Associated British Ports – Humber

Tidal surge of 5th December 2013

Recovery Experience

Port of Immingham

- UK's busiest port – handling approx 10% UK sea-borne trade
- 24/7 access with deep water berths for Panamax vessels
- East Coast's largest ro-ro port
- ABP Immingham Container Terminal
- UK's largest dry bulk handling port
- Wide range of general cargo
- Major petro-chemicals handler.
- Generates 25% of UK's rail freight
- Central E.Coast position with access to 40 million UK consumers within a 4-hour drive
- Excellent distribution links to UK heartland
- Less than 200 miles from Rotterdam, Edinburgh and London
- 2012 tonnage throughput: 64.1M tonnes
- Home to DFDS Seaways daily services from/to:
  - Gothenburg
  - Esbjerg
  - Rotterdam
- Regular calls from deep-sea car carriers

Port of Hull

- Set to become the UK's largest wind turbine manufacturing site.
- UK's leading port for forest products
- A leading unit load port
- Facilities accommodating the largest roro ferries currently in operation
- Wide range of general cargo
- Major centre for chemical production
- UK's 5th largest sea passenger port
- Major vegetable oil importer
- Handles over a million tonnes of Biomass and Coal for Drax Power Station

Port of Grimsby

- Major UK vehicle-handling port
- Recently completed the River Terminal to accommodate larger car-carriers

- Multi-purpose and specialist terminals
- Proximity to off shore wind farms has opened up new opportunities
- Operations and maintenance bases already established by Centrica and Siemens.

Port of Goole

- UK’s premier inland port
- 80km from open sea
- Strategic location, 2.5km from M62 motorway
- Good access to north west corridor – industrial areas

Deep Water River Berths

Port of Immingham

Humber International Terminal

- 520m of quay
- Maximum 14.2 m draught / 170,000 dwt vessel
- Circa 130,000 cargo tonnes
- Up to 800 tonnes per crane hour
- Automated discharge, storage and rail load out
- Handles up to 10mt of power station coal
- Biomass, salt, grain and animal feed

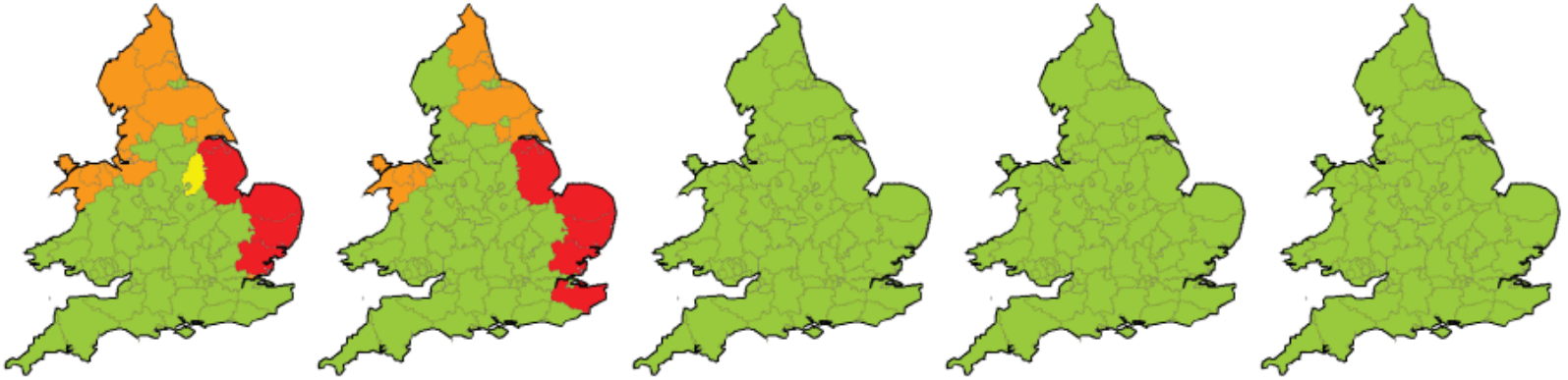
2013 coal imports through Immingham: 17m tonnes

Grimsby River Terminal

Warnings

Flood Guidance Statement 14:30hrs Thursday 05 December 2013

Our assessment of daily flood risk for England and Wales, working with flood forecasting teams in the Environment Agency and Natural Resources Wales, is below.



