used to predict up to 50 years ahead
Does the guidance use a discount rate of 3.5% (reducing)?	N	Not relevant
Economic Adjustments		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	N	
Are any adjustments made for risk?	N	
Is optimism bias included?	N	
Sensitivity Analysis		
Has sensitivity analysis been undertaken?	N	Scenario analysis is used instead
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	Y	The CFMP uses scenarios to assess the impact of changes in land use, changes in the rural landscape (including major changes in land management), loss of wildlife and habitats, and climate change. Future scenarios are considered in detail in S4 and are used to reflect the possible futures up to 50 years ahead
Comparing Options		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	Y	The appraisal is objective-led and the approach is set out in S6, with the preferred policy option selected by assessing its overall contribution to attaining policy appraisal objectives
Are the options set out in a way that allows for easy comparison?	Y	Summary of options are provided in Tables (e.g. Table 6.2)
Are costs and benefits assessed over the same period using the same base date?	Y	Over 50 years
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	N	
Has the PAG3 decision rule been followed correctly?	N	Not relevant – CFMP is used to select policy options
Have indicative standards been taken into account?	N	Not relevant at CFMP level
Is there discussion on key constraints?	Y	Table 5.1 provides a summary of environmental issues, opportunities and

Questions for Review of Appraisals (B1)

		constraints
Are the conclusions supported by the results?	Y	A lot of effort has been put in to identify the preferred policy option, which is better reflected by Appendix B than by the Summary CFMP
How does residual risk feature in the appraisal?	N	There is no mention of residual risk in the CFMP
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	Although for some units, two policies are selected suggesting that this could be undertaken at the next stage
Has the consultation been undertaken at the decision-making stage?	Y	The CFMP has been developed in partnership with key organisations through on-going consultation such that it can inform planning, etc. S1.5 provides more details of the partners
Presentation of Results		
Does the appraisal follow the PAR format?	N	The report follows a CFMP layout
Does the appraisal include all assumptions alongside the calculations, etc.?	Partly	Most of the summary information is given
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Partly	There is a lot of detail given the high level nature of the CFMP, but most of this is needed to draw reliable conclusions
Do the results 'feel' right?	Y	The policies selected and reasons seem appropriate
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	Not known – but CFMP includes indicators by which the performance of the policy options can be measured

Review of Warden Bay Coast Protection

Questions for Review of Appraisals (B1)

Appraisal being reviewed: Warden Bay Coast Protection (Sept 2004)	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	Clearly defined in technical terms and quantitative in impacts to infrastructure and timescales
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	S 2.2.3 Clear but not measurable
Are there links to the hierarchy of decision-making?	N	But does refer to SMP
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	S 2.3.1 Do-nothing clearly set out and quantified in terms of erosion rates, probabilities and assets damaged
Is a wide range of options and/or standards considered?	Y	S 2.3.2 different types and standards of defence but not wide ranging
Does the appraisal indicate how the long-list was reduced to a short-list of options?	N	No long list produced
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	N/A	
Is a do-minimum option included?	Y	S 2.3.2 repair option to maintain existing
Option Costs		
Does the appraisal describe how each option has been costed?	Y?	S 2.5 In an annex not seen and summary in PAR
Are the costs broken down into capital, maintenance, etc.?	Y	S 2.5
Are depreciation and capital charges excluded (if relevant)?	N/A	
Are residual values included (if relevant)?	Y	Residual damages beyond life of project
Option Benefits		
Are the benefits of each option identified?	Y	S 2.6 uses Defra erosion spreadsheets
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	N	
Which benefits are valued in money terms?		S 2.6 Residential props and caravans and services (sewer)
Have benefits been assessed for both residential and non-residential properties?	Y	See above
Have benefits for recreation been taken into	N	

Questions for Review of Appraisals (B1)

account?		
Is all of the key information used when valuing benefits given?	Y	S 2.6 uses a decision tree for probabilities of loss of properties
Has capping been undertaken?	N/A	
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	N	
What non-monetised benefits are included?	N/A	
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	N/A	
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Y	Assumed
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	S 2.5 present value of options cost table
Is a 100 year time horizon used?	Y	S2.5
Does the guidance use a discount rate of 3.5% (reducing)?	Y	Assumed so as PAG3 spreadsheets used but not seen as in appendix.
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	S 2.6.1 erosion rates and probabilities of events
Are any adjustments made for risk?	N	
Is optimism bias included?	Y	S 2.5 30% used as it is a scheme
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	N	
Does the sensitivity analysis include calculation of switching values?	N/A	
Are different scenarios used to take into account specific uncertainties?	Y	Foresight scenarios used to four different estimate erosion rates
<i>Comparing Options</i>		
Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and	Y	In Defra spreadsheet and environmental assessment

