16 NOV 2006

Boom Deployment Plan for the Yealm Estuary

Contents

INTRODUCTION

this is the operational plan dealing with the physical boom deployment at the site referred to here. The aim of the plan is to protect Yealm Estuary from the spillage of any surface borne contamination. In a major incident the Shoreline Response Centre (SRC) will determine priorities for booming as part of the overall shoreline protection strategy.

All incidents are unique so it is not possible to pre-plan the exact response. However guidelines for manpower, equipment and instructions for deployment at both booming sites are detailed below. It will be up to the Local Authorities, the Environment Agency, and other agencies involved (and in a major incident) the SRC to agree the strategy at the time.
Validation through a full exercise will finalise this plan.

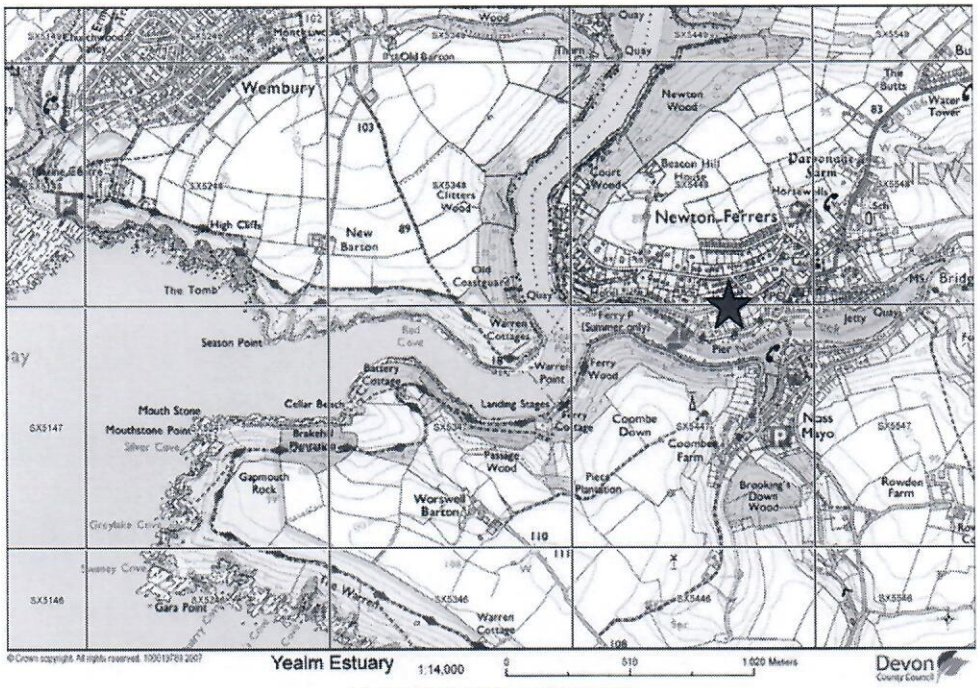
REVIEW DETAILS

Date of Review	16th November 2006
Location	Newton Ferres
Weather:	Dry, Overcast, E - 3
Flow Rates	Up to 1.0 knot on the flood

