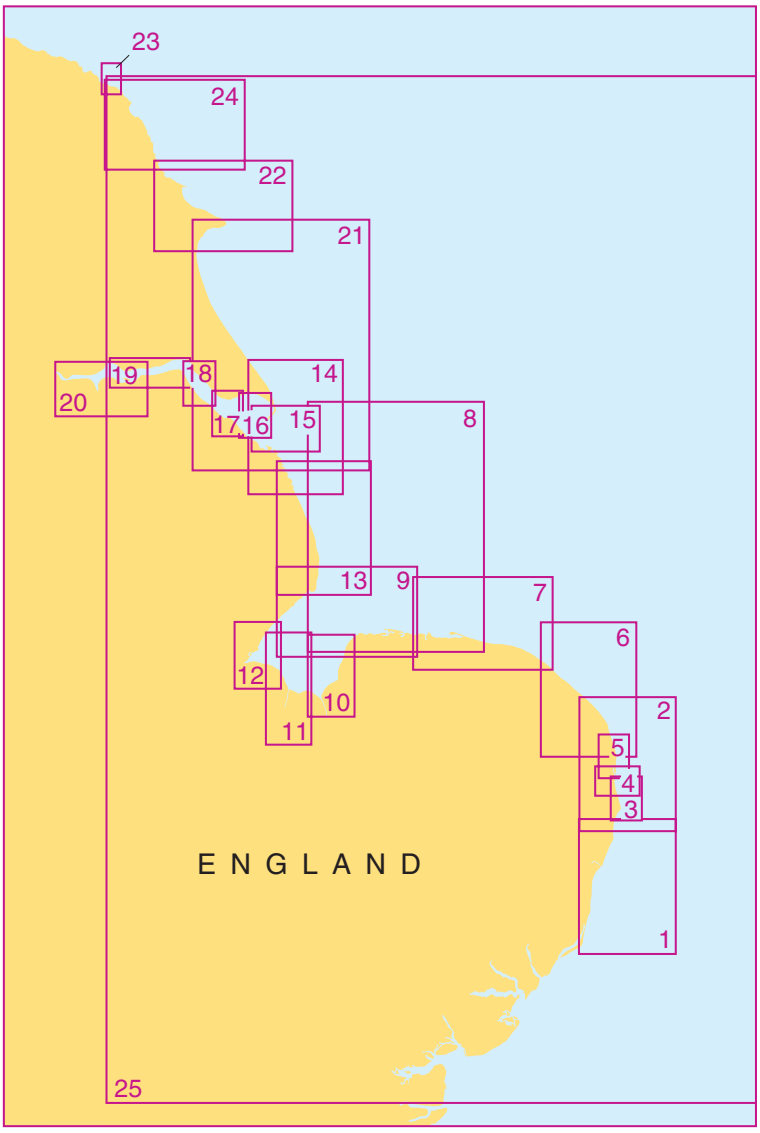
UK Hydrographic Office

5614

Updated to March 2025

Version 1.0

East Coast - Orford Ness to Whitby



5614	Chart Title	Natural Scale 1:
1A	Orford Ness to Benacre Ness	75,000
1B	Orford Ness	50,000
2	Lowestoft to Winterton Ness	75,000
3	Approaches to Lowestoft	25,000
4A	Approaches to Great Yarmouth	25,000
4B	Great Yarmouth Outer Harbour	7,500
5A	Northern Approaches to Great Yarmouth	25,000
5B	Great Yarmouth Haven	7,500

5614	Chart Title	Natural Scale 1:
6A	Caister-on-Sea to Mundesley	75,000
6B	Southwold Harbour	7,500
7A	Cromer to Wells-next-the-Sea	75,000
7B	Wells-next-the-Sea	30,000
8	Outer Approaches to The Wash	150,000
9	Approaches to The Wash	75,000
10A	The Wash - Eastern Part	37,500
10B	Continuation of Lynn Cut	37,500
10C	King's Lynn	10,000
11A	The Wash - Central Part	37,500
11B	Continuation of the River Nene	50,000
11C	Continuation of the River Nene to Wisbech	50,000
12A	The Wash - Western Part	37,500
12B	Approaches to Boston	20,000
12C	Boston	10,000
13	Gibraltar Point to Saltfleet	75,000
14	Approaches to the River Humber	75,000
15	River Humber Entrance	37,500
16	Spurn Head to Grimsby Middle	25,000
17A	Approaches to Grimsby	25,000
17B	Grimsby	10,000
18A	Immingham to Saltend	25,000
18B	Goole	5,000
19A	Kingston Upon Hull to Humber Bridge	25,000
19B	Humber Bridge to Whitton Ness	50,000
19C	Hull Docks - Western Part	10,000
20A	Lowestoft Harbour	6,250
20B	Whitton Ness to Goole and Mere Dyke	50,000
20C	Continuation to Keadby	50,000
21	Spurn Head to Flamborough Head	150,000
22A	Bridlington to Scarborough	75,000
22B	Bridlington Harbour	5,000
23A	Approaches to Whitby	25,000
23B	Whitby Harbour	7,500
23C	Scarborough Bay	10,000
23D	Scarborough Harbour	5,000
24	Scarborough to Whitby	75,000
25	Southern North Sea	750,000

Notes

Positions are referred to the WGS84 compatible datum, European Terrestrial Reference System 1989 Datum.
Depths are in metres and are reduced to Chart Datum, which is approximately the level of Lowest Astronomical Tide.
Heights are in metres. Underlined figures are drying heights above Chart Datum. Vertical clearance heights are above Highest Astronomical Tide. All other heights are above Mean High Water Springs.
Navigational marks: IALA Maritime Buoyage System-Region A (Red to port)

DATUM

All the charts are referred to the WGS84 compatible datum ETRS89. Any positions taken from GPS (referred to WGS84) or from ADMIRALTY Notices to Mariners (referred to ETRS89) can be plotted directly on all charts.

OIL AND GAS FIELDS

Within the area covered by larger scale charts, certain fixed structures, pipelines and cables have been omitted due to their complexity and frequent change. The appropriate larger scale charts should be used in these areas.
Production platforms and associated structures, including tanker moorings, storage tankers and platforms on pipelines, generally exhibit Mo(U) lights, aircraft obstruction lights, and audible fog signals. Unauthorised navigation is prohibited within 500 metres of all such structures.

OVERHEAD CABLES

Overhead cables may conduct high voltages; contact with or proximity to these poses extreme danger. Sufficient clearance must be allowed.

LIGHTS

Light stars without legends represent two fixed lights displayed vertically.

SANDWAVE AREAS

Sandwaves exist in the areas indicated; depths may be less than charted.

FISHING POTS

Mariners may encounter unmarked pots in an area of The Wash between the North Well and Roaring Middle aids to navigation. The buoys marking the ends of the strings of pots are reported as only visible at low water.

OVERHEAD CABLES

Overhead cables may conduct high voltages; contact with or proximity to these poses extreme danger. Sufficient clearance must be allowed.

CHECK SURVEYS

Depths in the areas indicated are taken from single beam check line surveys with lines of 300 to 400 metres apart. Less water than charted will exist over the sandbanks.

OMISSION OF DETAIL

Within the limit marked __ __ __ and the coastline, this chart should only be used for planning purposes as features such as depths, platforms, wrecks, pipelines, minor aids to navigation and cables have been omitted. Larger scale ADMIRALTY charts are available for mariners intending to navigate in this area.

CHANGING DEPTHS

Depths in the River Humber are subject to frequent change; the buoyage and other aids to navigation are adjusted accordingly. The Harbour Master, Humber, should be consulted for the latest information.

GAS FIELD DECOMMISSIONING

Production platforms and associated structure in the areas indicated are currently being decommissioned. During the works, aids to navigation may be unreliable and certain features may not be as shown. Consult local notices to mariners issued by the gas operator for details of decommissioning progress.

WRECKS AND OBSTRUCTIONS

In areas covered by larger scale charts some less significant wrecks and obstructions have been omitted for reasons of clarity.

MARINE FARMS

Marine farms exist within the area of this chart. They may not all be shown individually and their positions may change frequently. Marine farms may be marked by lit or unlit buoys or beacons. Mariners are advised to avoid these structures and their associated moorings.

LOCAL NOTICE TO MARINERS

For the latest navigational information in this area including local Aids to Navigation, mariners should also consult Notice to Mariners issued by ABP Humber. These are available at the ABP Humber website: www.humber.com

SUNK DREDGED CHANNEL - DEPTHS

Sunk Channel is being dredged continuously. The latest available depth will be announced by VTS Humber in their regular river broadcasts. Mariners requiring immediate information about depths in the Channel should contact VTS Humber.

DONNA NOOK FIRING RANGE

Although no restrictions are placed on the right to transit the firing practice area at any time, mariners are advised to exercise particular caution whilst in the area due to intense military air activity conducted at low level. Red flags or red lights are displayed to indicate that the area is in use. The firing practice area is operated using a clear range procedure. Exercise and firing only take place within the surface danger area (marked by the Sea Danger Area Buoys - DZ Numbers 1-6 and the coast) when the area is considered to be clear of all shipping. For further details, see Annual Notice to Mariners Number 5, Byelaws, Practice and Exercise Areas (PEXA) charts and ADMIRALTY Sailing Directions.

VESSEL REPORTING

For details of the following vessel traffic services and vessel reporting systems, see ADMIRALTY List of Radio Signals:
- Boston Local Port Service
- Great Yarmouth Local Port Service
- Humber Vessel Traffic Service
- King's Lynn Port Information Service
- Lowestoft Local Port Service

HISTORIC WRECKS

The sites of historic wrecks are protected from unauthorised interference.

SUBMARINE CABLES AND PIPELINES

Mariners should not anchor, trawl or engage in sea-bed operations in the vicinity of submarine cables and pipelines. Submarine cables support national infrastructure; damage to them may affect critical services and can result in serious consequences, as well as creating a potential hazard to mariners. Wilful or neglectful damage to a cable may result in legal action. Pipelines are not always buried and their presence may significantly reduce the charted depth. They may also span seabed undulations and cause fishing gear to become irrecoverably snagged, putting a vessel in severe danger.

FIRING PRACTICE AREAS

No restrictions are placed on the right to transit the firing practice areas at any time. The firing practice areas are operated using a clear range procedure; exercises and firing only take place when the areas are considered to be clear of all shipping.

HUMBER DEEP WATER ANCHORAGE (53°37′N 0°25′E)

Humber Deep Water Anchorage is recommended for large vessels bound for the Humber. Good holding ground exists in the charted designated anchor berths A to N. Mariners are advised to keep their vessels in a state of readiness and be prepared to get underway at short notice.

WETREP

Tankers of more than 600 dwt carrying heavy crude oil, heavy fuel oil or bitumen and tar and their emulsions are required to participate in the Western European Tanker Reporting System (WETREP). See ADMIRALTY List of Radio Signals for further details.

HM Coastguard Services and Safety Information

VHF MARITIME RADIO

Coastguard Maritime Rescue Co-ordination Centres are on constant watch on Channel 16 - the distress, safety and calling channel. Initial calls should normally be on Ch 16.