Questions for Review of Appraisals (B1)

compared back against the original objectives to select the best option?		
Are the options set out in a way that allows for easy comparison?	Y	See above
Are costs and benefits assessed over the same period using the same base date?	Y	
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Y?	No incremental bcr used
Has the PAG3 decision rule been followed correctly?	N	Works to stop erosion therefore not really applicable
Have indicative standards been taken into account?	N	As above
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	Partly	S 2.7 Partly but needs further explanation
How does residual risk feature in the appraisal?	Partly	Future damage beyond 100 year timescale
Does the appraisal include maximising benefits/ minimising costs by combining the best bits of a number of options?	N	
Has the consultation been undertaken at the decision-making stage?	N	
Presentation of Results		
Does the appraisal follow the PAR format?	Partly	But some omissions such as sensitivity analysis
Does the appraisal include all assumptions alongside the calculations, etc.?	Y?	Some presumed to be in annex
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	Y	Appropriate for £1m project
Do the results 'feel' right?	Y	Solution seems right for assets at risk and type of problem
Other Reviews of the Guidance		
Has a post project appraisal been undertaken been? If so, what were the findings?	N	

West Bridgford Review of PAR

Questions for Review of Appraisals (B1)

Appraisal being reviewed:	Y/N	Comments/Description/Reference
Rationale and Objectives		
Is the problem clearly defined?	Y	History of flooding, state of existing defences and No. of properties at risk on p.2, 9-10
Is the reason for the level of detail of the costs and benefits given?	N	
Are clear and measurable objectives given?	Partly	Objective stated on p.9. but lack of indicators and detail.
Are there links to the hierarchy of decision-making?	Partly	References to required planning approval on p.23.
Options and Screening of Options		
Is the base case set out clearly, quantified where possible?	Y	Defined in definition of the problem p.9-10. and Table 1.1 Summary of main information p.4
Is a wide range of options and/or standards considered?	N	Long list only 5 options p.11. Of these, only the "Do nothing" and 'Provide defences to reduce the annual flood risk to a 1 in 100 chance of occurrence' options were considered for full appraisal
Does the appraisal indicate how the long-list was reduced to a short-list of options?	Y	States that intention is to demonstrate that preferred option is economically and environmentally justifiable and therefore only consider "Do nothing" and the preferred option.
Does the appraisal include option development through a learning process?	N	
Are the reasons for screening out acceptable/convincing?	N	Claim they have already established that the option to provide defences to 1 in 100 standard is the preferred option although appears against the analysis later in the document.
Is a do-minimum option included?	Partly	Only considered in long list. Give benefit cost information later in document in table 2.7 on p.22. Provide information on environmental positive and negative impacts on p.18 and summarise main issues on p.22
Option Costs		
Does the appraisal describe how each option has been costed?	Y	
Are the costs broken down into capital, maintenance, etc.?	Partly	Only for preferred option p.14, table 2.3
Are depreciation and capital charges excluded (if	N	Not mentioned

Questions for Review of Appraisals (B1)

relevant)?		
Are residual values included (if relevant)?	N	Not mentioned
Option Benefits		
Are the benefits of each option identified?	Partly	Only for preferred option p.15
Is the likely significance/likely magnitude of the benefits taken into account before assessing them in detail?	Partly	PAR states that earlier Fluvial Trent Flood Management Strategy concluded economic viability of flood defense schemes in Nottingham p.8
Which benefits are valued in money terms?	Y	Valuation of the preferred option benefits based on the summation of the damages avoided p.15. Dis-benefits from increased water levels downstream also quantified p.15
Have benefits been assessed for both residential and non-residential properties?	N?	5,636 properties in total identified at risk are used as basis for assessing damages on do nothing option. But table 2.6 on p.22 refers to 5,250 residential properties with increased standard of protection under preferred option. Project Appraisal Data sheet p.30 refers only to "protection to reduce flood risk to some 5250 properties", but Assets Protected in Table 1.1 on p.4 refers to 5,419 residential and 217 other properties
Have benefits for recreation been taken into account?	Partly	Not valued. Referred to as a concern on p.21. An improved multi-use path is planned under the preferred option p.21
Is all of the key information used when valuing benefits given?	N	Only avoided damages used.
Has capping been undertaken?	Y	Capping not explicitly mentioned but PAR includes the following paragraph: "We derived breach damages (annual average and present value) from the ESTDAM model for each breach scenario assuming flooding via each breach separately. Under Defra guidance the damage of repeated flood damage must never exceed market value. We applied the same methodology to the existing situation where damages are generated through overtopping. p.15
Are non-monetised benefits included in the appraisal (e.g. social, environmental)?	Partly	Mentioned on p.15
What non-monetised benefits are included?	Partly	Only for preferred option. Improvements to the riverside landscape, increased biodiversity in the area, The scheme will also permit regeneration within the urban environment of West Bridgford such as the Gresham Park development, and take pressure off