14:30 - 23:59hrs

Thursday	**Friday**	**Saturday**	**Sunday**	**Monday**
05 December 2013	06 December 2013	07 December 2013	08 December 2013	09 December 2013

Update: The coastal flood risk is now HIGH (RED) for Lincolnshire, East Anglia and Essex coast later today and into tomorrow and for Kent tomorrow. MEDIUM flood risk has also been extended into Friday for the north coast of Wales.

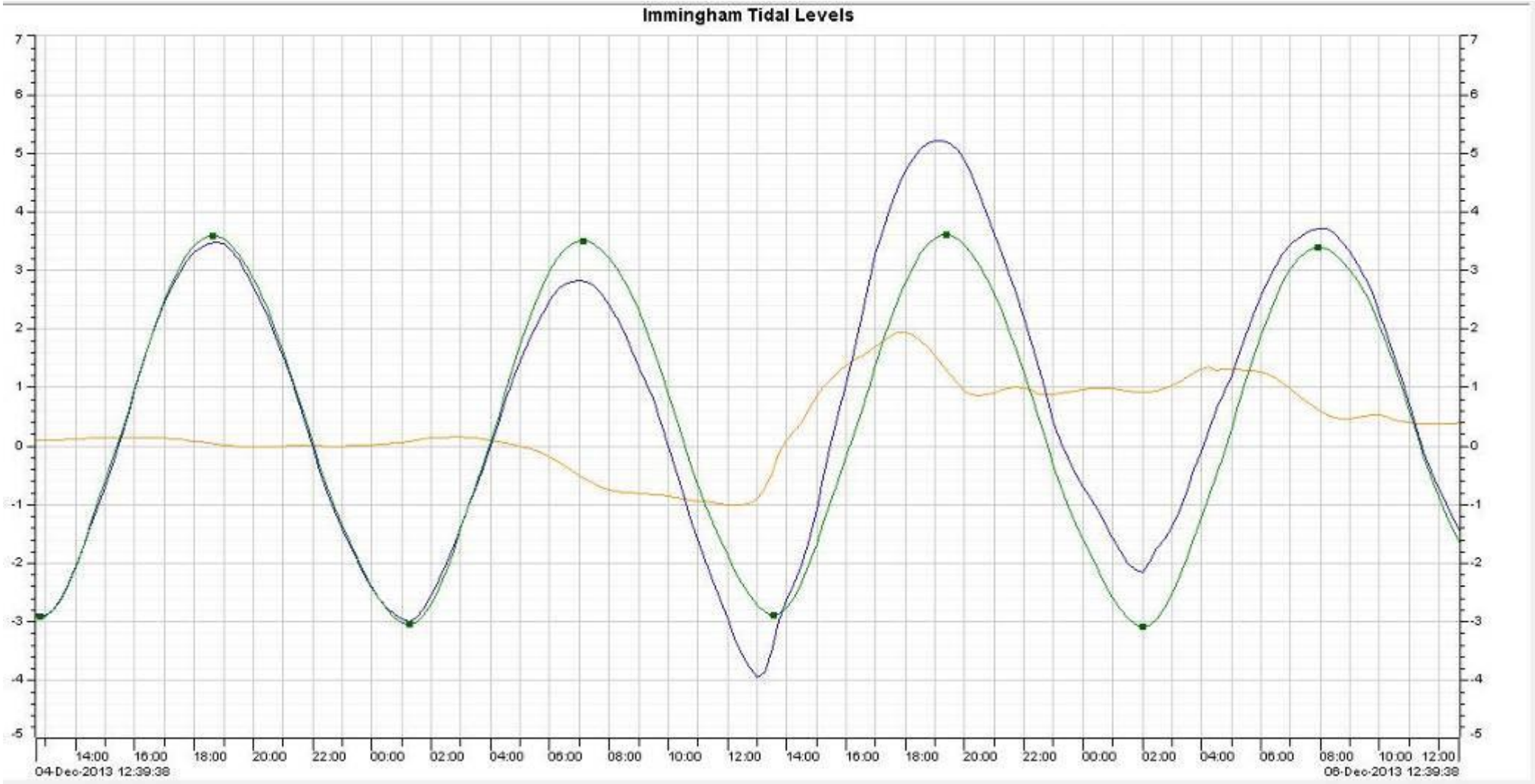
There is also a medium likelihood of significant coastal flooding impacts along much of the rest of the east coast of England today and tomorrow. Today only, there is also a medium likelihood of significant coastal flooding impacts along all of the north-west England coastline.