OS Map Reference of Site: SX 54838 47956

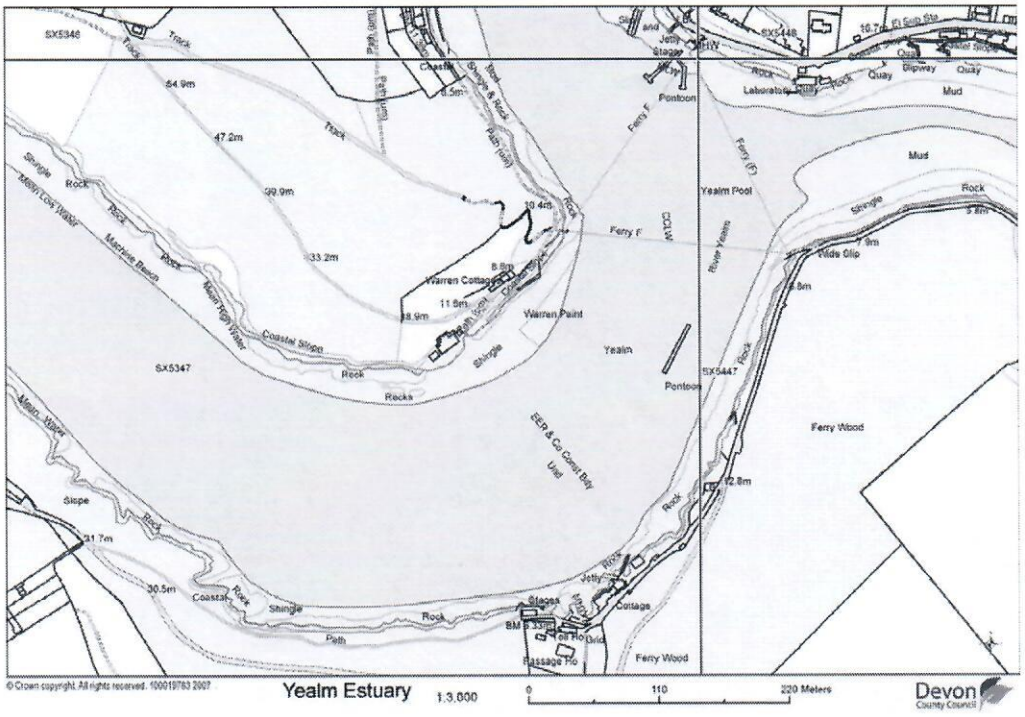
Site Specific Booming Plans

Location Map



BOOM DEPLOYMENT

1. Boom Diagram:



2. Definitions

The following terminology and definitions (used by the Environment Agency to define 'Riverbanks') will be used by all organisations in order to avoid any confusion, and to ensure correct deployment of manpower and resources.

The definition is as follows:
"With your back to the ebb flow of the river all locations in front of you will be defined as "Down Stream" and all locations behind you will be defined as "Up Stream". To your right hand side will be the Right Bank and to your left will be the Left Bank "

3. The Booming Site

Physical Description of Site
This site is very public. This area is very busy with tourists in the summer. Public access to this site shall have to be controlled. Some areas of the harbour are also quite open and exposed. The usual hazards associated with a working port are to be expected.

Because of the access difficulties associated with this site, a fixed deployment point is not suitable.
During an incident it will require a waterborne survey to identify oil impacts and recommend a suitable strategy.

Shoreline cleanup teams would have to approach from seaward, strict control of the operation would be required by the SRC.

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3.1 Site Access.

From Yealmpton turn onto the minor road (B3186) signposted Newton Ferrers. This road takes you down to the centre of this small town. Once in Newton Ferrers follow the signs for the Harbour. The Harbour is located at the centre of town.

3.2 Flow Rates and Ranges

Flood 1 knot

3.3 Tidal Peculiarities

Consult Harbour Master for spring tide predictions

4. Equipment

Item	Provider	Comment
1 x Shallow draft inflatable launch		

5. Manpower

In a Major Pollution incident involving a large area of the coast the response at the Yealm Estuary may be co-ordinated by a beach master designated by the Shoreline Response Centre (SRC). This response may include the deployment of booms to prevent / minimise the spread of oil onshore.

Staff identified by the Beach master will deploy the booms, and a supervisor with training in and a working knowledge of boom deployment will supervise these staff. This group will be referred to as the Yealm Estuary Team.

In a local pollution incident where an SRC is not set up manpower requirements will be just the same but the response will be managed locally and the team will still be referred to as the Yealm Estuary Team.

The Yealm Estuary Team will comprise the following Staff:

Beach master	X 1
Foreman	
Boom Deployment Crew	
Boat Crew – work and Safety boat	
Coxswain	X 1
Boat Handler	X 1

Yealm Estuary Team will be drawn from a number of organisations.
These are listed below with possible numbers and contact details

Organisation	***Contact Details***
Environment Agency	0800 807060 24hrs
Devon County Council EPO	01392 382665
Devon County Council	01392 383249
DV Howells	08700 73776673

6. Health & Safety
(See also MPCU – STOp 1/98 Health Safety & Welfare During Shoreline Clean-up

The Health & Safety at Work Act 1974 is the key legislation relating to Health & Safety Matters in the UK. The Act establishes a number of duties and responsibilities which can be summarised as follows:

- Employers have a duty to establish and maintain a safe system of work,
- Employers must take all reasonable steps to protect the health and safety of their employees (this includes volunteers) and others including the public,
- Employers must prepare and maintain written safety policies,
- Employees have a duty to comply with all health and safety instructions and requirements and not put their own or anyone else's health safety and welfare at risk.

Where Local Authorities undertake to prepare and apply oil spill contingency plans the plan will also address health and safety considerations. Where the local Authority is responsible for clean-up operations they will be responsible for the overall management of health and safety issues.

Risk Assessment		
Hazards	**Persons at Risk**	**Controls**
Falling in the water	Barge Crew Safety Boat Crew	All personnel in boats to wear lifejackets/fisherman's suits
Injury from wires and ropes	Boats Crews Shore team	Hard hats and leather work gloves and safety shoes to be worn

General Manual Handling	Any medically inappropriate person	All employees/volunteers should be fit and not suffering from any known physical disability e.g. cardiac or orthopaedic problems
Sharp objects/tools	Boat & Shore Crews	First aid kits available Radios/mobile phones available to contact ambulance service
Hypothermia	Boat Crews	Fisherman's suits to be worn
Toxic Fumes From Crude/Other Oils	Boat & Shore Crews	Check substance data sheets via MPCU / oil company

Rendezvous
Yealm Estuary will rendezvous at the quayside, Newton Ferres.