HM COASTGUARD

HUMBER (MRCC)
Tel. +44 (0) 1262 672317
MMSI: 002320007
e-mail: zone8@hmcg.gov.uk (FAO Humber Coastguard)

LONDON (MRSC)
Tel. +44 (0) 208 3127380
MMSI: 002320063
e-mail: zone12@hmcg.gov.uk (FAO London Coastguard)

Distress and Safety Communication

Distress - Urgency

A Distress or Urgency message has absolute priority.
Make a call on VHF Channel 16 and give the following essential information:
Distress Call **MAYDAY MAYDAY MAYDAY**

- Name and Call Sign and MMSI number Position
- Nature of Distress
- Type of assistance required
- Type of boat - number of crew - intentions

Urgency (eg. if you break down in bad weather or a crewman requires medical attention)
Call **PANPAN PANPAN PANPAN** and give:

- Name and Call Sign and MMSI number Position
- Nature of Distress
- Type of assistance required
- Type of boat - number of crew - intentions

Other Distress Signals

Other recognised signals are:

- Red flares (parachute, multi stars or hand held) Orange smoke signal
- The flag signal NC
- The morse signal SOS ... --- ... by light
- An article of clothing on an oar
- Slowly and repeatedly raising and lowering outstretched arms
- A square flag with anything resembling a ball above or below it
- Continuous sounding of a siren or whistle will also be recognised, or smoke and flames from the vessel
- The carriage of an Emergency Position Indicating Radio Beacon (406 EPIRB) will improve your chances of being located if conventional means fail. 406 EPIRBs are detected by satellite, in addition to aircraft, and transmitted to a Coastguard Maritime Rescue Co-ordination Centre.

THE USE OF MOBILE TELEPHONES IN DISTRESS AND SAFETY COMMUNICATIONS

The use of mobile telephones in the marine environent offshore is now well established, with users in all areas of the commercial, fishing and leisure communities.

Incidents have occured where vessels requiring assistance from rescue services have used the inland emergency service, or alternatively telephoned direct to request assistance. (e.g. Lifeboat services). This procedure through a mobile telephone is strongly discouraged.

Use of mobile telephones by-passes the existing dedicated well-established international marine distress communications systems.

Mobile telephone coverage offshore is limited and does not afford the same extensive safety coverage as VHF Channel 16. Consequently a greater risk exists of communications difficulties or even a complete breakdown if an accident should occur at the edge of a cell coverage area.

Subsequent on-scene communications would be restricted and delayed if mobile telephone communications were exclusively maintained throughout. There is always a risk that elements of vital information could be lost or misinterpreted by the introduction of further relay links in the communication chain. Mobile telephones are also highly susceptible to failure due to water ingress.

It is not possible to communicate direct to another vessel able to render assistance unless that vessel is also fitted with a mobile telephone and the telephone number is known. Requests for assistance cannot be monitored by other vessels in a position to render assistance.
Valuable time would be lost whilst the relevent Coastguard Rescue Coordination Centre receives and then re-broadcasts the information to all ships on the appropriate distress channel(s).

In the interests of Safety Of Life At Sea (SOLAS), owners of vessels are urged to carry MARINE communications equipment onboard and to use this medium as the primary means of Distress and Safety communications.

Product Specifications

PRODUCT USAGE CAUTION

This product is specifically designed, in conjunction with other charts and publications, as an aid to the navigation of leisure craft and locally regulated workboats and fishing vessels and therefore should be used by competent (preferably qualified) maritime navigators. Although this product contains the best information available at the time of publication, the user should navigate with caution, particularly in areas of shallow or confined waters where the depth of water is likely to change due to local conditions. The information provided in this product comes from the latest source information held and is updated by Notice to Mariners upon receipt of new information critical to safe navigation. To help maintain this product for all users, users are asked to notify the United Kingdom Hydrographic Office of any differences found between what is depicted and actual conditions encountered.

KEEPING THIS CHART UPDATED

Updates for the charts are published using the Notices to Mariners Service on the ADMIRALTY Notices to Mariners page found on our website at admiralty.co.uk/msi. All updates for the latest edition of the chart are listed and can be quickly and easily downloaded. All the charts are derived from standard ADMIRALTY charts. No updates are applied to the charts by the United Kingdom Hydrographic Office or its agents after printing. For those who do not have internet access, please contact Tel. 01823 484444 for assistance.

TIDAL STREAMS

Full details of the tidal streams in the area covered these charts are given in the following ADMIRALTY Tidal Stream Atlas: NP 251 North Sea, Southern Part.

PROVIDE UPDATED INFORMATION

To help maintain this product users are asked to notify the United Kingdom Hydrographic Office of any differences found between what is depicted and actual conditions encountered. Users can do this by submitting a Hydrographic Note form, found on our website admiralty.co.uk/msi or by downloading our H-Note App. The H-Note App is freely available to download on Android and iOS devices. For more information please see here:

IMPROVEMENTS TO THIS PRODUCT

ADMIRALTY Small Craft Charts are designed for use on leisure craft and locally regulated workboats and fishing vessels, where the smaller format charts fit more conveniently into the limited space available. Users with specific suggestions for the improvement of this product or ideas for the expansion of the series are requested to forward their comments to:

Customer Services, The UK Hydrographic Office,
Admiralty Way, Taunton. +44(0)1823 484444

E-mail customerservices@ukho.gov.uk

To view all ADMIRALTY Products and services, visit admiralty.co.uk

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T: +44 (0)1823 484444 Find out more at **admiralty.co.uk**

Tidal Stream Information

5614_1Ⓐ

Tidal Streams referred to HW at DOVER

Hours	Geographical Position	A 52°27·0N 1 59·5E		B 52°24·5N 1 49·1E		C 52°20·0N 1 59·8E		D 52°18·2N 1 41·9E		E 52°15·4N 1 48·8E		F 52°12·7N 1 38·3E		G 52°04·9N 1 38·3E	
Before High Water 6	Directions of streams (degrees)	038	0·1 0·0	198	0·1 0·1	018	0·5 0·3	318	0·4 0·2	012	0·5 0·3	191	1·0 0·5	147	0·2 0·1
Before High Water 5		174	1·1 0·6	193	1·7 0·9	188	0·9 0·5	209	1·1 0·6	191	1·0 0·6	187	1·3 0·6	217	1·7 1·1
Before High Water 4		180	2·0 1·1	195	2·5 1·3	190	2·2 1·2	208	1·7 1·0	195	2·2 1·5	185	1·2 0·6	215	2·5 1·6
Before High Water 3		184	2·2 1·2	196	2·5 1·4	194	2·7 1·5	207	1·7 1·0	197	2·7 1·8	185	1·1 0·5	214	2·6 1·7
Before High Water 2		189	1·9 1·0	197	2·1 1·1	195	2·4 1·3	208	1·6 0·9	197	2·4 1·6	187	0·7 0·3	213	2·4 1·6
Before High Water 1		194	1·4 0·8	197	1·3 0·7	195	1·6 0·8	214	1·2 0·7	201	1·6 1·1	005	0·2 0·1	209	1·7 1·1
High Water		209	0·6 0·3	194	0·1 0·1	195	0·6 0·3	244	0·4 0·2	192	0·7 0·5	007	1·2 0·6	183	0·5 0·3
After High Water 1		354	0·9 0·5	016	1·4 0·7	018	0·5 0·3	026	0·9 0·5	021	0·9 0·6	007	1·4 0·7	028	1·4 0·9
After High Water 2		005	1·9 1·0	016	2·5 1·3	015	1·9 1·0	036	1·9 1·1	017	2·1 1·4	007	1·1 0·5	029	2·8 1·8
After High Water 3		006	2·3 1·2	018	2·6 1·4	015	2·8 1·5	034	1·8 1·1	015	2·5 1·7	007	0·9 0·4	033	3·0 1·9
After High Water 4		006	2·1 1·1	018	2·1 1·2	012	2·6 1·4	032	1·6 0·9	014	2·4 1·6	007	0·7 0·3	033	2·6 1·7
After High Water 5		003	1·5 0·8	018	1·4 0·8	011	1·9 1·0	026	1·1 0·6	016	1·8 1·2		0·0 0·0	033	1·8 1·2
After High Water 6		001	0·7 0·4	018	0·4 0·2	010	1·0 0·5	340	0·4 0·2	012	0·9 0·6	193	0·8 0·4	038	0·4 0·3

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Tidal Streams referred to HW at HARWICH

Hours	Geographical Position	G 52°04·9N 1 38·3E		H 52°03·1N 1 31·6E	
Before High Water 6	Directions of streams (degrees)	211	0·8 0·5	224	1·1 0·7
Before High Water 5		217	2·0 1·3	221	2·1 1·3
Before High Water 4		215	2·5 1·7	220	2·0 1·3
Before High Water 3		214	2·5 1·7	220	1·8 1·1
Before High Water 2		212	2·2 1·3	222	1·4 0·9
Before High Water 1		207	1·2 0·6	246	0·6 0·4
High Water		053	0·3 0·2	034	1·0 0·6
After High Water 1		029	2·0 1·3	058	1·9 1·2
After High Water 2		031	2·9 1·9	056	2·0 1·3
After High Water 3		033	2·8 1·8	054	1·6 1·0
After High Water 4		033	2·2 1·5	048	1·1 0·7
After High Water 5		036	1·2 0·8	037	0·7 0·4
After High Water 6		033	0·2 0·1	230	0·6 0·4

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Tidal Streams referred to HW at DOVER

Hours	Geographical Position	A 52°45·0N 1 52·9E		B 52°43·4N 1 46·8E		C 52°42·0N 2 00·0E		D 52°41·0N 1 54·9E		E 52°38·8N 1 49·0E		F 52°38·0N 1 54·4E		G 52°35·0N 1 45·9E		H 52°34·1N 1 59·9E		J 52°31·6N 1 51·3E	
Before High Water 6	Directions of streams (degrees)	152	0·8 0·6	154	1·7 0·9	145	0·4 0·2	325	0·1 0·1	175	1·1 0·6	004	0·2 0·0	178	1·5 0·9	133	0·3 0·1	159	0·4 0·2
Before High Water 5		152	2·7 1·8	153	2·9 1·5	159	1·9 1·0	170	1·5 0·9	173	3·3 1·8	178	1·8 1·2	177	2·0 1·3	168	1·5 0·8	179	2·3 1·3
Before High Water 4		152	3·3 2·4	150	3·1 1·6	163	2·5 1·4	169	3·3 2·0	171	3·1 1·7	179	2·9 1·9	174	2·4 1·5	174	2·4 1·3	177	3·4 1·9
Before High Water 3		152	3·4 2·4	149	2·7 1·4	168	2·5 1·4	165	3·4 2·1	170	2·6 1·4	179	3·5 2·2	176	1·9 1·2	178	2·7 1·4	182	2·8 1·6
Before High Water 2		152	2·5 2·0	149	1·9 1·0	171	1·8 1·0	166	2·8 1·7	172	1·9 1·0	179	2·9 2·1	179	1·6 1·0	192	2·1 1·2	184	2·2 1·2
Before High Water 1		152	1·2 0·9	151	0·4 0·2	178	0·8 0·5	174	1·6 1·0	171	0·7 0·4	179	1·8 1·4	183	0·6 0·4	199	1·4 0·7	184	1·2 0·7
High Water		332	0·2 0·2	337	0·9 0·5	266	0·2 0·1	205	0·6 0·3	356	0·8 0·4	180	0·4 0·2	354	0·9 0·6	237	0·3 0·2		0·0 0·0
After High Water 1		332	1·8 1·3	335	2·3 1·2	338	1·2 0·6	347	1·2 0·7	355	2·5 1·3	357	1·2 0·9	000	1·8 1·2	348	1·4 0·8	004	1·3 0·7
After High Water 2		332	3·3 2·3	334	3·1 1·6	345	2·2 1·2	358	2·7 1·6	356	3·0 1·6	359	2·7 1·8	002	2·4 1·5	354	2·3 1·2	003	2·8 1·6
After High Water 3		332	3·4 2·4	330	3·0 1·6	347	2·5 1·4	348	3·6 2·2	356	2·9 1·6	359	3·3 2·3	000	2·1 1·4	356	2·4 1·3	003	3·1 1·8
After High Water 4		332	3·1 2·2	327	2·4 1·2	347	2·2 1·2	347	3·2 1·9	353	2·3 1·2	359	3·1 2·1	355	1·4 0·9	358	2·2 1·2	357	3·0 1·7
After High Water 5		332	1·8 1·4	329	1·1 0·6	348	1·5 0·8	348	2·3 1·4	350	1·2 0·7	359	2·2 1·6	347	0·8 0·5	002	1·5 0·8	350	1·8 1·0
After High Water 6		332	0·1 0·1	154	1·0 0·5	358	0·2 0·1	345	0·5 0·3	196	0·2 0·1	000	1·0 0·7	195	0·8 0·5	018	0·6 0·3	017	0·4 0·2

