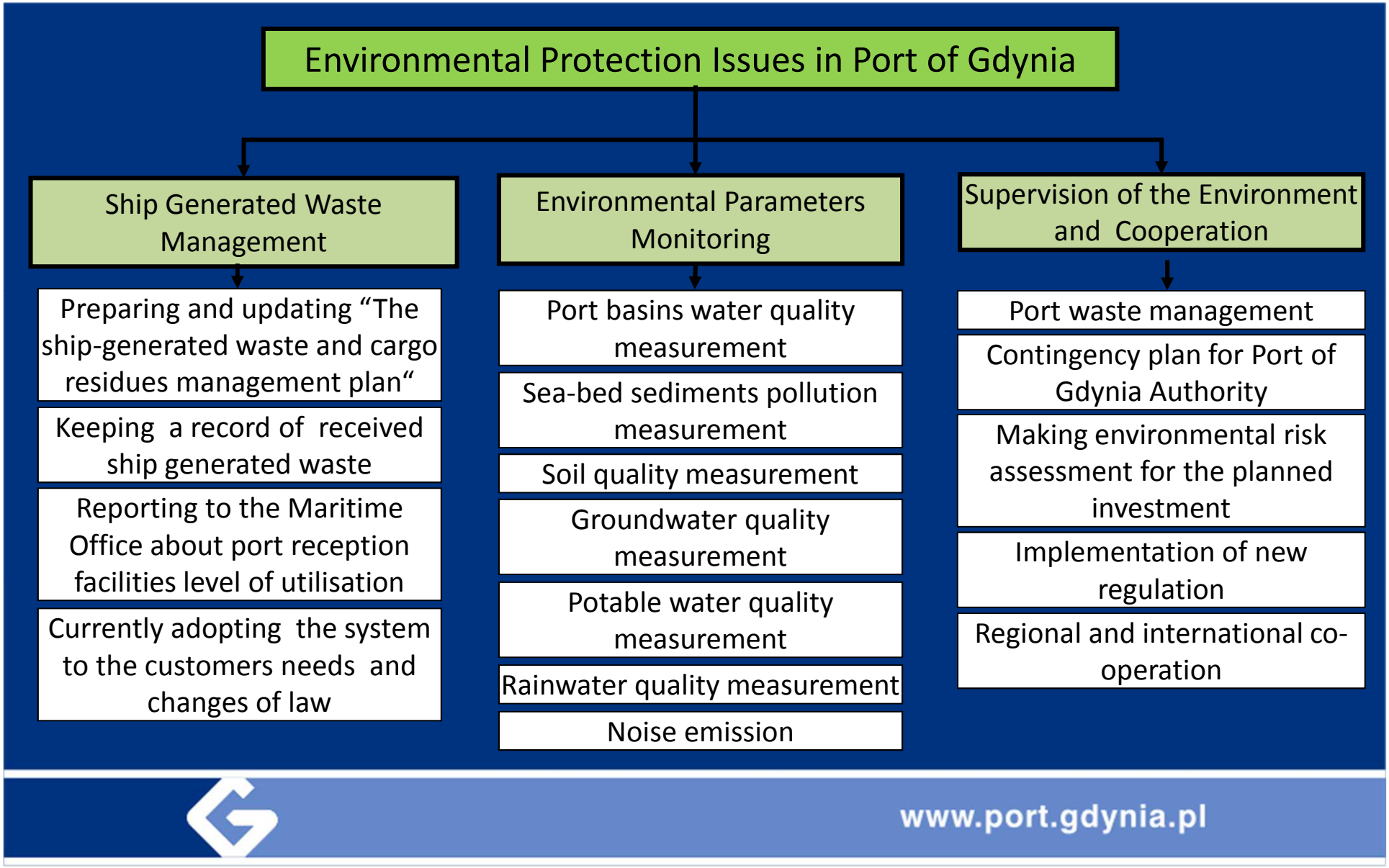
Ship generated waste management and sewage reception facilities in Port of Gdynia

Gdańsk 5th March 2014

www.port.gdynia.pl

1. Environmental protection department duties
2. Ship generated waste management
3. Cruise liners and ferries calling at Port of Gdynia
4. Current situation on Helskie II Quay
5. Projected development of Bulgarian, Closing, Polish, French and Swedish Quays
6. Conception of sewage collecting in the Port of Gdynia
7. Challenges…