Low tide came in at 13:00 and the level was recorded at -3.95mAOD. This was 1.07m lower than what the astronomical low tide would normally have been (originally predicted at -2.88mAOD). The timing of low tide was also brought forward by approx 30mins due to the effect of the building surge.

Green line: original astronomic tide (i.e. the predicted level if no surge had occurred)

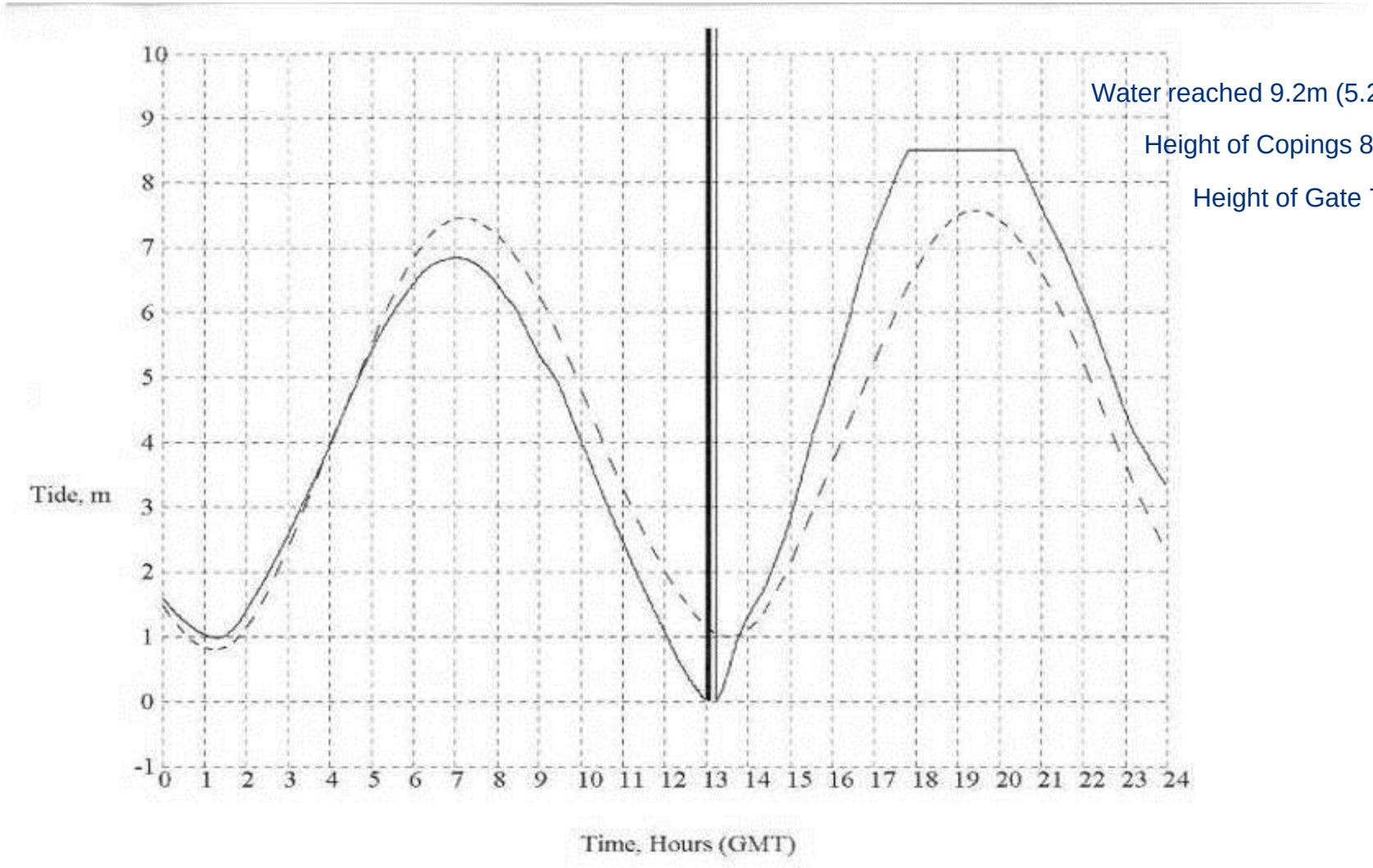
Orange line: the surge itself

Blue line: the observed tidal level (i.e. what actually happened).



Immingham Lock Gate Tide Gauge readings. 5th December