5614_2 continued

K 52°28·0N 1 49·9E		L 52°27·0N 1 59·5E	
195	0·4 0·2	038	0·1 0·0
211	2·2 1·2	174	1·1 0·6
220	3·3 1·8	180	2·0 1·1
212	2·7 1·5	184	2·2 1·2
207	1·9 1·1	189	1·9 1·0
207	1·0 0·6	194	1·4 0·8
200	0·2 0·1	209	0·6 0·3
001	1·1 0·6	354	0·9 0·5
000	2·6 1·5	005	1·9 1·0
000	2·7 1·5	006	2·3 1·2
002	2·4 1·3	006	2·1 1·1
008	1·5 0·9	003	1·5 0·8
010	0·4 0·2	001	0·7 0·4

5614_3

Tidal Streams referred to HW at DOVER

Hours	Geographical Position		A 52°31´·63N 1 51 ·29E		B 52°28´·03N 1 49 ·89E		C 52°27´·93N 1 46 ·79E	
Before High Water 6	Directions of streams (degrees)	−6	159	0·4 0·2	195	0·4 0·2	208	0·4 0·2
Before High Water 5		−5	179	2·3 1·3	211	2·2 1·2	192	2·4 1·4
Before High Water 4		−4	177	3·4 1·9	220	3·3 1·8	188	2·6 1·4
Before High Water 3		−3	182	2·8 1·6	212	2·7 1·5	187	2·2 1·2
Before High Water 2		−2	184	2·2 1·2	207	1·9 1·1	187	1·7 0·9
Before High Water 1		−1	184	1·2 0·7	207	1·0 0·6	187	1·0 0·6
High Water		0		0·0 0·0	200	0·2 0·1	060	0·1 0·1
After High Water 1		+1	004	1·3 0·7	001	1·1 0·6	015	2·3 1·3
After High Water 2		+2	003	2·8 1·6	000	2·6 1·5	011	2·6 1·5
After High Water 3		+3	003	3·1 1·8	000	2·7 1·5	008	2·3 1·3
After High Water 4		+4	357	3·0 1·7	002	2·4 1·3	005	2·0 1·1
After High Water 5		+5	350	1·8 1·0	008	1·5 0·9	001	1·3 0·7
After High Water 6		+6	017	0·4 0·2	010	0·4 0·2	327	0·2 0·1

5614_4Ⓐ

Tidal Streams referred to HW at DOVER

Hours	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	Ⓐ 52°35′·03 N 1 45·89 E	
Before High Water 6				178	1·5 0·9
Before High Water 5				177	2·0 1·3
Before High Water 4				174	2·4 1·5
Before High Water 3				176	1·9 1·2
Before High Water 2				179	1·6 1·0
Before High Water 1				183	0·6 0·4
High Water				354	0·9 0·6
After High Water 1				000	1·8 1·2
After High Water 2				002	2·4 1·5
After High Water 3				000	2·1 1·4
After High Water 4				355	1·4 0·9
After High Water 5				347	0·8 0·5
After High Water 6				195	0·8 0·5

5614_5Ⓐ

Tidal Streams referred to HW at DOVER

Hours	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	Ⓐ 52°41′·03 N 1 45·39 E		Ⓑ 52°35′·03 N 1 45·89 E	
Before High Water 6				152	0·7 0·5	178	1·5 0·9
Before High Water 5				152	1·7 1·1	177	2·0 1·3
Before High Water 4				152	2·2 1·5	174	2·4 1·5
Before High Water 3				152	1·9 1·4	176	1·9 1·2
Before High Water 2				152	1·3 1·0	179	1·6 1·0
Before High Water 1				152	0·6 0·3	183	0·6 0·4
High Water				332	0·5 0·3	354	0·9 0·6
After High Water 1				332	1·4 1·0	000	1·8 1·2
After High Water 2				332	2·1 1·4	002	2·4 1·5
After High Water 3				332	2·1 1·4	000	2·1 1·4
After High Water 4				332	1·5 1·1	355	1·4 0·9
After High Water 5				332	0·8 0·6	347	0·8 0·5
After High Water 6				152	0·3 0·1	195	0·8 0·5

5614_6Ⓐ

Tidal Streams referred to HW at IMMINGHAM

Hours	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	Ⓐ 52°59′·0 N 1 34·9 E		Ⓑ 52°52′·5 N 1 49·9 E		Ⓒ 52°50′·0 N 1 47·9 E		Ⓓ 52°43′·4 N 1 46·8 E	
Before High Water 6				327	1·7 1·0	328	2·3 1·2	321	1·2 0·7	335	2·2 1·2
Before High Water 5				327	2·6 1·5	327	2·8 1·4	321	2·2 1·3	334	3·1 1·6
Before High Water 4				327	2·7 1·6	327	2·7 1·4	321	2·7 1·5	330	3·0 1·6
Before High Water 3				327	1·9 1·1	326	2·1 1·1	321	2·5 1·4	327	2·4 1·2
Before High Water 2				327	0·7 0·5	324	0·9 0·5	321	1·5 0·8	329	1·2 0·6
Before High Water 1				147	0·6 0·3	142	0·8 0·4	321	0·2 0·1	155	0·9 0·5
High Water				147	1·6 0·9	145	2·1 1·1	141	1·2 0·7	153	2·3 1·2
After High Water 1				147	2·4 1·4	148	2·8 1·4	141	2·4 1·3	151	3·0 1·6
After High Water 2				147	2·4 1·5	146	2·6 1·3	141	2·5 1·5	149	2·9 1·5
After High Water 3				147	1·9 1·2	146	1·9 1·0	141	2·1 1·3	149	2·3 1·2
After High Water 4				147	1·1 0·6	153	0·8 0·4	141	1·4 0·8	150	1·1 0·6
After High Water 5				327	0·1 0·1	320	0·5 0·3	141	0·4 0·2	341	0·2 0·1
After High Water 6				327	1·3 0·7	329	1·8 0·9	321	0·8 0·4	336	1·6 0·8

Tidal Streams referred to HW at DOVER

Ⓔ 52°38′·8 N 1 49·0 E	
175	1·1 0·6
173	3·3 1·8
171	3·1 1·7
170	2·6 1·4
172	1·9 1·0
171	0·7 0·4
356	0·8 0·4
355	2·5 1·3
356	3·0 1·6
356	2·9 1·6
353	2·3 1·2
350	1·2 0·7
196	0·2 0·1

5614_6Ⓑ

Tidal Streams referred to HW at DOVER

Hours	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	Ⓕ 52°18′·88N 1 40′·34E	
Before High Water 6				**305**	1·1 0·7
Before High Water 5				**305**	1·0 0·6
Before High Water 4				**305**	1·3 0·8
Before High Water 3				**305**	1·6 1·0
Before High Water 2				**305**	1·2 0·7
Before High Water 1				**305**	0·1 0·1
High Water				**125**	1·4 0·9
After High Water 1				**125**	2·5 1·6
After High Water 2				**125**	3·1 1·9
After High Water 3				**125**	3·3 2·0
After High Water 4				**125**	2·4 1·5
After High Water 5				**125**	0·2 0·1
After High Water 6				**305**	1·3 0·8

5614_7Ⓐ

Tidal Streams referred to HW at IMMINGHAM

Hours	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	Ⓐ 53°01′·02 N 0 58·39 E		Ⓑ 53°05′·42 N 1 13·09 E		Ⓒ 53°00′·02 N 1 19·89 E	
Before High Water 6				283	1·9 1·0	300	1·9 1·0	294	2·3 1·1
Before High Water 5				282	1·8 1·0	296	2·4 1·2	289	2·5 1·2
Before High Water 4				281	1·7 0·9	289	2·4 1·2	285	2·4 1·2
Before High Water 3				270	1·4 0·7	281	1·6 0·8	280	1·8 0·9
Before High Water 2				227	0·2 0·1	248	0·4 0·2	254	0·3 0·1
Before High Water 1				122	0·7 0·4	131	0·7 0·4	119	1·3 0·6
High Water				108	1·6 0·8	120	1·6 0·8	114	2·1 1·0
After High Water 1				102	2·1 1·1	115	2·1 1·1	108	2·5 1·2
After High Water 2				098	2·1 1·1	111	2·1 1·1	106	2·4 1·2
After High Water 3				094	1·6 0·8	109	1·6 0·8	104	1·5 0·7
After High Water 4				087	0·7 0·4	087	0·6 0·3	082	0·4 0·2
After High Water 5				303	0·5 0·3	326	0·6 0·3	303	1·1 0·5
After High Water 6				290	1·4 0·7	301	1·6 0·8	296	2·1 1·0

5614_8

Tidal Streams referred to HW at IMMINGHAM

Hours	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)	Ⓐ 53°37′·0 N 0 26·4 E		Ⓑ 53°35′·3 N 0 39·7 E		Ⓒ 53°33′·7 N 0 59·2 E		Ⓓ 53°27′·0 N 1 04·9 E		Ⓔ 53°19′·0 N 0 33·9 E		Ⓕ 53°14′·5 N 0 56·9 E		Ⓖ 53°09′·7 N 0 29·9 E		Ⓗ 53°08′·3 N 0 54·4 E		Ⓙ 53°08′·0 N 0 40·0 E	
Before High Water 6				332	0·8 0·5	344	1·9 1·1	329	1·7 0·9	324	2·2 0·9	358	1·1 0·6	327	1·7 1·0	352	0·4 0·2	320	1·5 0·8	315	1·6 0·8
Before High Water 5				227	0·3 0·2	335	0·9 0·5	324	1·4 0·7	321	1·7 0·7	328	0·5 0·2	313	1·5 0·9	326	0·2 0·1	313	1·7 0·9	303	1·4 0·7
Before High Water 4				180	1·6 0·9	183	0·9 0·5	310	0·6 0·3	315	0·8 0·4	216	0·8 0·4	298	1·3 0·8	205	0·9 0·5	291	1·1 0·6	266	0·9 0·5
Before High Water 3				175	2·3 1·3	172	2·5 1·4	180	0·5 0·3	172	0·3 0·1	191	1·5 0·8	274	0·7 0·4	199	2·1 1·1	260	0·4 0·2	205	1·0 0·5
Before High Water 2				171	2·4 1·4	168	2·8 1·6	169	1·4 0·7	151	1·4 0·5	185	1·8 0·9	196	0·6 0·3	195	2·1 1·1	178	0·6 0·3	176	1·1 0·6
Before High Water 1				166	1·9 1·1	163	2·9 1·6	162	1·5 0·8	145	1·8 0·7	185	1·6 0·8	162	1·2 0·7	188	1·3 0·7	155	1·1 0·5	159	1·1 0·6
High Water				165	0·9 0·5	161	2·0 1·1	153	1·5 0·8	141	1·7 0·9	177	1·1 0·6	149	1·5 0·8	171	0·7 0·4	139	1·5 0·8	137	1·2 0·6
After High Water 1				310	0·1 0·0	163	1·0 0·5	147	1·4 0·7	140	1·4 0·7	135	0·6 0·3	134	1·5 0·9	050	0·6 0·3	125	1·5 0·8	112	1·3 0·7
After High Water 2				000	1·0 0·6	347	0·5 0·3	132	0·9 0·5	135	1·0 0·5	032	0·7 0·3	120	1·3 0·8	021	0·9 0·5	112	1·1 0·6	095	1·1 0·6
After High Water 3				004	1·9 1·1	352	1·6 0·9	049	0·6 0·3	102	0·3 0·1	013	1·2 0·6	105	1·0 0·5	016	1·4 0·7	091	0·6 0·3	058	0·8 0·4
After High Water 4				357	2·1 1·2	351	2·5 1·4	357	1·0 0·6	335	0·8 0·3	009	1·5 0·8	056	0·5 0·3	012	1·9 1·0	016	0·3 0·2	007	0·9 0·5
After High Water 5				350	1·9 1·1	348	2·6 1·5	337	1·4 0·8	327	1·7 0·7	006	1·5 0·8	352	1·0 0·5	007	1·6 0·8	338	0·8 0·4	339	1·2 0·6
After High Water 6				341	1·2 0·7	344	2·3 1·3	331	1·6 0·9	325	2·2 0·9	001	1·2 0·7	331	1·6 0·9	000	0·6 0·3	325	1·3 0·7	323	1·5 0·8