7. The Deployment

- As directed by SRC following survey.

8. Oil Recovery and Storage

No Planned deployment of skimming equipment.

Beach masters should check with the SRC concerning the regulations concerning disposal of recovered waste.

9. Boom Recovery

- All dirty sorbent materials must be changed out regularly
- All dirty sorbent materials must be double bagged and placed in clear plastic bags labelled oily waste only.
- These bags can be landed ashore and collected in proper storage receptacles laid down in the car park
- Dirty sorbents can then be sent for processing

Remember to recover all the equipment, logging any defects.

10. Beach master Checklist & Actions

- Check that the site Identified by the SRC is the correct site. (The check will confirm that oil has or is likely to come ashore and that a plan exists for this site).
- Ensure access to the site is available by telephoning ahead.

- Establish rendezvous point at the quayside by the harbour, Newton Ferres.
- Team briefing: objectives, individual miss and responsibilities, health end safety.
- Identify oil clean up areas, making sure to limit the secondary contamination.

11. Boom Maintenance Guidelines

There will over the duration of an oil spill be various types of oil boom deployed from the shoreline. The SRC will designate boom maintenance teams for specific areas who will be highly mobile professionals, usually drawn from the UK Governments primary TIER 3 contractor.

This team will also provide accurate survey information to the SRC on a daily basis as to the actual impact of the areas where booms are deployed and also the logistical requirements to support the booms that are not attended on a regular basis.

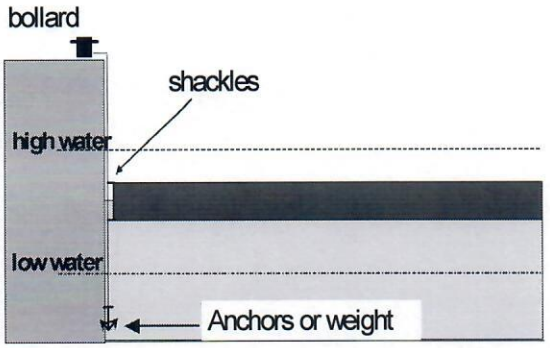
It may be the case that until this is organised the responsibility for the boom maintenance will fall upon the deployment crew until the boom maintenance team can relieve them.

Type of Boom	**Effect and Action Required**
Air inflatable Boom	• The *"day and night effect"* will occur especially during hot day time temperatures and cool nights, the air will expand within the inflation chamber during the day and contract with the cooling effect during the night. This may cause a partial or complete submergence of the boom and is best remedied at first light. • Sliding boom connectors can become loose, thumb screws should be checked every 48hrs, or when noticed. • Abrasion damage during deployment is a common ailment and will require patching whilst on the water, which can, in most cases be achieved with duct tape until a permanent solution can be sought. • Any doubts about the integrity of the boom should be passed to the SRC who will in turn inform the boom maintenance team
Fence Boom	• Prone to grounding at low water due to insufficient water depth. Best noted at low water when it may be required to substitute the boom for a length of shore-sealing boom. • If the correct angle for the current is not implemented or there are current variations which do not appear obvious at the time

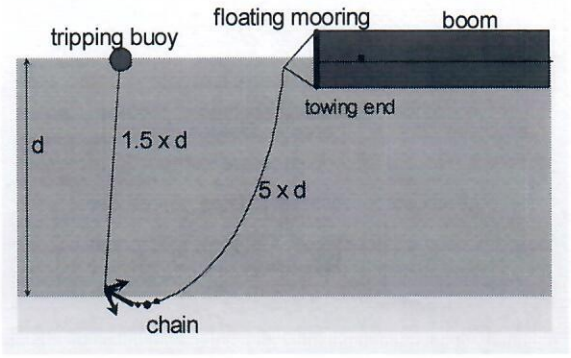
	of the deployment, the boom will suffer from planing, when the draught or skirt of the boom will rise to the surface in the direction of the current. A more acute angle will therefore be required. Inform SRC and await boom maintenance team. • Wave action may cause splash over whereupon the only remedy will be to change the boom for a boom with a higher freeboard. A temporary sorbent boom can be placed behind the failing boom to recover the oil that has "splashed over".
Sorbent Boom	• When the boom appears to have increased in draught by 50% of its freeboard it means that the boom is reaching its optimum capacity for absorption and should be changed out. The correct method to do this is deploying the new boom inside the old one so as not affect the integrity of the system.
All Booms	• When using tidal compensating moorings, a daily check should be made at high-water to ensure the effective seal of the boom at the landward end is correct to prevent oil migrating along the shoreline. Sorbent booms can be used to address any failures in these cases. • At low water the systems should be checked to ensure there are no booms "hung up" because of inadequate lengths on the tidal compensating moorings. • Boom angle and the moorings should be checked against any tidal or current variations