(Based on Admiralty Chart Datum)



Water reached 9.2m (5.22 m AOD)

Height of Copings 8.6m (4.7m AOD)

Height of Gate 7.4m (3.5m AOD)

Immingham Customs House

Immingham Customs House 5th Dec
1 hr before high water

Immingham Lock Entrance

Immingham Lock Entrance 5th Dec
1 hr before high water

Immingham lockhead showing tops of outer lockgates in relation to adjacent copes

Flood Defences - Immingham

Dock Gatesmens' lobby alongside the Lock

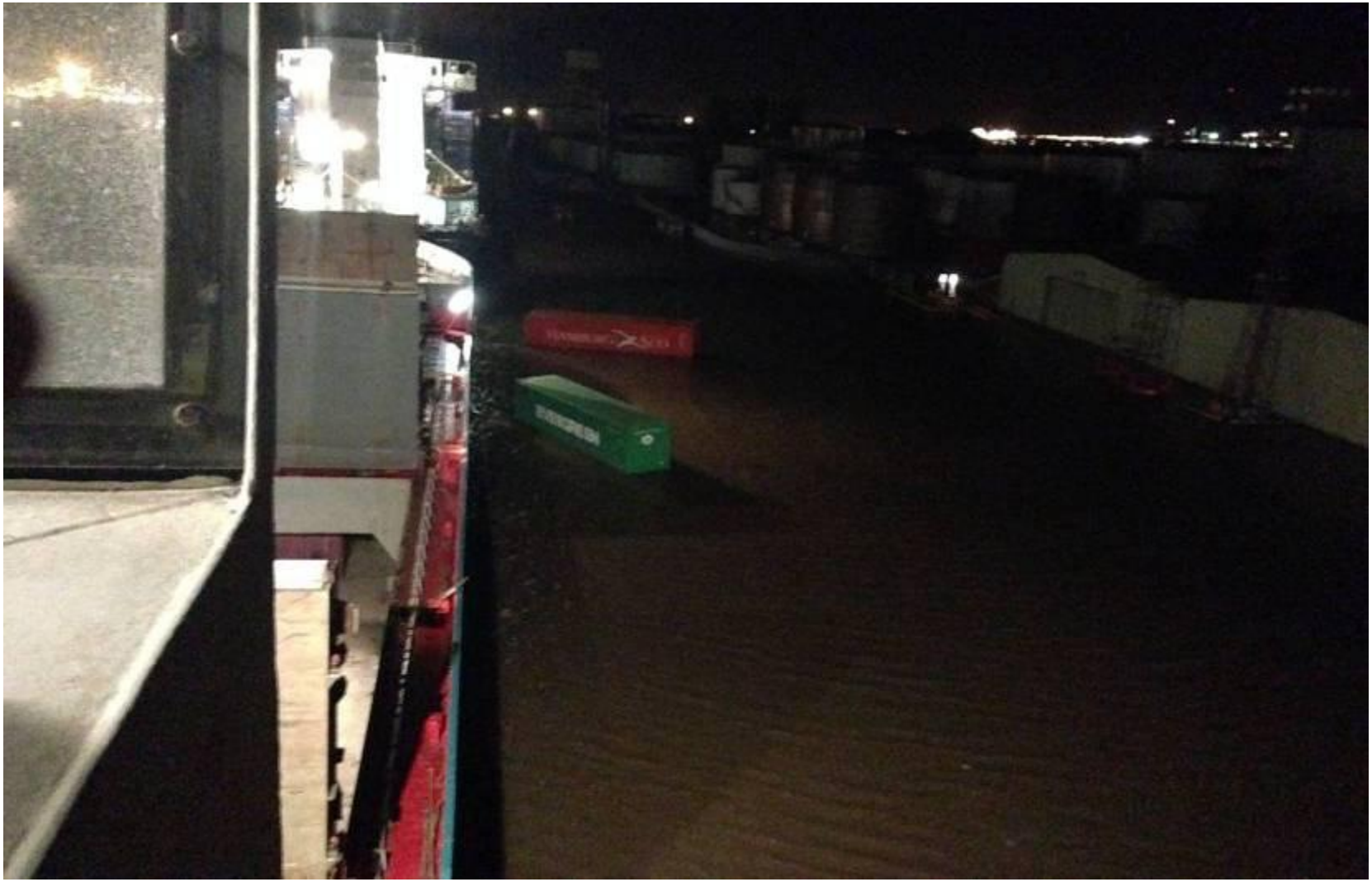
No 1 Berth – before the lights went out. 1 Hr before High water

