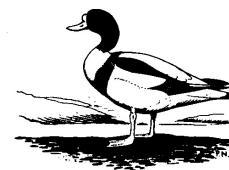

TEES TIDAL FLOOD RISK MANAGEMENT

COMMENTS BY THE TEESMOUTH BIRD CLUB ON THE ENVIRONMENT AGENCY'S DRAFT STRATEGY



TEES ESTUARY



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RPT010/TBC/ECP

1.0 INTRODUCTION

TBC's Appraisal Process

- 1.1 This report outlines the Teesmouth Bird Club's (TBC) response to the Agency's Draft Strategy for the Tees Tidal Flood Risk Management.
- 1.2 The Draft Strategy document was reviewed by the TBC's Conservation Sub-Committee on 4th April 2006 and the comments contained herein reflect the collective views of the Club.
- 1.3 We understand that, at this stage, the Strategy is at a broad level and the TBC would welcome the opportunity to be involved as detailed proposals and EIAs for each flood cell are produced. We would particularly wish to be consulted during the EIA process, as the TBC has a considerable amount of relevant ornithological data and knowledge concerning the Tees Estuary, including breeding bird data for the whole of the area described by the boundary of the former County of Cleveland.
- 1.4 The Conservation Sub-Committee focused on the following:
 - the preferred options for each flood cell;
 - the criteria by which the preferred options were arrived at;
 - the impact of the preferred options on birds and their environment, and
 - identification of any data provision or further studies required.

2.0 GENERAL COMMENTS

Reports Considered

- 2.1 The 3 interrelated reports considered by the Conservation Sub-Committee were:
 - 'Tees Tidal Flood Risk Management Strategy – Draft Strategy' (March 2006)
 - 'Tees Tidal Flood Risk Management Strategy – Coastal Squeeze Study' (October 2005)
 - 'Tees Tidal Flood Risk Management Strategy – Environmental Report' (March 2006).
- 2.2 These were clearly very comprehensive, well-written and thorough documents with detailed technical content.

Our Understanding of the Draft Strategy Document

- 2.3 *Study Area:* This is from Tees Mouth to A66 Surtees Bridge crossing, Stockton, covering 65 sq km.

Report Content and Scope: This outlines the Study Area, key objectives, aims of strategy, establishes the link between flooding and the environment, includes a flood risk assessment, provides details of existing defences, identifies the flood cells and the options considered/assessed for each, appraises the existing situation and makes recommendations for future action based on an integrated approach.

Flood Cells

- 2.4 Twelve 'Flood Cells' have been identified, with 9 being identified for further appraisal, viz:
 - (i) Greatham North;
 - (ii) Greatham South Port Clarence;

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- (iii) Billingham;
 - (iv) Portrack;
 - (v) Teesside Park;
 - (vi) Riverside Park;
 - (vii) North Ormesby;
 - (viii) Oil Refinery; and
 - (ix) the Transporter

Flood Risk

- 2.5 The main flood risk to these cells is from the sea. Risks assessed based on (i) an increase in sea level of 4mm/yr over the next 50 years and (ii) an increase in the frequency of storms, which will increase wave heights between 200mm and 1m. Risks are from overtopping, breaching, backflow, tide locking and outflanking.

Existing Defences

- 2.6 Existing defences are mainly sea walls, bunds and embankments (approx 11 km), which are in a fair to very good condition but do not accommodate future flood defence requirements.

Flood Defence Options

- 2.7 The physical flood defence options considered include barrages, barriers, walls/banks/structures – these can be improved online, landward or seaward and each has environmental effects, both positive and negative.
- 2.8 The flood defence options for each flood cell were considered on the basis of technical feasibility, economic viability and environmental effects (*eg* from 'Do Nothing' to drastic measures like a barrage across the Tees Mouth). From this appraisal, a programme of Preferred Options was developed.

Priorities

- 2.9 We understand that the 3 most pressing cells identified for work over the next 5 years are:

- (i) *Greatham North;*
- (ii) *Greatham South Port Clarence; and*
- (iii) *Billingham.*

The remainder are of lower priority for attention over the next 5-15 years, though the Oil Refinery, Portrack and Teesside Park look doubtful to go ahead at all.