5614_8 continued

Ⓚ 53°01′·2 N 0 25·8 E		Ⓛ 53°01′·0 N 0 58·4 E	
025	0·5 0·3	283	1·9 1·0
330	0·1 0·1	282	1·8 1·0
223	0·5 0·3	281	1·7 0·9
213	1·5 0·8	270	1·4 0·7
212	2·2 1·2	227	0·2 0·1
212	1·9 1·0	122	0·7 0·4
212	1·0 0·5	108	1·6 0·8
182	0·1 0·1	102	2·1 1·1
032	0·8 0·4	098	2·1 1·1
035	1·7 0·9	094	1·6 0·8
038	2·0 1·0	087	0·7 0·4
037	1·5 0·8	303	0·5 0·3
031	0·8 0·4	290	1·4 0·7

5614_9

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	A 53°09′·72 N 0 29·89 E		B 53°08′·42 N 0 23·39 E		C 53°08′·02 N 0 39·99 E		D 53°03′·12 N 0 20·09 E		E 53°03′·12 N 0 23·89 E		F 53°02′·32 N 0 30·99 E		G 53°02′·22 N 0 33·99 E		H 53°01′·22 N 0 25·79 E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)														
Before High Water 6		352	0·4 0·2	000	0·3 0·1	315	1·6 0·8	313	0·4 0·2	000	0·3 0·1	013	0·5 0·2	302	1·5 0·7	025	0·5 0·3
Before High Water 5		326	0·2 0·1	180	0·5 0·2	303	1·4 0·7	230	1·0 0·5	220	0·4 0·2		0·0 0·0	302	1·3 0·6	330	0·1 0·1
Before High Water 4		205	0·9 0·5	180	1·3 0·7	266	0·9 0·5	216	1·9 1·0	209	1·0 0·5	200	0·7 0·3	283	0·8 0·4	223	0·5 0·3
Before High Water 3		199	2·1 1·1	180	1·9 1·0	205	1·0 0·5	213	2·4 1·2	206	1·8 0·9	205	1·4 0·7	225	0·6 0·3	213	1·5 0·8
Before High Water 2		195	2·1 1·1	180	2·0 1·0	176	1·1 0·6	213	2·4 1·2	205	2·0 1·0	211	2·4 1·2	182	0·7 0·4	212	2·2 1·2
Before High Water 1		188	1·3 0·7	180	1·5 0·7	159	1·1 0·6	214	1·7 0·9	205	1·6 0·8	210	2·2 1·1	155	0·8 0·4	212	1·9 1·0
High Water		171	0·7 0·4	180	0·9 0·4	137	1·2 0·6	249	0·4 0·2	198	0·5 0·3	203	1·1 0·5	128	1·0 0·5	212	1·0 0·5
After High Water 1		050	0·6 0·3	000	0·3 0·2	112	1·3 0·7	035	1·0 0·5	036	0·7 0·3	064	0·3 0·2	108	1·3 0·6	182	0·1 0·1
After High Water 2		021	0·9 0·5	000	1·3 0·7	095	1·1 0·6	047	2·1 1·1	029	1·4 0·7	034	1·4 0·7	096	1·2 0·6	032	0·8 0·4
After High Water 3		016	1·4 0·7	000	2·0 1·0	058	0·8 0·4	049	2·6 1·3	029	1·8 0·9	031	2·0 1·0	077	0·8 0·4	035	1·7 0·9
After High Water 4		012	1·9 1·0	000	1·8 0·9	007	0·9 0·5	042	2·2 1·1	025	1·7 0·9	026	1·9 1·0	018	0·5 0·2	038	2·0 1·0
After High Water 5		007	1·6 0·8	000	1·2 0·6	339	1·2 0·6	032	1·5 0·8	020	1·2 0·6	018	1·4 0·7	322	0·8 0·4	037	1·5 0·8
After High Water 6		000	0·6 0·3	000	0·5 0·3	323	1·5 0·8	000	0·6 0·3	015	0·5 0·3	015	0·8 0·4	306	1·3 0·6	031	0·8 0·4

5614_9 continued

J 53°00′·82 N 0 17·59 E		K 52°57′·22 N 0 28·09 E	
025	0·4 0·2	211	0·5 0·2
211	0·7 0·3	206	0·8 0·4
208	1·8 0·9	200	1·1 0·6
208	2·4 1·2	197	1·4 0·7
208	2·4 1·2	195	1·6 0·8
208	1·7 0·8	203	0·9 0·5
213	0·5 0·2	013	0·3 0·2
027	0·7 0·4	025	1·4 0·7
029	1·6 0·8	022	1·9 0·9
030	2·1 1·0	020	1·7 0·8
030	2·2 1·1	017	0·9 0·5
030	1·8 0·9	007	0·3 0·2
030	0·9 0·4	225	0·2 0·1

5614_10Ⓐ

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	A 52°53′·7N 0 24·3E		B 52°57′·2N 0 28·1E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)		
Before High Water 6		**358**	0·3 0·2	**211**	0·5 0·2
Before High Water 5		**203**	0·1 0·1	**206**	0·8 0·4
Before High Water 4		**195**	0·6 0·3	**200**	1·1 0·6
Before High Water 3		**192**	1·2 0·6	**197**	1·4 0·7
Before High Water 2		**192**	1·8 0·9	**195**	1·6 0·8
Before High Water 1		**192**	1·5 0·7	**203**	0·9 0·5
High Water		**188**	0·6 0·3	**013**	0·3 0·2
After High Water 1		**021**	0·3 0·2	**025**	1·4 0·7
After High Water 2		**016**	1·1 0·5	**022**	1·9 0·9
After High Water 3		**014**	1·5 0·7	**020**	1·7 0·8
After High Water 4		**010**	1·5 0·7	**017**	0·9 0·5
After High Water 5		**007**	1·0 0·5	**007**	0·3 0·2
After High Water 6		**003**	0·5 0·3	**225**	0·2 0·1

5614_11Ⓐ

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	A 52°57′·2N 0 07·6E		B 52°57′·6N 0 08·9E		C 52°52′·6N 0 15·5E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)				
Before High Water 6		**053**	0·9 0·4	**057**	0·3 0·2	**350**	1·2 0·6
Before High Water 5		**321**	0·1 0·0	**138**	0·1 0·0	**347**	0·3 0·1
Before High Water 4		**235**	1·0 0·5	**215**	0·3 0·1	**176**	0·8 0·4
Before High Water 3		**233**	1·8 0·9	**221**	1·0 0·5	**175**	1·8 0·9
Before High Water 2		**233**	2·0 1·0	**222**	1·8 0·9	**175**	2·3 1·1
Before High Water 1		**233**	1·7 0·9	**237**	1·2 0·6	**175**	2·0 1·0
High Water		**235**	0·9 0·5	**240**	0·5 0·2	**175**	1·1 0·6
After High Water 1		**321**	0·1 0·0	**048**	0·3 0·1	**162**	0·1 0·1
After High Water 2		**053**	0·9 0·5	**048**	0·8 0·4	**357**	0·7 0·4
After High Water 3		**055**	1·6 0·8	**048**	1·0 0·5	**356**	1·5 0·8
After High Water 4		**056**	1·9 0·9	**048**	1·0 0·5	**355**	2·0 1·0
After High Water 5		**055**	1·7 0·8	**041**	0·8 0·4	**354**	1·9 0·9
After High Water 6		**054**	1·2 0·6	**048**	0·5 0·2	**352**	1·4 0·7

5614_12Ⓐ

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	A 52°57′·2N 0 07·6E		B 52°57′·6N 0 08·9E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)		
Before High Water 6		**053**	0·9 0·4	**057**	0·3 0·2
Before High Water 5		**321**	0·1 0·0	**138**	0·1 0·0
Before High Water 4		**235**	1·0 0·5	**215**	0·3 0·1
Before High Water 3		**233**	1·8 0·9	**221**	1·0 0·5
Before High Water 2		**233**	2·0 1·0	**222**	1·8 0·9
Before High Water 1		**233**	1·7 0·9	**237**	1·2 0·6
High Water		**235**	0·9 0·5	**240**	0·5 0·2
After High Water 1		**321**	0·1 0·0	**048**	0·3 0·1
After High Water 2		**053**	0·9 0·5	**048**	0·8 0·4
After High Water 3		**055**	1·6 0·8	**048**	1·0 0·5
After High Water 4		**056**	1·9 0·9	**048**	1·0 0·5
After High Water 5		**055**	1·7 0·8	**041**	0·8 0·4
After High Water 6		**054**	1·2 0·6	**048**	0·5 0·2

5614_12Ⓑ

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	A 52°57′·2N 0 07·6E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)
Before High Water 6		**053**	0·9 0·4
Before High Water 5		**321**	0·1 0·0
Before High Water 4		**235**	1·0 0·5
Before High Water 3		**233**	1·8 0·9
Before High Water 2		**233**	2·0 1·0
Before High Water 1		**233**	1·7 0·9
High Water		**235**	0·9 0·5
After High Water 1		**321**	0·1 0·0
After High Water 2		**053**	0·9 0·5
After High Water 3		**055**	1·6 0·8
After High Water 4		**056**	1·9 0·9
After High Water 5		**055**	1·7 0·8
After High Water 6		**054**	1·2 0·6

5614_13

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	A 53°19′·02 N 0 33·89 E		B 53°09′·72 N 0 29·89 E		C 53°08′·42 N 0 23·39 E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)				
Before High Water 6		358	1·1 0·6	352	0·4 0·2	000	0·3 0·1
Before High Water 5		328	0·5 0·2	326	0·2 0·1	180	0·5 0·2
Before High Water 4		216	0·8 0·4	205	0·9 0·5	180	1·3 0·7
Before High Water 3		191	1·5 0·8	199	2·1 1·1	180	1·9 1·0
Before High Water 2		185	1·8 0·9	195	2·1 1·1	180	2·0 1·0
Before High Water 1		185	1·6 0·8	188	1·3 0·7	180	1·5 0·7
High Water		177	1·1 0·6	171	0·7 0·4	180	0·9 0·4
After High Water 1		135	0·6 0·3	050	0·6 0·3	000	0·3 0·2
After High Water 2		032	0·7 0·3	021	0·9 0·5	000	1·3 0·7
After High Water 3		013	1·2 0·6	016	1·4 0·7	000	2·0 1·0
After High Water 4		009	1·5 0·8	012	1·9 1·0	000	1·8 0·9
After High Water 5		006	1·5 0·8	007	1·6 0·8	000	1·2 0·6
After High Water 6		001	1·2 0·7	000	0·6 0·3	000	0·5 0·3