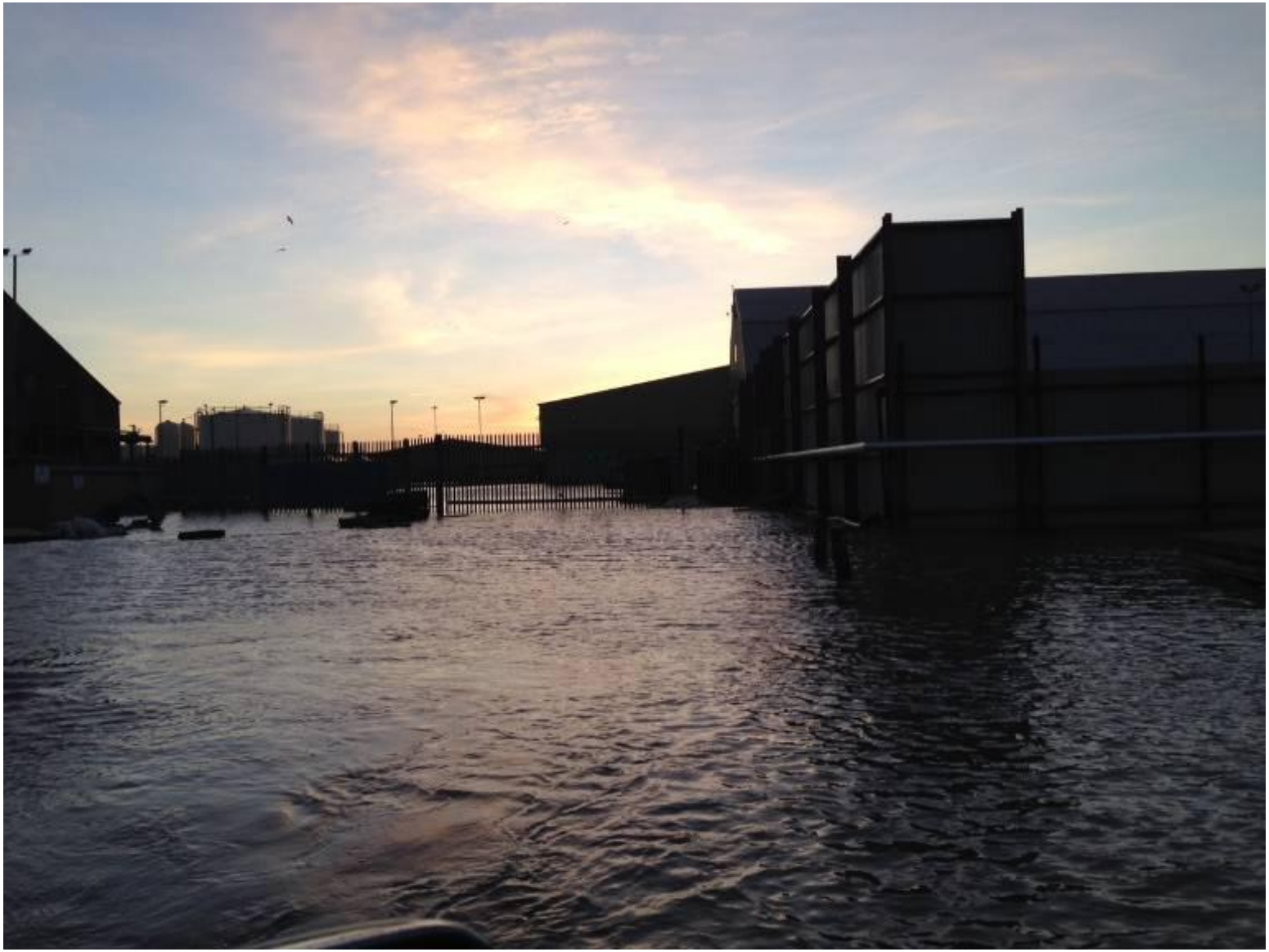
Dock Road about 100m from the quay

Robinson Road Junction about 200m from the quay

Vehicles parked in the Maintenance Workshop Yard