Our Understanding of the Coastal Squeeze Study

- 2.10 A desk study was undertaken to inform the Options Appraisal. This reviewed the geomorphological characteristics of the Estuary, including changes in future water levels and makes preliminary estimates of erosion and deposition in the inter-tidal areas.
- 2.11 The Study predicts a loss of habitat due to a rise in sea level with the retention of the existing sea defences – in the Tees Estuary it is estimated that between 3.6-25 ha of inter-tidal habitat will be lost from the existing total of 528 ha over the next 25 years, assuming a rise in sea level of 4mm/yr. Two-thirds of this will be from Bran Sands, with lesser amounts from Seal Sands and North Gare Sands.
- 2.12 The Agency has a legal responsibility to maintain inter-tidal habitats and, therefore, any flood defence measures must allow for the retention and enhancement of existing inter-

tidal areas, especially those with designations. The report, therefore, recommends that an allowance be made in the strategy that 5ha of managed realignment should be provided every 10 years over the next 50 years (total = 25 ha). The habitat needs to be provided 5 to 7 years in advance of the requirement to allow it to become established.

- 2.13 Greatham North has been identified as the main site for managed realignment.

Our Understanding of the Environmental Report

- 2.14 This describes the existing environment and appraises the environmental effects of each option on each cell. Out of this appraisal came a set of preferred options, which will satisfy both flood defence and environmental requirements.

3.0 TBC'S COMMENTS ON THE DRAFT STRATEGY

- 3.1 Our general comments on the Agency's Tees Tidal Flood Risk Management Draft Strategy are outlined in Table 1,
- 3.2 Our specific comments on the preferred options for each flood cell are contained in Table 2. For each cell, we appraised the following:
- (i) the nature of the preferred option (ie works proposed).
 - (ii) its anticipated impact on birds and their environment.
 - (iii) our comments on the preferred option, and
 - (iii) further research or studies considered necessary and identification of any data held by the TBC to inform the EIA process.
- 3.3 We have specifically focused on the 3 cells that have been identified as high priority for works during the next 5 years, ie. Greatham North, Greatham South Port Clarence and Billingham. Some comments on the remaining cells are contained in Table 2 for completeness.
- 3.4 We have no relevant comments to make on either the North Ormesby or Oil Refinery Cells, as these do not contain significant ornithological habitats. We are aware, however, that when the tidal barrage across Ormesby Beck was built by Middlesbrough Borough Council, associated environmental enhancement works were undertaken, including an artificial Sand Martin nesting 'cliff' and beck naturalisation and planting works.

4.0 FURTHER CONSULTATION

- 4.1 TBC would welcome the opportunity to be consulted in more detail as the options and EIAs for the 3 high priority cells are developed. For the EIA's, we can provide data from our own records, including copies of our annual '*Cleveland Bird Report*', and more specific data for particular sites, including Portack Marsh. If requested, we could assist with ornithological surveys, as some of our members are among the most experienced in the region in this type of work.
- 4.2 It may be beneficial to hold a workshop for the key stakeholders during the development of more detailed proposals and we would be pleased to be involved should the Agency decide to take up this suggestion.

TABLE 1
TBC'S RESPONSE TO THE AGENCY'S 'DRAFT STRATEGY' – GENERAL COMMENTS

REPORT REF	FLOOD CELL	PREFERRED OPTION/PROPOSAL	TBC'S COMMENTS
2.4, page 16	Greatham South Port Clarence	To study the implications of better water level management at Cowpen Marsh, particularly by Holme Fleet.	<ul style="list-style-type: none"> We would have major concerns about any proposals to reduce water levels in the area between Holme Fleet and Port Clarence. In winter and early spring, the flooded fields here are excellent for feeding ducks, such as Wigeon and Teal, and waders such as Curlew, Golden Plover and Lapwing. This area has also held rarer goose species and Whooper Swans. The RSPB, as part of its Saltholme Reserve development, has recently created drains and bunds in this area specifically to retain water. Further detailed studies should be carried out to assess the hydrological implications of any proposed water level management, with a view to at least maintaining the <i>status quo</i>. An alternative proposal to protect the houses at Port Clarence might be to construct a bund immediately behind the houses, thereby retaining the damp fields. TBC members undertake the WeBS counts of this area, which are available from either English Nature or ourselves.
3.2, page 20	N/A	A mathematical model of the Tees Estuary has been used to assess the risks posed by flooding.	<ul style="list-style-type: none"> How does the Agency ensure that the data thrown out by the mathematical model is correct for (i) assessing flood risk and (ii) setting levels for the heights of new flood defences to ensure that they provide the appropriate level of protection?
3.4, page 22	N/A	A hydrodynamic model was developed by H R Wallingford for the Tees for the former TDC.	<ul style="list-style-type: none"> Is this model still valid? We believe it was used as a basis for constructing the Tees Barrage, which has had significant adverse environmental effects over and above those predicted (eg severe bank erosion upstream, loss of inter-tidal feeding areas and effects on silt deposition in the Tees Estuary).