5614_14

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	A 53°42′·1 N 0 10·3 E		B 53°37′·5 N 0 19·9 E		C 53°37′·0 N 0 26·4 E		D 53°33′·8 N 0 13·7 E		E 53°30′·7 N 0 17·7 E	
Before High Water 6	Directions of streams (degrees)	320	0·4 0·2	340	0·5 0·3	332	0·8 0·5	040	0·7 0·4	347	0·6 0·3
Before High Water 5	Rates at spring tides (knots)	164	1·3 0·6	175	0·5 0·2	227	0·3 0·2	209	0·6 0·2	207	0·3 0·1
Before High Water 4	Rates at neap tides (knots)	159	2·4 1·2	175	1·9 0·9	180	1·6 0·9	209	2·0 0·8	184	1·3 0·7
Before High Water 3		161	2·5 1·2	176	2·3 1·1	175	2·3 1·3	209	2·6 1·3	185	2·0 1·0
Before High Water 2		159	2·5 1·2	174	2·0 1·0	171	2·4 1·4	209	2·3 1·4	189	1·8 0·9
Before High Water 1		155	1·4 0·7	170	1·3 0·7	166	1·9 1·1	209	1·6 1·1	189	1·2 0·6
High Water		110	0·1 0·1	153	0·5 0·3	165	0·9 0·5	209	0·6 0·4	180	0·5 0·2
After High Water 1		347	1·1 0·6	013	0·4 0·2	310	0·1 0·0	040	0·6 0·4	013	0·4 0·2
After High Water 2		343	2·2 1·1	357	1·4 0·7	000	1·0 0·6	040	1·8 1·2	012	1·3 0·7
After High Water 3		339	2·6 1·3	355	2·1 1·1	004	1·9 1·1	040	3·2 1·6	013	1·6 0·8
After High Water 4		341	2·1 1·0	351	2·1 1·1	357	2·1 1·2	040	3·4 1·6	009	1·7 0·9
After High Water 5		333	1·5 0·7	349	1·6 0·8	350	1·9 1·1	040	2·7 1·3	003	1·5 0·7
After High Water 6		325	0·7 0·3	342	0·8 0·4	341	1·2 0·7	040	1·4 0·8	352	0·8 0·4

5614_15

Tidal Streams referred to HW at IMMINGHAM (Normal river current included)

Hours	Geographical Position	A 53°30′·72 N 0 17·69 E		B 53°33′·82 N 0 13·69 E		C 53°33′·32 N 0 07·50 E		D 53°32′·62 N 0 06·10 E		E 53°33′·92 N 0 06·10 E		F 53°33′·82 N 0 05·60 E		G 53°32′·72 N 0 04·40 E	
Before High Water 6	Directions of streams (degrees)	347	0·6 0·3	040	0·7 0·4	119	1·5 0·9	180	0·1 0·1	130	1·3 0·9	126	0·9 0·5	168	0·2 0·1
Before High Water 5	Rates at spring tides (knots)	207	0·3 0·1	209	0·6 0·2	239	1·4 0·6	261	1·5 0·9	331	1·8 0·7	327	0·8 0·3	296	0·6 0·3
Before High Water 4	Rates at neap tides (knots)	184	1·3 0·7	209	2·0 0·8	283	3·1 1·4	275	2·3 1·3	323	2·6 1·1	320	2·1 1·0	306	1·8 0·9
Before High Water 3		185	2·0 1·0	209	2·6 1·3	281	3·8 1·8	285	3·1 1·8	310	3·8 1·7	317	2·8 1·4	301	2·2 1·1
Before High Water 2		189	1·8 0·9	209	2·3 1·4	273	3·4 1·6	289	3·1 1·7	304	3·4 1·5	310	2·9 1·4	302	2·3 1·1
Before High Water 1		189	1·2 0·6	209	1·6 1·1	284	2·9 1·0	298	2·4 1·4	271	1·9 0·8	308	2·3 1·1	301	1·8 0·9
High Water		180	0·5 0·2	209	0·6 0·4	318	0·9 0·4	320	1·0 0·6	106	0·3 0·2	312	0·7 0·3	295	0·7 0·3
After High Water 1		013	0·4 0·2	040	0·6 0·4	051	1·6 0·9	069	1·2 0·5	135	2·3 1·4	120	1·1 0·7	087	1·0 0·5
After High Water 2		012	1·3 0·7	040	1·8 1·2	076	2·7 1·5	093	2·7 1·3	122	3·3 1·9	128	2·4 1·3	100	2·5 1·2
After High Water 3		013	1·6 0·8	040	3·2 1·6	106	4·1 2·3	112	3·0 1·4	119	4·3 2·5	132	3·1 1·7	113	2·5 1·2
After High Water 4		009	1·7 0·9	040	3·4 1·6	109	4·0 2·2	116	2·2 1·0	122	3·7 2·1	133	2·9 1·6	107	1·7 0·8
After High Water 5		003	1·5 0·7	040	2·7 1·3	109	2·8 1·6	116	1·3 0·6	125	2·6 1·6	130	2·1 1·2	123	1·3 0·6
After High Water 6		352	0·8 0·4	040	1·4 0·8	112	1·8 1·1	123	0·4 0·1	126	1·8 1·2	126	1·3 0·8	157	0·6 0·2

5614_16

Tidal Streams referred to HW at IMMINGHAM (Normal river current included)

Hours	Geographical Position	A 53°33′·32 N 0 07·50 E		B 53°32′·62 N 0 06·10 E		C 53°33′·92 N 0 06·10 E		D 53°33′·82 N 0 05·60 E		E 53°32′·72 N 0 04·40 E		F 53°36′·59 N 0 00·75 E	
Before High Water 6	Directions of streams (degrees)	119	1·5 0·9	180	0·1 0·1	130	1·3 0·9	126	0·9 0·5	168	0·2 0·1	100	0·9 0·0
Before High Water 5	Rates at spring tides (knots)	239	1·4 0·6	261	1·5 0·9	331	1·8 0·7	327	0·8 0·3	296	0·6 0·3	288	1·1 0·4
Before High Water 4	Rates at neap tides (knots)	283	3·1 1·4	275	2·3 1·3	323	2·6 1·1	320	2·1 1·0	306	1·8 0·9	296	2·7 1·1
Before High Water 3		281	3·8 1·8	285	3·1 1·8	310	3·8 1·7	317	2·8 1·4	301	2·2 1·1	294	3·1 1·5
Before High Water 2		273	3·4 1·6	289	3·1 1·7	304	3·4 1·5	310	2·9 1·4	302	2·3 1·1	306	3·0 1·8
Before High Water 1		284	2·9 1·0	298	2·4 1·4	271	1·9 0·8	308	2·3 1·1	301	1·8 0·9	317	2·4 1·4
High Water		318	0·9 0·4	320	1·0 0·6	106	0·3 0·2	312	0·7 0·3	295	0·7 0·3	345	0·8 0·5
After High Water 1		051	1·6 0·9	069	1·2 0·5	135	2·3 1·4	120	1·1 0·7	087	1·0 0·5	090	0·9 0·0
After High Water 2		076	2·7 1·5	093	2·7 1·3	122	3·3 1·9	128	2·4 1·3	100	2·5 1·2	116	2·2 0·8
After High Water 3		106	4·1 2·3	112	3·0 1·4	119	4·3 2·5	132	3·1 1·7	113	2·5 1·2	116	2·8 1·6
After High Water 4		109	4·0 2·2	116	2·2 1·0	122	3·7 2·1	133	2·9 1·6	107	1·7 0·8	113	3·0 1·7
After High Water 5		109	2·8 1·6	116	1·3 0·6	125	2·6 1·6	130	2·1 1·2	123	1·3 0·6	117	2·3 1·7
After High Water 6		112	1·8 1·1	123	0·4 0·1	126	1·8 1·2	126	1·3 0·8	157	0·6 0·2	100	1·3 1·1

5614_17Ⓐ

Tidal Streams referred to HW at IMMINGHAM (Normal river current included)

Hours	Geographical Position	A 53°35′·52 N 0 01·80 W		B 53°37′·00 N 0 02·27 W		C 53°37′·12 N 0 06·70 W	
Before High Water 6	Directions of streams (degrees)	149	0·8 0·6	105	1·4 0·0	104	2·1 1·3
Before High Water 5	Rates at spring tides (knots)	221	0·5 0·3	281	1·2 0·6	090	0·1 0·2
Before High Water 4	Rates at neap tides (knots)	270	1·2 0·5	277	2·8 0·8	290	2·1 0·9
Before High Water 3		280	1·7 0·7	278	3·5 1·1	303	2·9 1·3
Before High Water 2		287	1·7 0·7	278	3·4 1·2	297	2·9 1·3
Before High Water 1		290	1·2 0·4	282	2·4 0·2	294	2·6 1·2
High Water		276	0·4 0·1	286	1·1 0·2	300	1·5 0·6
After High Water 1		117	0·7 0·5	081	0·8 0·6	107	0·6 0·5
After High Water 2		117	1·9 1·1	097	2·5 1·5	117	2·5 1·5
After High Water 3		116	2·6 1·5	102	3·0 1·6	122	3·4 1·9
After High Water 4		120	2·5 1·6	099	3·1 2·0	114	3·4 1·9
After High Water 5		126	1·9 1·2	094	2·5 1·8	105	3·0 1·7
After High Water 6		137	1·1 0·8	106	1·6 1·2	105	2·4 1·4

5614_18Ⓐ

Tidal Streams referred to HW at IMMINGHAM (Normal river current included)

Hours	Geographical Position	A 53°38′·22 N 0°10′·65 W		B 53°41′·35 N 0°13′·83 W	
Before High Water 6	Directions of streams (degrees)	132	2·6 0·8	163	3·3 1·0
Before High Water 5	Rates at spring tides (knots)	239	0·2 0·2	175	1·1 0·2
Before High Water 4	Rates at neap tides (knots)	303	2·2 1·1	355	2·3 1·2
Before High Water 3		305	3·3 1·7	340	3·0 1·5
Before High Water 2		314	3·2 1·7	334	3·1 1·8
Before High Water 1		315	3·0 1·1	337	3·3 1·3
High Water		319	1·3 0·3	324	1·4 0·5
After High Water 1		122	1·3 0·7	129	1·1 0·6
After High Water 2		133	3·3 1·4	160	2·5 1·5
After High Water 3		129	4·0 2·4	158	3·1 2·1
After High Water 4		132	4·4 2·8	157	3·9 2·4
After High Water 5		126	3·5 2·6	155	4·3 2·5
After High Water 6		132	2·9 1·6	164	3·8 1·9

5614_19Ⓐ

Tidal Streams referred to HW at IMMINGHAM (Normal river current included)