Immingham Container Terminal Berth. The vessel is alongside !






06/12/2013 08:29

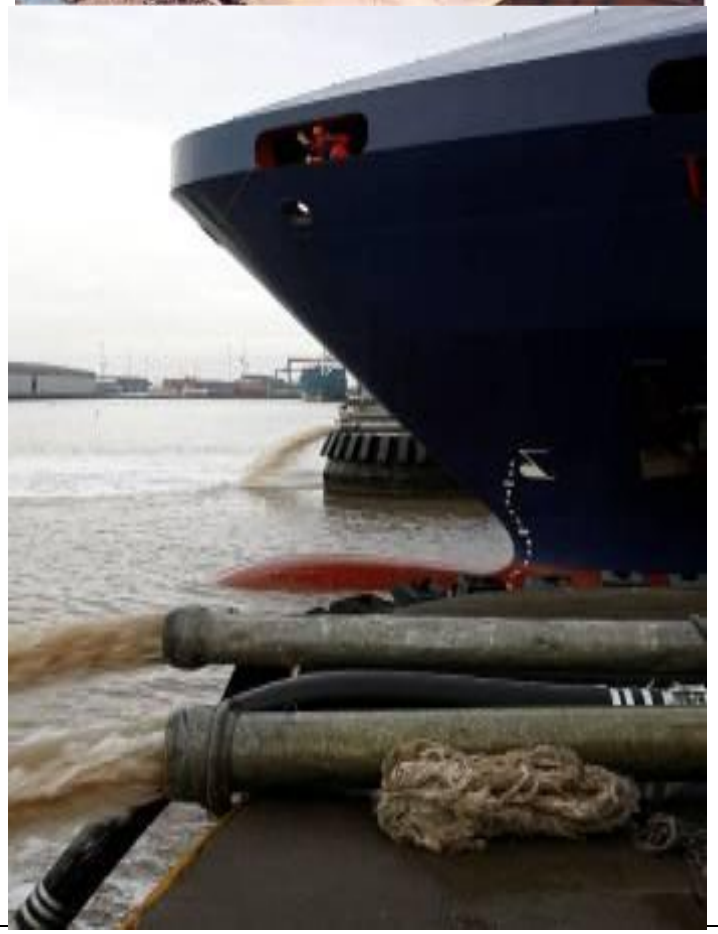
Port of Grimsby – floodwaters weiring over flood gates in lock