12. Technique Guide

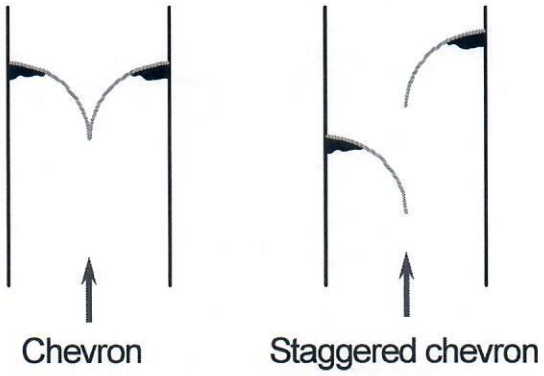
Tidal Compensating Mooring



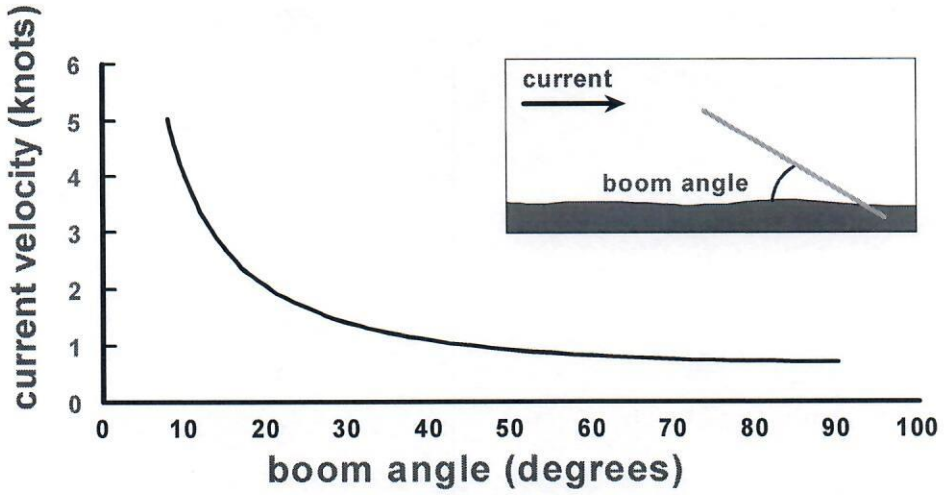
Boom Anchoring



Chevron Formations



Effect Of Current On Boom Angle



The table below is a guide, supposing that the current is constant.
Only on deployment, during validation can the calculation be made correctly.

Current in Knots	Boom to Bank Angle	Length of Boom in relation to River Width
0,7	90°	1,0 x original boom length
1,0	45°	1,4 x original boom length
1,5	30°	2,0 x original boom length
2,0	20°	3,0 x original boom length
2,5	16°	3,5 x original boom length
3,0	15°	4,3 x original boom length
3,5	11°	5,0 x original boom length
4,0	10°	5,7 x original boom length
5,0	8°	7,0 x original boom length

Annex 1 - Equipment Handling Guide
Skirt Boom This boom (orange in colour) consists of a single chamber, which is inflated to provide buoyancy. A metal chain sown into the skirt of the boom provides the ballast, which gives stability.
Guidance notes 1. These skirt booms have a different connection plate to the more widely used unicon plate an adapter is provided to join the boom to the beach guardian, with nylon thumb screws.
Beach Guardian Boom This boom is constructed with two chambers. The top chamber is filled with air to provide buoyancy, the bottom chamber is partially filled with water so that when the tide ebbs the boom will settle on the substrate and effect a seal.
Guidance notes 1. Ensure that sections of boom are connected the right way up e.g. top chamber to top chamber. 2. Ensure all nylon screws are tightened in the unicon plates. 3. Do not fill water chamber until the boom is in the final position. 4. Use the air blower to help drain the water chamber.
Water Pump This 2"water pump is driven by a 4 stroke engine which uses 4 star leaded petrol
Guidance notes 1. When filling the beach guardian put the suction hose in a bucket and allow the water to weir over the edge this ensures that no sand gets pumped into the boom. 2. Always thoroughly flush through pump with fresh water after use and spray into suction end with WD40.
Air Blowers The air blowers are used to inflate the booms they are driven by a two stroke engine using leaded petrol at 25 to 1
Tirfor Winch (5 Ton) The Tirfor winch is used to tension the boom and maintain the angle across the tide, to eliminate cusping.
Communications Marine band radios must be available to maintain communications between the shore and the barge/boats Mobile phone coverage is good in this area
Guidance notes 1. Use channel 10 (UK Pollution channel)