REPORT REF	FLOOD CELL	PREFERRED OPTION/PROPOSAL	TBC'S COMMENTS
4.2, page 38	N/A	Use of a hydraulic model to understand fluvial flows and flooding.	<ul style="list-style-type: none"> Is the hydraulic model 'foolproof' (see comments on 2.4).
4.2, page 41	N/A	Environmental enhancement.	<ul style="list-style-type: none"> We will fully support any measures that will both preserve and enhance the habitats around the lower River Tees and its estuary. Such measures could include not only physical works, such as the creation of new lagoons, terns islands and wet grazing but also 'amenity' improvements, including new hides, with much-needed parking facilities off the busy and dangerous A178.
4.2, page 42	N/A	Objective 5: To work in partnership with, and encourage co-operation between, stakeholders at all levels.	<ul style="list-style-type: none"> We would support this approach wholeheartedly. As a non-statutory consultee, organisations such as the TBC, despite our wealth of expertise, knowledge and data, are occasionally by-passed. TBC is a major stakeholder in the Tees Estuary and our members carry out the monthly WeBS counts. We are very interested in how this 'partnership' will work.
5.1, page 46	N/A	A workshop was held by the Agency to consider the flood defence options.	<ul style="list-style-type: none"> Was this an internal review or one to which major stakeholders were invited. If the latter, TBC was not invited to attend. Did the options appraisal include an assessment of the implications of the possible development of the Northern Gateway Deepwater Terminal by PD Teesport?
5.3, page 52	Whole Estuary	Strategic Options.	<ul style="list-style-type: none"> TBC would not support an estuary barrier or barrage in view of their significant adverse environmental effects and visual obtrusion.
5.7, page 65	Greatham South Port Clarence	To drain the area between the bund along the RSPB Saltholme Reserve and Port Clarence	<ul style="list-style-type: none"> We would have very serious concerns about any proposals to reduce water levels in the area between Holme Fleet and Port Clarence. In winter and early spring, the flooded fields here are excellent for feeding ducks, such as Wigeon and Teal, and waders, most notably Curlew, Golden Plover and Lapwing. This area has also held rarer goose species and Whooper Swans in the recent past. The RSPB, as part of its Saltholme Reserve development, has recently created drains and bunds in this area specifically to retain water as part of their Reserve development and will need to be consulted on this option.

REPORT REF	FLOOD CELL	PREFERRED OPTION/PROPOSAL	TBC'S COMMENTS
			<ul style="list-style-type: none"> • Further detailed studies should be carried out to assess the hydrological implications of any proposed water level management, with a view to at least maintaining the <i>status quo</i>. • An alternative proposal to protect the houses at Port Clarence might be to construct a bund immediately behind the houses, thereby retaining the damp fields.