Eroded flood defences, Royal Dock, Grimsby

Confirmed surge height at Hull: 5.8m AOD

Port of Hull, Head of water over Riverside Quay at Albert Dock, 0.76m

Impact – Port of Immingham



- **43 Substations damaged.**

- **Railway infrastructure Points and signalling damaged. Inoperable for 36 hours**

- **Dock Impounding pumps inoperable. One lock away from closing the port to vessels.**

- **Automated Coal handling facility (HIT) lost full production for over a week.**

- **Container Terminal gantry cranes inoperable for 2 weeks.**

- **Main workshops and Stores buildings completely flooded. Estimated stores/spare parts loss: £1.5M**

- **Water pooled in operational areas.**

- **Welfare amenities/offices for staff/tenants destroyed or badly damaged.**

- **ABP Vehicle Fleet – 20+ written off**

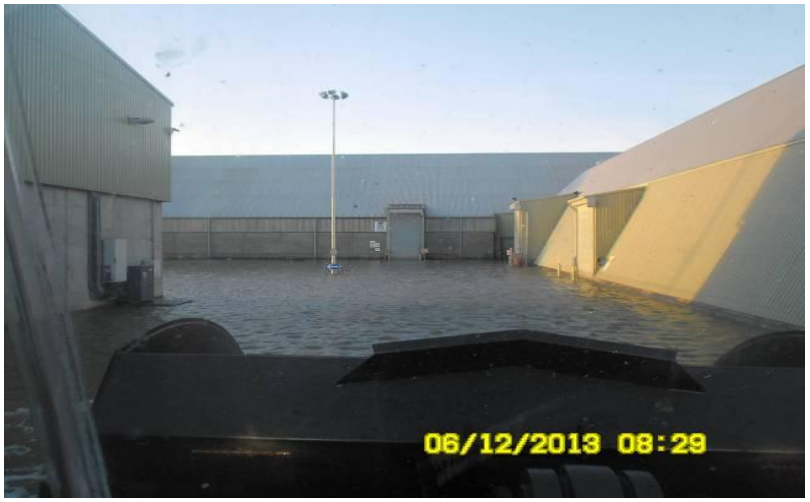
Impact – Immingham

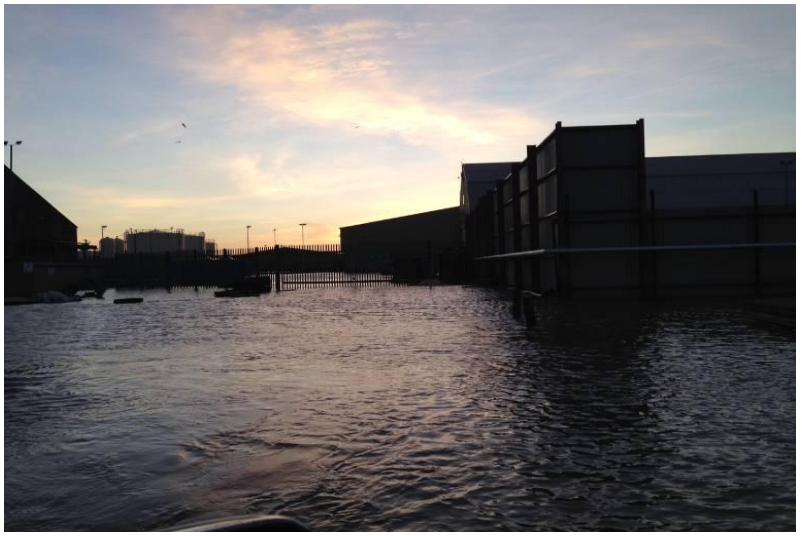
- Numerous instances of cargo damage inc. ferts, WRIC and containers