Hours	Geographical Position	Ⓐ 53°44′·25 N 0°17′·20 W		Ⓑ 53°43′·85 N 0°20′·92 W	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)		
Before High Water 6	108	3·8	2·3	063	3·3 1·5
Before High Water 5	097	2·6	0·6	064	2·2 0·1
Before High Water 4	283	2·2	1·7	241	2·8 2·0
Before High Water 3	286	4·1	3·0	243	5·0 3·2
Before High Water 2	291	2·6	2·8	245	4·5 3·8
Before High Water 1	286	2·4	1·9	240	3·7 2·7
High Water	266	1·0	1·1	239	1·8 1·5
After High Water 1	112	1·0	0·4	103	0·7 0·1
After High Water 2	098	2·7	1·4	068	3·1 1·2
After High Water 3	101	3·2	2·7	067	3·3 2·3
After High Water 4	103	3·9	2·8	066	3·4 2·3
After High Water 5	106	4·4	3·0	063	3·1 2·6
After High Water 6	108	4·4	3·0	063	3·5 1·9

5614_19Ⓒ

Tidal Streams referred to HW at IMMINGHAM (Normal river current included)

Hours	Geographical Position	Ⓑ 53°43′·85 N 0°20′·92 W	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)
Before High Water 6	063	3·3	1·5
Before High Water 5	064	2·2	0·1
Before High Water 4	241	2·8	2·0
Before High Water 3	243	5·0	3·2
Before High Water 2	245	4·5	3·8
Before High Water 1	240	3·7	2·7
High Water	239	1·8	1·5
After High Water 1	103	0·7	0·1
After High Water 2	068	3·1	1·2
After High Water 3	067	3·3	2·3
After High Water 4	066	3·4	2·3
After High Water 5	063	3·1	2·6
After High Water 6	063	3·5	1·9

5614_21

Tidal Streams referred to HW at IMMINGHAM

Hours	Geographical Position	Ⓐ 53°59′·9 N 0 17·3 E		Ⓑ 53°54′·0 N 0 12·2 E		Ⓒ 53°50′·0 N 0 26·5 E		Ⓓ 53°42′·1 N 0 10·3 E		Ⓔ 53°37′·0 N 0 26·4 E		Ⓕ 53°33′·8 N 0 13·7 E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)										
Before High Water 6	326	1·0	0·6	300	0·4 0·2	302	1·1 0·5	320	0·4 0·2	332	0·8 0·5	040	0·7 0·4
Before High Water 5	302	0·3	0·2	209	0·5 0·2	274	0·8 0·4	164	1·3 0·6	227	0·3 0·2	209	0·6 0·2
Before High Water 4	170	0·7	0·4	186	1·0 0·5	188	1·2 0·6	159	2·4 1·2	180	1·6 0·9	209	2·0 0·8
Before High Water 3	154	1·5	0·8	178	1·4 0·7	162	2·2 1·1	161	2·5 1·2	175	2·3 1·3	209	2·6 1·3
Before High Water 2	153	1·7	1·0	170	1·3 0·7	145	2·1 1·0	159	2·5 1·2	171	2·4 1·4	209	2·3 1·4
Before High Water 1	151	1·8	1·0	154	1·1 0·6	139	1·6 0·8	155	1·4 0·7	166	1·9 1·1	209	1·6 1·1
High Water	150	1·2	0·7	136	0·6 0·3	139	1·1 0·5	110	0·1 0·1	165	0·9 0·5	209	0·6 0·4
After High Water 1	139	0·4	0·2	056	0·4 0·2	113	0·3 0·1	347	1·1 0·6	310	0·1 0·0	040	0·6 0·4
After High Water 2	005	0·5	0·3	008	0·9 0·5	359	0·7 0·4	343	2·2 1·1	000	1·0 0·6	040	1·8 1·2
After High Water 3	348	1·1	0·6	357	1·4 0·7	347	1·7 0·8	339	2·6 1·3	004	1·9 1·1	040	3·2 1·6
After High Water 4	333	1·6	0·9	352	1·4 0·8	343	2·0 1·0	341	2·1 1·0	357	2·1 1·2	040	3·4 1·6
After High Water 5	333	1·7	1·0	339	1·1 0·5	333	2·1 1·0	333	1·5 0·7	350	1·9 1·1	040	2·7 1·3
After High Water 6	329	1·3	0·7	317	0·6 0·3	316	1·6 0·8	325	0·7 0·3	341	1·2 0·7	040	1·4 0·8

5614_22Ⓐ

Tidal Streams referred to HW at RIVER TEE ENTRANCE

Hours	Geographical Position	Ⓐ 54°17′·0 N 0 21·1 W		Ⓑ 54°09′·8 N 0 00·9 E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)		
Before High Water 6	330	1·1	0·5	326	2·2 1·2
Before High Water 5	323	0·8	0·4	329	2·1 1·2
Before High Water 4	303	0·4	0·2	323	1·4 0·8
Before High Water 3	275	0·1	0·0	317	0·6 0·3
Before High Water 2	147	0·8	0·4	154	0·6 0·3
Before High Water 1	147	1·1	0·5	140	1·9 1·1
High Water	149	1·3	0·6	148	2·5 1·4
After High Water 1	151	1·1	0·5	148	2·2 1·2
After High Water 2	158	0·6	0·3	143	1·8 1·0
After High Water 3	352	0·3	0·2	147	0·6 0·3
After High Water 4	340	0·9	0·4	327	0·3 0·2
After High Water 5	326	1·3	0·7	331	1·4 0·8
After High Water 6	331	1·3	0·6	326	2·1 1·2

5614_24

Tidal Streams referred to HW at RIVER TEE ENTRANCE

Hours	Geographical Position	Ⓐ 54°29′·5 N 0 22·1 W		Ⓑ 54°27′·0 N 0 06·1 W		Ⓒ 54°17′·0 N 0 21·1 W	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)				
Before High Water 6	307	1·4	0·8	318	1·4 0·8	330	1·1 0·5
Before High Water 5	308	1·1	0·6	318	1·2 0·7	323	0·8 0·4
Before High Water 4	310	0·8	0·5	314	0·7 0·4	303	0·4 0·2
Before High Water 3	313	0·2	0·1	255	0·2 0·1	275	0·1 0·0
Before High Water 2	128	0·6	0·3	150	0·7 0·4	147	0·8 0·4
Before High Water 1	132	1·2	0·7	141	1·2 0·7	147	1·1 0·5
High Water	131	1·4	0·8	137	1·4 0·8	149	1·3 0·6
After High Water 1	129	1·3	0·7	134	1·2 0·7	151	1·1 0·5
After High Water 2	123	0·9	0·5	132	0·8 0·4	158	0·6 0·3
After High Water 3	122	0·3	0·2	103	0·2 0·1	352	0·3 0·2
After High Water 4	314	0·3	0·2	326	0·5 0·3	340	0·9 0·4
After High Water 5	312	0·9	0·5	321	1·0 0·6	326	1·3 0·7
After High Water 6	310	1·3	0·7	319	1·4 0·8	331	1·3 0·6

5614_25

Tidal Streams referred to HW at DOVER

Hours	Geographical Position	Ⓐ 54°09′·0 N 4 51·0 E		Ⓑ 54°09′·0 N 6 11·0 E		Ⓒ 54°02′·1 N 2 53·8 E		Ⓓ 54°00′·3 N 1 06·0 E		Ⓔ 53°45′·0 N 5 58·0 E		Ⓕ 53°24′·0 N 4 09·4 E		Ⓖ 53°20′·0 N 2 44·0 E		Ⓗ 53°19′·0 N 1 25·4 E		Ⓙ 52°33′·9 N 4 09·3 E	
	Directions of streams (degrees)	Rates at spring tides (knots)	Rates at neap tides (knots)																
Before High Water 6	063	0·5	0·3	189	0·3 0·2	094	0·3 0·2	134	1·4 0·8	085	0·3 0·2	040	1·0 1·0	078	0·7 0·5	154	0·8 0·4	019	0·6 0·5
Before High Water 5	076	0·8	0·4	088	0·6 0·5	096	0·5 0·3	131	1·2 0·7	085	0·6 0·4	056	0·9 0·9	120	0·9 0·4	142	1·4 0·7	069	0·3 0·2
Before High Water 4	082	0·9	0·5	085	1·0 0·7	104	0·7 0·4	125	0·9 0·5	083	0·9 0·5	078	0·7 0·6	147	1·0 0·6	139	1·7 0·9	193	0·7 0·4
Before High Water 3	086	0·9	0·5	085	1·1 0·8	115	0·8 0·4	093	0·4 0·2	080	1·0 0·6	104	0·6 0·5	161	1·1 0·8	140	1·1 0·6	200	1·2 0·9
Before High Water 2	096	0·6	0·3	083	0·9 0·6	110	0·5 0·3	345	0·4 0·2	080	0·9 0·5	154	0·5 0·3	173	1·0 0·8	138	0·7 0·4	205	1·2 0·9
Before High Water 1	154	0·3	0·2	074	0·6 0·4	163	0·1 0·1	324	1·0 0·5	082	0·4 0·3	193	0·6 0·4	194	0·8 0·6	141	0·1 0·0	206	1·1 0·8
High Water	238	0·3	0·2	019	0·3 0·2	273	0·2 0·1	317	1·4 0·8		0·0 0·0	216	0·8 0·6	233	0·5 0·4	327	0·7 0·4	204	0·9 0·6
After High Water 1	259	0·6	0·3	295	0·4 0·3	285	0·6 0·3	311	1·4 0·8	268	0·5 0·3	226	0·8 0·6	282	0·6 0·4	330	1·3 0·6	201	0·6 0·3
After High Water 2	261	0·8	0·4	278	0·7 0·5	280	0·8 0·4	303	1·0 0·6	268	0·8 0·4	236	0·7 0·5	323	0·8 0·5	332	1·7 0·9	068	0·5 0·5
After High Water 3	262	0·9	0·5	273	0·8 0·6	288	0·7 0·4	271	0·4 0·2	260	0·9 0·5	283	0·4 0·3	347	1·1 0·7	326	1·6 0·8	030	1·3 0·8
After High Water 4	268	0·7	0·4	270	0·9 0·7	298	0·5 0·3	169	0·5 0·3	265	0·8 0·4	351	0·7 0·6	001	1·0 0·8	318	1·0 0·5	022	1·4 1·0
After High Water 5	318	0·4	0·2	266	0·6 0·4	340	0·1 0·0	145	1·0 0·6	265	0·6 0·3	013	1·0 1·0	017	0·7 0·7	253	0·3 0·1	019	1·2 0·9
After High Water 6	055	0·3	0·2	251	0·3 0·1	090	0·2 0·1	137	1·4 0·8	285	0·1 0·1	031	1·0 1·0	059	0·6 0·5	164	0·6 0·3	017	0·9 0·6

5614_25 continued

Ⓚ 52°29′·0 N 2 43·0 E		Ⓛ 51°55′·0 N 2 59·0 E	
053	0·6 0·5	321	0·6 0·4
180	0·3 0·3	237	0·7 0·3
190	1·0 0·5	215	1·3 0·5
192	1·4 0·9	213	1·5 1·1
195	1·5 1·1	214	1·7 1·1
195	1·3 0·9	208	1·4 0·8
191	0·9 0·6	175	0·7 0·5
077	0·3 0·2	086	0·9 0·6
027	0·9 0·5	048	1·5 0·9
018	1·4 0·9	036	1·8 1·1
014	1·7 1·0	030	1·6 1·0
009	1·4 0·9	018	1·3 0·7
005	0·9 0·6	352	0·7 0·4