TEES ESTUARY LOOKING TOWARDS THE TEES MOUTH



GREATHAM CREEK WEST OF THE A178

**TABLE 2
TBC'S SPECIFIC COMMENTS ON THE PREFERRED OPTIONS FOR EACH FLOOD CELL**

WHOLE AND MID-ESTUARY	
PREFERRED OPTIONS	IMPACT ON BIRDS AND THEIR ENVIRONMENT
<ul style="list-style-type: none"> • ESTUARY BARRIER/ BARRAGE ACROSS THE TEES MOUTH. • GREATHAM CREEK BARRIER/ BARRAGE. • MID-ESTUARY TIDAL BARRAGE/BARRIER. 	<ul style="list-style-type: none"> • Unacceptable, serious adverse impacts on the natural environment of the Tees Estuary through loss of inter-tidal habitat. • Will seriously impact on the ecology and natural hydrological patterns of the Tees Estuary, thereby adversely affecting both birds and their environment. • Adverse effects on designated sites, environmentally and ecologically. • Visually unacceptable.
COMMENTS ON THE PREFERRED OPTIONS	FURTHER STUDIES/RESEARCH/DATA HELD BY TBC
<ul style="list-style-type: none"> • TBC would not support any options to construct barriers or barrages across the Tees or Greatham Creek. • The environmental effects would be too severe and would permanently alter the ecology of the Tees Estuary. The opportunities for managed realignment would be lost. • Any option involving further loss of inter-tidal habitat is deemed to be unacceptable, as so little of the original area now remains and is, rightly, protected by international and national designations. 	<ul style="list-style-type: none"> • As we do not support this option, we see no point in conducting further studies or research. • We would have very serious concerns about any proposals to reduce water levels in the area between Holme Fleet and Port Clarence. In winter and early spring, the flooded fields here are excellent for feeding ducks, such as Wigeon and Teal, and waders, most notably Curlew, Golden Plover and Lapwing. This area has also held rarer goose species and Whooper Swans. The RSPB, as part of its Saltholme Reserve development, has recently created drains and bunds in this area specifically to retain water as part of their Reserve development and will need to be consulted on this option.

**TABLE 2/CONTINUED
TBC'S SPECIFIC COMMENTS ON THE PREFERRED OPTIONS FOR EACH FLOOD CELL**

GREATHAM NORTH	
PREFERRED OPTIONS	IMPACT ON BIRDS AND THEIR ENVIRONMENT
<ul style="list-style-type: none"> • RAISE OR IMPROVE EXISTING DEFENCES IN THE NORTH-EAST CELL. • MANAGED REALIGNMENT IN THE NORTH-WEST CELL BY THE CONSTRUCTION OF NEW DEFENCES ALONG THE WEST SIDE OF A178 AND PARTIALLY REMOVING THE EXISTING DEFENCE ALONGSIDE GREATHAM CREEK. 	<ul style="list-style-type: none"> • Potential loss of Common Tern colonies in the North East Cell adjacent to the Greatham Creek seawall. This area is also known to be good for owls, particularly Barn Owls, which are very scarce in Cleveland. There is a flap valve in the seawall near to the A178 in the NE Cell, which feeds the saline lagoon and tern island. This will need to be retained. • Disturbance to birds in this sensitive area during construction (eg breeding Common Tern, Little Ringed Plover, Reed Warbler and winter/autumn wader roosts). The timing of the works will be very important. • Creation of additional inter-tidal habitat (predicted 25 ha): this would bring positive benefits by restoring part of this site to what it used to be before reclamation. The area is disappointing for birds at present, so this option will present excellent enhancement opportunities. • Potential loss of habitat through construction of higher defences in NE Cell.
COMMENTS ON THE PREFERRED OPTIONS	FURTHER STUDIES/RESEARCH/DATA HELD BY TBC
<ul style="list-style-type: none"> • Significant opportunities for habitat enhancement, eg. creation of new lagoons with tern islands. • This cell offers significant opportunities for amenity enhancement, particularly new bird hides overlooking the improved habitat in both the NE and NW cells (from the new embankment), with much-needed off-road parking (the A178 at this point is extremely dangerous). Provision of parking would be a major improvement. Access to new hides could be along the bases of the bunds to prevent disturbance to birds using this cell. • The public right of way to Greatham will need to be protected/diverted during construction. • Another Visitor Centre suggested in the enhancement is not considered necessary, bearing in mind that the RSPB is to build a new centre at RSPB Saltholme in the near future. 	<ul style="list-style-type: none"> • The raised tip area in the North West Cell contains heavy metals and we suggest that a site investigation is carried out in order to avoid seepage into the new inter-tidal habitat to be created under this option. The tip will become an island when this cell is flooded. • Further ecological studies should be carried out in this area to more fully understand the environmental implications of managed realignment. No further bird surveys are considered necessary. • TBC would need to be consulted as more detailed proposals for this cell are developed. • TBC holds relevant data, including breeding bird survey information. Our members undertake WeBS counts.