- A number of tenants badly flooded

- Lost productivity and business

- Loss adjusters estimate overall direct losses for ABP at Immingham to be around £12M – total overall cost to be much higher, and higher still when factoring in the impact to port users





Implications – loss of UK port capacity at Immingham

- Supply chains transiting the Humber ports, and in particular Immingham, are vital for the very functioning of modern British society as they primarily revolve around critical energy and fuel distribution infrastructure. Immingham in particular is a nexus of nationally significant commodities, which require specialist and extensive infrastructure in order to be handled in meaningful amounts. In the event of port disruption, or in anticipation of future projected disruption, it would be impossible to build in contingency to these logistics chains by lining up alternative port solutions elsewhere.
- Food security implications may have to be considered due to the following realisations:
  - 40% of food consumed in UK is imported
  - 90% of imported food arrives by sea
- 50% of the above transits east coast ports

Recovery Actions - Immingham

- Undertake complete review of Electrical Infrastructure. Repair and replace program on-going for 24 months. Prioritise main substation to increase the height of the entire building by 1.5 m.
- Protect Impounding Pumps from the ingress of water.
- Already spent over £0.5 m on resilience measures to protect port infrastructure.
- Review all existing Capital Building Projects to ensure flood resilience built in.
- Commission design for new higher Lock Gates with props/reinforced rams to cater for 1 in 1,000 event (6.5m AOD).
- Have a national agreement with Generator Supply Company to be able to provide instant mobile generators to all critical operations.

New flood defences being installed at Grimsby

Further analysis and action points

- Created new Senior Management role within ABP Humber of Resilience Manager to undertake review of Emergency Plans, BC Planning, Disaster Recovery.
- Undertake thorough review of Critical Assets and compile action plan/capital investment case to provide needed resilience. For example provision of Electrical Generator sets to be deployed to critical buildings / operations in event of future power cut.
- Prepared a Flood Contingency Plan to cover Strategic, Tactical and Operational roles Pre, During and Post a tidal surge event. Also important to include effective communications protocols as when lights went out on Dec 5th Port was completely cut off from outside world.

Humber
Flood Contingency Plan
Version 0.1

Author: M Szakal **Next Revision Sept 2015**

Energy security implications

Energy security implications

Energy security implications

- Imminghams' Coal and Biomass Facility - HIT

- Without it –

3 million UK homes without electricity.

Fuel distribution implications

- Total and Phillips 66 refineries represent around 28% of UK refining capacity
- Filling station forecourt deliveries leave the area via Phillips 66 Ocean Terminal at the Port of Immingham

Working in Partnership

- Working closely with Humber Local Resilience Forum as two way partnership in helping understand each others roles and responsibilities.
- Engaging in LRF General Working Group to include port specific issues.
- Agreeing to set up a Humber LRF Ports Sub Group.

Working in partnership

- Engaging with other Government bodies to promote the role of the port of Immingham and the Humber ports in general.
- Highlight the importance of the Humber ports to the UK economy specifically in terms of their role in the supply chain to the Energy Sectors i.e. Electricity Power Supply and Fuel Delivery to Petrol Stations.
- Argue for funding to protect Port Infrastructure, as well as residential properties, against flooding along the Humber, for the wellbeing of the local community and ultimately the UK economy.

Flood defence considerations

- The Port of Immingham in particular does not include a long history of urban association
- It is precisely because it has developed unfettered by hinterland urban areas, coupled with unrivalled maritime and terrestrial transport links, that the port has achieved a position of economic importance
- The south Humber Bank represents an economic powerhouse regionally and nationally; the Port of Immingham is of unquestionable importance to the UK's balance of trade.

Thank you for listening, any questions?