TIME & HEIGHT DIFFERENCES FOR PREDICTING THE TIDE AT SECONDARY PORTS

PLACE	Lat. N	Long. E	High Water Zone UT (GMT)		Low Water Zone UT (GMT)		HEIGHT DIFFERENCES (IN METRES) MHWS	MHWN	MLWN	MLWS	
LOWESTOFT	**52 28**	**1 45**	**0300 and 1500**	**0900 and 2100**	**0200 and 1400**	**0800 and 2200**	**2.4**	**2.1**	**1.0**	**0.5**	
Orford Ness	52 05	1 35	+0135	+0135	+0135	+0125	+0.4	+0.6	-0.1	0.0	
Aldeburgh	52 09	1 36	+0130	+0130	+0115	+0120	+0.3	+0.2	-0.1	-0.2	
Minsmere Sluice	52 14	1 38	+0110	+0110	+0110	+0110	0.0	-0.1	-0.2	-0.2	
Southwold	52 19	1 40	+0105	+0105	+0055	+0055	0.0	0.0	-0.1	0.0	
Great Yarmouth											
GORLESTON-ON-SEA	52 34	1 44	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				*
Britannia Pier	52 36	1 45	-0105	-0100	-0040	-0055	+0.1	+0.1	0.0	0.0	*
Caister-on-Sea	52 39	1 44	-0120	-0120	-0100	-0100	0.0	-0.1	0.0	0.0	*
Winterton-on-Sea	52 43	1 42	-0225	-0215	-0135	-0135	+0.8	+0.5	+0.2	+0.1	*
	N	**W**									
IMMINGHAM	**53 38**	**0 11**	**0100 and 1300**	**0700 and 1900**	**0100 and 1300**	**0700 and 1900**	**7.3**	**5.8**	**2.6**	**0.9**	
	N	**E**									
Cromer	52 56	1 18	+0044	+0032	+0108	+0059	-2.3	-1.8	-0.7	0.0	
Blakeney Bar	52 59	0 59	+0035	+0025	+0030	+0040	-1.6	-1.3	⊙	⊙	
Blakeney	52 57	1 01	+0115	+0055	⊙	⊙	-3.9	-3.8	⊙	⊙	
Wells Bar	52 59	0 49	+0020	+0020	+0020	+0020	-1.3	-1.0	⊙	⊙	
Wells	52 58	0 51	+0035	+0045	+0340	+0310	-3.8	-3.8	‡	‡	*
Burnham (Overy Staithe)	52 58	0 45	+0045	+0055	⊙	⊙	-5.0	-4.9	⊙	⊙	
The Wash											
Hunstanton	52 56	0 29	+0010	+0020	+0105	+0025	+0.1	-0.2	-0.1	0.0	
West Stones	52 50	0 21	+0025	+0025	+0115	+0040	-0.3	-0.4	-0.3	+0.2	
King's Lynn	52 45	0 24	+0030	+0030	+0305	+0140	-0.5	-0.8	-0.8	+0.1†	
Outer Westmark Knock	52 53	0 13	+0010	+0015	+0040	+0020	-0.2	-0.5	-0.6	-0.4	
Wisbech Cut	52 48	0 13	+0020	+0010	+0120	+0055	-0.3	-0.7	-0.4	⊙	
Port Sutton Bridge	52 46	0 12	+0030	+0020	+0130	+0105	-0.3	-0.6	-0.6	+0.3	
Wisbech	52 40	0 09	+0055	+0040	§	§	-0.2	-0.6	§	§	
Lawyer's Creek	52 53	0 05	+0010	+0020	⊙	⊙	-0.3	-0.6	⊙	⊙	
	N	**W**									
Fosdyke Bridge	52 52	0 02	+0034	+0049	+0137	+0220	-0.7	-1.3	-1.0	-0.2†	
	N	**E**									
Tabs Head	52 56	0 05	0000	+0005	+0125	+0020	+0.2	-0.2	-0.2	-0.2	
	N	**W**									
BOSTON	52 58	0 01	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
	N	**E**									
Skegness	53 09	0 21	+0010	+0015	+0030	+0020	-0.4	-0.5	-0.1	0.0	
Inner Dowsing Light	53 19	0 35	0000	0000	+0010	+0010	-0.9	-0.7	-0.1	+0.3	
River Humber											
SPURN HEAD	53 35	0 07	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
Bull Sand Fort	53 34	0 04	-0020	-0030	-0035	-0015	-0.4	-0.3	+0.1	+0.2	
	N	**W**									
Sunk Dredged Channel	53 37	0 02	-0012	-0015	-0018	-0016	-0.2	-0.2	+0.1	+0.3	
GRIMSBY	53 35	0 04	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
HUMBER SEA TERMINAL	53 40	0 14	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
IMMINGHAM	53 38	0 11	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
HULL (KING GEORGE DOCK)	53 44	0 16	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
Hull (Alexandra Dock)	53 44	0 18	+0012	+0012	+0022	+0019	+0.3	+0.2	-0.1	-0.2	
HULL (ALBERT DOCK)	53 44	0 21	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
Humber Bridge	53 43	0 27	+0027	+0022	+0049	+0039	-0.1	-0.4	-0.7	-0.6	
Brough	53 43	0 34	+0045	+0034	+0141	+0118	-1.2	-1.4	-1.1	-0.7	
River Trent											
Burton Stather	53 39	0 42	+0105	+0050	+0240	+0205	-2.0	-2.7	-2.2	-1.1	*
FLIXBOROUGH WHARF	53 37	0 42	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				
Keadby	53 36	0 44	+0130	+0115	+0320	+0235	-2.8	-3.3	-2.3	-0.9	*
Owston Ferry	53 29	0 46	+0155	+0145	§	§	-3.5	-3.9	§	§	
River Ouse											
Blacktoft	53 42	0 43	+0100	+0055	+0325	+0255	-1.6	-1.8	-2.2	-1.1	*
GOOLE	53 42	0 52	STANDARD PORT				See Table of NON-REFERENCE STANDARD PORTS				*

	N	W	0000 and 1200	0600 and 1800	0000 and 1200	0600 and 1800				
RIVER TEES ENTRANCE	**54 38**	**1 09**					**5.5**	**4.3**	**2.0**	**0.9**
Bridlington	54 05	0 11	+0100	+0050	+0055	+0050	+0.6	+0.4	+0.3	+0.2
Filey Bay	54 13	0 16	+0042	+0042	+0047	+0034	+0.3	+0.6	+0.4	+0.1
Scarborough	54 17	0 23	+0040	+0040	+0030	+0030	+0.2	+0.3	+0.3	0.0
Whitby	54 29	0 37	+0020	+0020	+0018	+0017	+0.1	+0.1	+0.2	+0.1

	N	E	0100 and 1300	0700 and 1900	0100 and 1300	0700 and 1900				
WALTON-ON-THE-NAZE	**51 51**	**1 17**					**4.2**	**3.4**	**1.1**	**0.4**
Orford Haven										
Orford Quay	52 05	1 32	+0040	+0040	+0055	+0055	-1.4	-1.1	0.0	+0.2
Slaughden Quay	52 08	1 35	+0105	+0105	+0125	+0125	-1.3	-0.8	-0.1	+0.2
Iken Cliffs	52 09	1 31	+0130	+0130	+0155	+0155	-1.3	-1.0	0.0	+0.2

⊙ No Data
§ Dries out except for river water
∗ See notes
† The tide does not normally fall below this level
‡ The tide does not normally fall below Chart Datum

Table of Non-Reference Standard Ports

STANDARD PORT	MHWS	MHWN	MLWN	MLWS
GORLESTON-ON-SEA	2.4	2.1	1.0	0.5
BOSTON	6.6	4.6	1.9	1.3
SPURN HEAD	6.9	5.5	2.7	1.2
GRIMSBY	7.0	5.6	2.7	1.3
HUMBER SEA TERMINAL	7.2	5.7	2.6	1.1
IMMINGHAM	7.3	5.8	2.6	0.9
HULL (KING GEORGE DOCK)	7.6	6.0	2.5	0.7
HULL (ALBERT DOCK)	7.6	5.9	2.5	0.7
FLIXBOROUGH WHARF	5.2	3.0	0.4	0.0
GOOLE	5.7	3.7	0.7	0.3

*TIDAL NOTES

Between Winterton-on-Sea and Great Yarmouth the rise of the tide occurs mainly during the 3½ hours following low water. At Winterton-on-Sea the level is usually within 0.3m of the predicted high water height from 4 hours before high water at Lowestoft until 1 hour before high water at Lowestoft. At Caister-on-Sea, where double high waters sometimes occur, and at Great Yarmouth the level is usually within 0.3m of the predicted high water height from 3 hours before high water at Lowestoft until high water at Lowestoft.

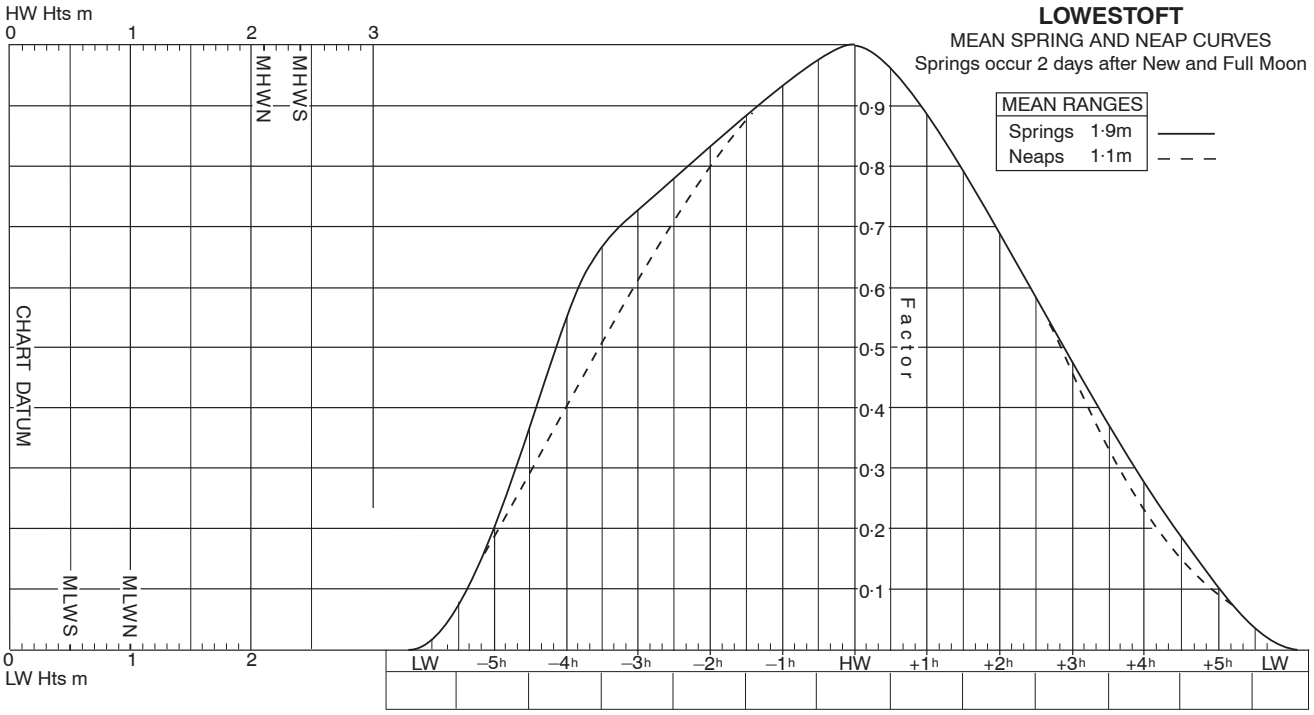
Low water time differences at Wells are for the end of a low water stand which lasts about 4 hours at springs and about 5 hours at neaps.