**TABLE 2/CONTINUED
TBC’S SPECIFIC COMMENTS ON THE PREFERRED OPTIONS FOR EACH FLOOD CELL**

GREATHAM SOUTH PORT CLARENCE	
PREFERRED OPTIONS	IMPACT ON BIRDS AND THEIR ENVIRONMENT
<ul style="list-style-type: none"> • DRAIN AREA BETWEEN HOLME FLEET AND HOUSES AT PORT CLARENCE. • RAISE OR IMPROVE EXISTING DEFENCES DOWNSTREAM OF THE TRANSPORTER. • CONSTRUCT NEW BUND TO LINK TRANSPORTER TO RAILWAY EMBANKMENT. • BUILD BUNDS ACROSS THE RAILWAY UNDERPASSES. 	<ul style="list-style-type: none"> • The integrity of Cowpen Marsh and the TINR must be maintained. The former has seen a huge loss in area due to landfill – any further loss will be unacceptable. • We would have very serious concerns about reducing water levels in the area between Holme Fleet and Port Clarence. The flooded fields here are often excellent for feeding ducks, such as Wigeon and Teal, and waders, such as Curlew, Golden Plover and Lapwing. This area has also held the rarer goose species and Whooper Swans. The RSPB, as part of its Saltholme Reserve development, has recently created drains and bunds in this area specifically to retain water as part of their Reserve development and will need to be consulted on this option.
COMMENTS ON THE PREFERRED OPTIONS	FURTHER STUDIES/RESEARCH/DATA HELD BY TBC
<ul style="list-style-type: none"> • This is a very big cell, containing some of the most important habitats in the Teesmouth area, including Saltholme Pools and Marsh, Dormans Pool, Haverton Hole Ponds and part of Cowpen Marsh. Most falls within the boundary of the new RSPB Saltholme Reserve. • In the northern part of this cell, we would prefer to see the realignment along the line of the A178. This will create additional habitat. • Raising existing defences online would need to safeguard against habitat loss in sensitive areas. At present, because the height of the existing defences is unknown, the nature of the proposed flood defence works cannot be assessed. • We see no adverse effects associated with the works proposed near the Transporter. 	<ul style="list-style-type: none"> • Further studies/site investigation of landfill site to ensure that there is no contamination of adjacent habitats affected by this option. • A more detailed hydrological study of the area between Holme Fleet and Port Clarence, in consultation with RSPB and TBC. This is an important area for birds. Other flood defence options should be considered (eg. a bund adjacent to the Port Clarence properties that will prevent them from flooding but retain wet areas behind on the RSPB Saltholme Reserve).

**TABLE 2/CONTINUED
TBC'S SPECIFIC COMMENTS ON THE PREFERRED OPTIONS FOR EACH FLOOD CELL**

BILLINGHAM	
PREFERRED OPTION	IMPACT ON BIRDS AND THEIR ENVIRONMENT
<ul style="list-style-type: none"> ONLINE RAISING OF EXISTING DEFENCES ALONG FRONTAGE. 	<ul style="list-style-type: none"> We see no adverse effects resulting from this option. There are no bird habitats of major significance within this cell, as most of it is heavily industrialised.
COMMENTS ON THE PREFERRED OPTION	FURTHER STUDIES/RESEARCH/DATA HELD BY TBC
<ul style="list-style-type: none"> No detailed comments – we would support this option. 	<ul style="list-style-type: none"> None required.