Questions for Review of Appraisals (B1)

		green-field sites. p.15
How are non-monetised benefits included (e.g. description, quantitative data, etc.)?	Y	Only description
Are approaches such as scoring and weighting used?	N	
Does the appraisal avoid valuation of what is easily valuable to the detriment of other issues?	N	Only avoided damages are valued.
Does the appraisal adjust for subsidies, etc.?	N	
Does the appraisal include valuation of legally protected elements at risk (if any)?	N	
<i>Distributional Impacts</i>		
Are distributional impacts taken into account (e.g. vulnerable groups)?	N	
<i>Present Values and Discounting</i>		
Are all costs and benefits updated to today's prices (or when appraisal was produced)?	Partly	June 2005 used for costs p.13. Q1 2005 using RPI used for benefits. p.15
Are all costs and benefits presented in Present Value (i.e. discounted) terms?	Y	p.22 Table 2.7
Is a 100 year time horizon used?	Y	Reference to 100 year timeframe at bottom of p.12.
Does the guidance use a discount rate of 3.5% (reducing)?	Y	3.5% for years 0-30, 3.0% for years 31-75, and 2.5% thereafter under footnote to table 2.2 on p.13 for preferred option. Refers to damages being "Discounted at the Treasury Rate" on p.22
<i>Economic Adjustments</i>		
Are any adjustments made for material differences in tax (if relevant)?	N	
Are the main risks identified and described?	Y	Environmental risks identified on p.20. Risk register attached as appendix but not available to review. Section 1.6 summarises the main risks on p.3
Are any adjustments made for risk?	Y	Table 2.2 on p.13 identifies amount allocated for risk in preferred option.
Is optimism bias included?	Partly	Future construction costs in Table 2.3 p.14 include optimism bias. Monte Carlo analysis used for risk calculation above.
<i>Sensitivity Analysis</i>		
Has sensitivity analysis been undertaken?	Partly	Only for water flows, not costs p.24
Does the sensitivity analysis include calculation of switching values?	N	
Are different scenarios used to take into account specific uncertainties?	N	
<i>Comparing Options</i>		

Questions for Review of Appraisals (B1)

Are all of the costs, benefits, adjustments, sensitivity analysis, etc. taken into account and compared back against the original objectives to select the best option?	N	Only option to provide 1 in 100 is compared against the do nothing option.
Are the options set out in a way that allows for easy comparison?	N	Details only provided for 1 in 100 protection and do nothing options so not possible to fully compare with other options.
Are costs and benefits assessed over the same period using the same base date?	Partly	June 2005 used for costs p.13. Q1 2005 using RPI used for benefits. p.15. But both over 100 year period
Are the Net Present Value, Benefit-Cost Ratio and Incremental Benefit-Cost Ratio calculated?	Partly	Table 2.7 on p.22 Does not include net present value
Has the PAG3 decision rule been followed correctly?	N	Highest benefit cost ratio is "Do minimum" option at 11.17 on p.22. But is below indicative standard. Moving to next higher option, incremental benefit cost ratio is only 1.01. But PAR states 1 in 100 option has highest benefit cost ratio.
Have indicative standards been taken into account?	Y	Refers to standards on p.9-10 "Hydraulic modelling of the existing defences at West Bridgford shows that they reduce the annual flood risk to 1 in 25 annual chance event. With reference to FCDPAG3, this is below the indicative range, which is from a 1 in 50 to 1 in 200 annual chance of occurrence." As rationale for the scheme.
Is there discussion on key constraints?	N	
Are the conclusions supported by the results?	N	Selection of option for 1 in 100 protection does not follow the PAG3 rule p.22
How does residual risk feature in the appraisal?	Y	Appendix is attached (but not reviewed). Only brief summary of main risks included in main PAR document Section 1.6 p.3
Does the appraisal include maximising benefits/minimising costs by combining the best bits of a number of options?	N	Only one option really considered
Has the consultation been undertaken at the decision-making stage?	N	Document states "Defra have confirmed that they will approve funding for all the Nottingham schemes based on the findings of the Nottingham Strategy. However, we will submit individual PARs for FSoD approval" suggesting decision already made. p.8
Presentation of Results		
Does the appraisal follow the PAR format?	?	

Questions for Review of Appraisals (B1)

Does the appraisal include all assumptions alongside the calculations, etc.?	Y	For costs, detailed p.13. Benefits, p.15,16
Is the level of detail, etc. within the appraisal proportionate to the value of the whole project?	?	
Do the results 'feel' right?	N	Due to "wrong" option being selected
<i>Other Reviews of the Guidance</i>		
Has a post project appraisal been undertaken been? If so, what were the findings?	?	

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