At Burton Stather, normal river level is about 0.1m below chart datum.

At Keadby, normal river level is between 0.1m and 0.2m below chart datum. The tide is normally at or just below chart datum for ½ to 1½ hours; low water time differences are for the beginning of the rise.

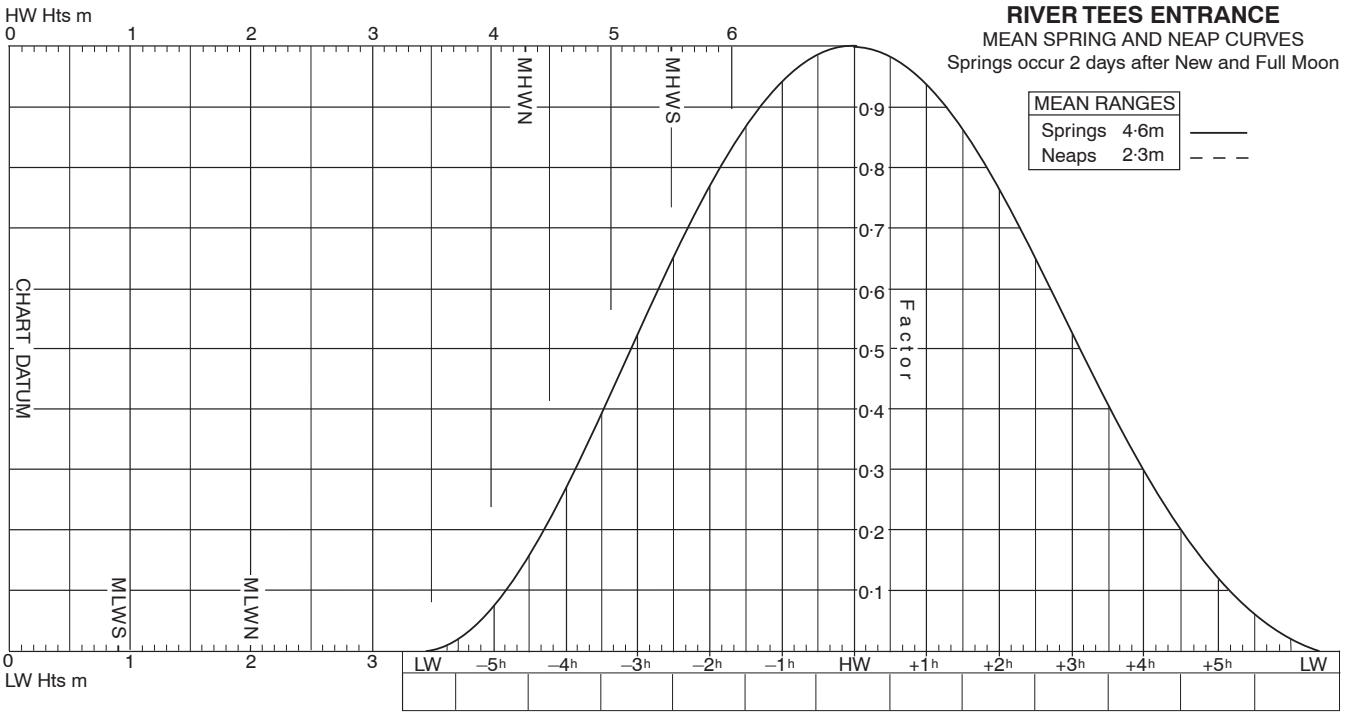
At Blacktoft and Goole the amount of fresh water coming down the rivers has little effect on the heights of high water. The levels for low water are given for a low rate of river flow. High rates of river flow can increase the level of low water by as much as 0.3m at Blacktoft and 0.6m at Goole.

Tidal Curve Diagrams



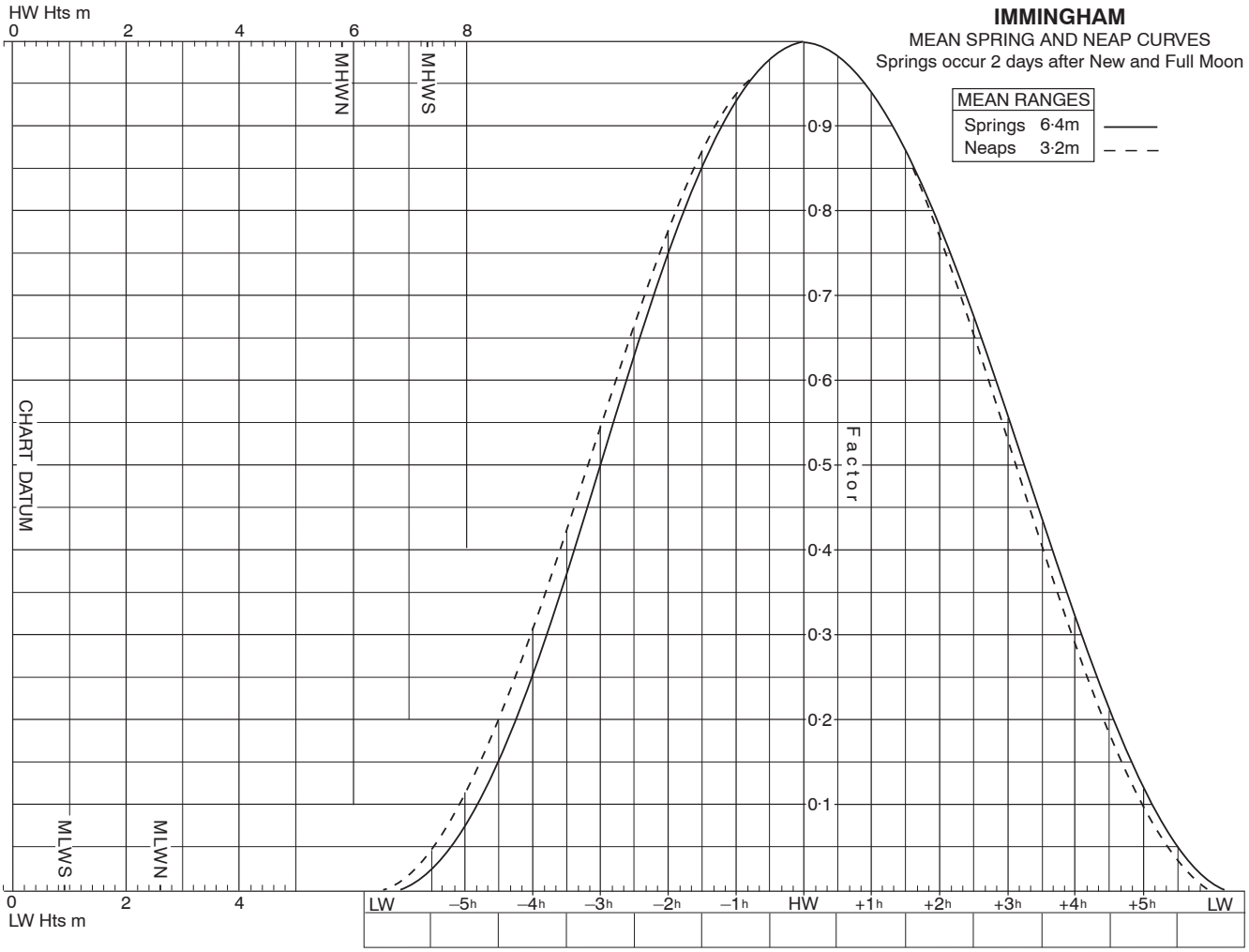
LOWESTOFT
MEAN SPRING AND NEAP CURVES
Springs occur 2 days after New and Full Moon

MEAN RANGES	
Springs	1·9m
Neaps	1·1m



RIVER TEES ENTRANCE
MEAN SPRING AND NEAP CURVES
Springs occur 2 days after New and Full Moon

MEAN RANGES	
Springs	4·6m
Neaps	2·3m

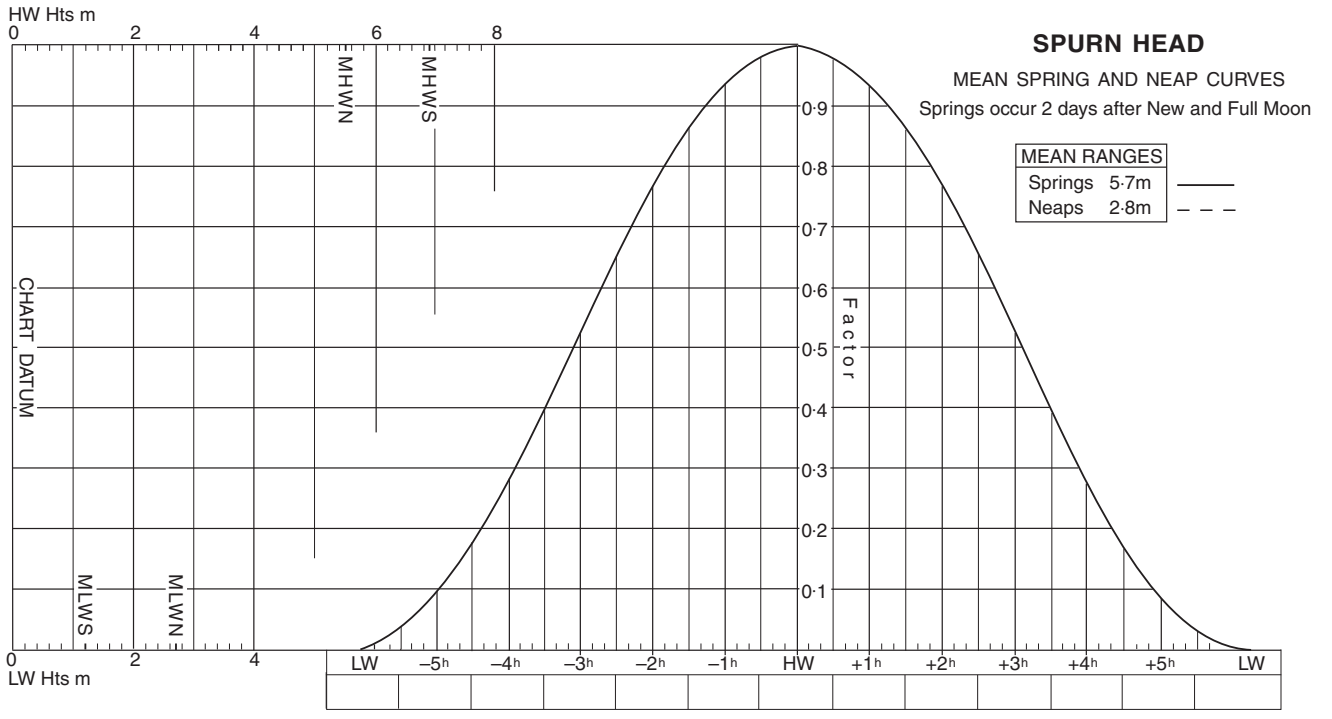


IMMINGHAM

MEAN SPRING AND NEAP CURVES

Springs occur 2 days after New and Full Moon

MEAN RANGES	
Springs	6·4m ———
Neaps	3·2m – – –



SPURN HEAD

MEAN SPRING AND NEAP CURVES

Springs occur 2 days after New and Full Moon

MEAN RANGES	
Springs	5·7m ———
Neaps	2·8m – – –

For guidance on the use of Tidal Curve Diagrams see ADMIRALTY Tides Tables NP201A and NP201B

WALTON-ON-THE-NAZE

MEAN SPRING AND NEAP CURVES

Springs occur 2 days after New and Full Moon