**TABLE 2/CONTINUED
TBC'S SPECIFIC COMMENTS ON THE PREFERRED OPTIONS FOR EACH FLOOD CELL**

PORTRACK	
PREFERRED OPTION	IMPACT ON BIRDS AND THEIR ENVIRONMENT
<ul style="list-style-type: none"> • CONSTRUCT NEW EMBANKMENT ALONG BILLINGHAM BECK • RAISE OR IMPROVE THE EXISTING DEFENCES ALONG THE TEES ESTUARY FRONTAGE. 	<ul style="list-style-type: none"> • It is vital that the integrity of, and existing habitats at, Portrack Marsh are unaffected by flood defence options (see Comments section below). It is our understanding that the preferred option does not involve any adverse environmental effects on this area. • Improvements to existing defences would need to ensure no habitat loss on Portrack Marsh.
COMMENTS ON THE PREFERRED OPTION	FURTHER STUDIES/RESEARCH/DATA HELD BY TBC
<ul style="list-style-type: none"> • Portrack Marsh, which forms part of this cell, is a very important freshwater habitat on the south-western edge of the Teesmouth wetlands complex. Despite the fact that it is surrounded by industrial development, it has important breeding bird species, is used as a bathing area for large numbers of gulls and attracts migrants, including some rarities. • There is also wetland habitat adjacent to the Lustrum beck outfall structure in the south-eastern part of the cell (pools, <i>juncus</i>, <i>phragmites</i> and rough grassland). This has breeding species, including Moorhen and Reed Bunting, and attracts migrant waders, such as Green and Common Sandpipers. Other waders, such as Redshank and Snipe regularly feed here. 	<ul style="list-style-type: none"> • We see no need for further ornithological studies in this cell. • TBC has a large amount of data on Portrack Marsh, including yearly reports written by one of our members, who visits the area very regularly. This could be provided on request.

**TABLE 2/CONTINUED
TBC'S SPECIFIC COMMENTS ON THE PREFERRED OPTIONS FOR EACH FLOOD CELL**

TEESSIDE PARK	
PREFERRED OPTION	IMPACT ON BIRDS AND THEIR ENVIRONMENT
<ul style="list-style-type: none"> LOCAL TIDAL BARRAGE ACROSS THE MOUTH OF THE OLD RIVER TEES, WITHOUT PROVISION TO RETAIN EXSITING TIDAL FLOWS TO THE OLD RIVER TEES. 	<ul style="list-style-type: none"> Loss of inter-tidal habitat along the course of the Old River Tees.
COMMENTS ON THE PREFERRED OPTION	FURTHER STUDIES/RESEARCH/DATA HELD BY TBC
<ul style="list-style-type: none"> Reed Warblers are present in this cell, though it is not important ornithologically. However, we would not wish to see the loss of any more inter-tidal habitat along the Tees (large areas were lost upstream following the construction of the Tees Barrage). We would not support further truncation of the tidal Tees by a barrier/barrage which prevents normal flows up the Old River Tees. We would prefer saltmarsh in this area rather than the creation of new freshwater habitat under enhancement, as there are large areas of existing freshwater habitat above the Tees Barrage. 	<ul style="list-style-type: none"> Further studies/research to assess more fully the environmental effects of a tidal barrier/barrage across the Old River Tees. Derivation of a flood defence option that does not include the loss of inter-tidal habitat along the course of the Old River Tees.

**TABLE 2/CONTINUED
TBC'S SPECIFIC COMMENTS ON THE PREFERRED OPTIONS FOR EACH FLOOD CELL**

RIVERSIDE PARK	
PREFERRED OPTION	IMPACT ON BIRDS AND THEIR ENVIRONMENT
<ul style="list-style-type: none"> • ONLINE RAISING OF EXISTING FRONTAGE DEFENCES, OR • DEFENCES SET BACK BY THE ROAD. 	<ul style="list-style-type: none"> • Raising the existing defences would have no major adverse impact on any ornithological areas.
COMMENTS ON THE PREFERRED OPTION	FURTHER STUDIES/RESEARCH/DATA HELD BY TBC
<ul style="list-style-type: none"> • We would prefer the realignment along the line of the road, as this would generate additional inter-tidal habitat. 	<ul style="list-style-type: none"> • This area contains contaminated land and further investigation is advised during the development of more detailed flood defence proposals for this cell.

PHOTOGRAPHS



GREATHAM CREEK UPSTREAM OF A178 – GREATHAM NW CELL



GREENABELLA MARSH NORTH OF GREATHAM CREEK SEAWALL – GREATHAM NE CELL



GREATHAM CREEK AND SEAL SANDS – GREATHAM NORTH CELL (ABOVE); PORTRACK MARSH (BELOW)



GREATHAM CREEK AT HIGH TIDE (MIDDLE); HOLME FLEET, COWPEN MARSH (ABOVE)