Environmental Protection Issues in Port of Gdynia
Ship Generated Waste Management
Preparing and updating "The ship-generated waste and cargo residues management plan"
Keeping a record of received ship generated waste
Reporting to the Maritime Office about port reception facilities level of utilisation
Currently adopting the system to the customers needs and changes of law
Environmental Parameters Monitoring
Port basins water quality measurement
Sea-bed sediments pollution measurement
Soil quality measurement
Groundwater quality measurement
Potable water quality measurement
Rainwater quality measurement
Noise emission
Supervision of the Environment and Cooperation
Port waste management
Contingency plan for Port of Gdynia Authority
Making environmental risk assessment for the planned investment
Implementation of new regulation
Regional and international co-operation
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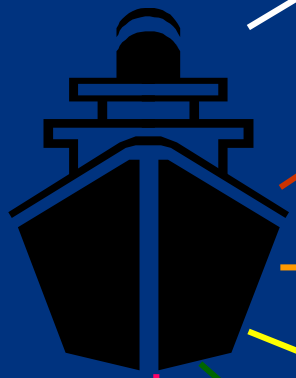
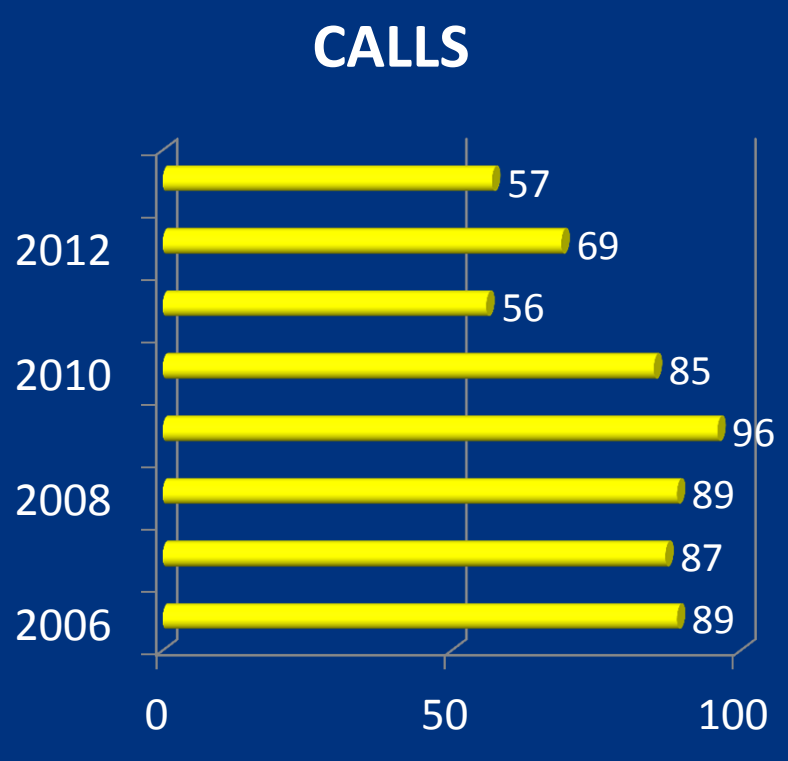
Ship Generated Waste Management



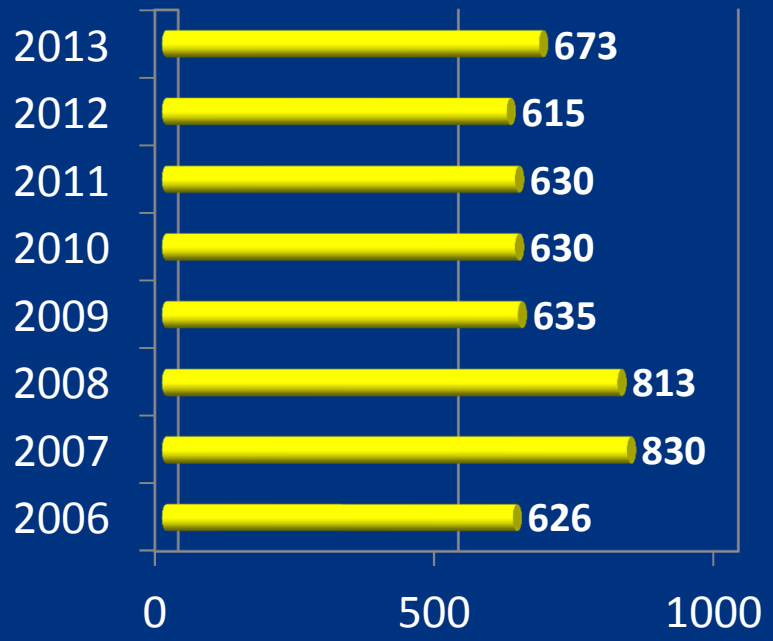
The Port reception facilities			The final place of waste utilization
Przedsiębiorstwo Portowe „SIEĆ” LTD			
Sewage	Tank truck	Port sewage system	Municipal Treatment Plant in „Dębogórze”
CTL Północ LTD			
Oily waste	Tank truck	The oil treatment installation	Oil Refinery JEDLICZE
hazardous wastes	Waste container		The receiver disposes of hazardous waste
Segregated waste	Waste container		Secondary materials processing plant
Domestic waste	Waste container	Waste sorting station	Municipal Storage Plant in Łężyce
Kitchen waste/ veterinary waste	kitchen waste bin		STRUGA S.A. in Rejowo (thermal waste disposal)

Cruise Liners in Gdynia 2006 - 2013

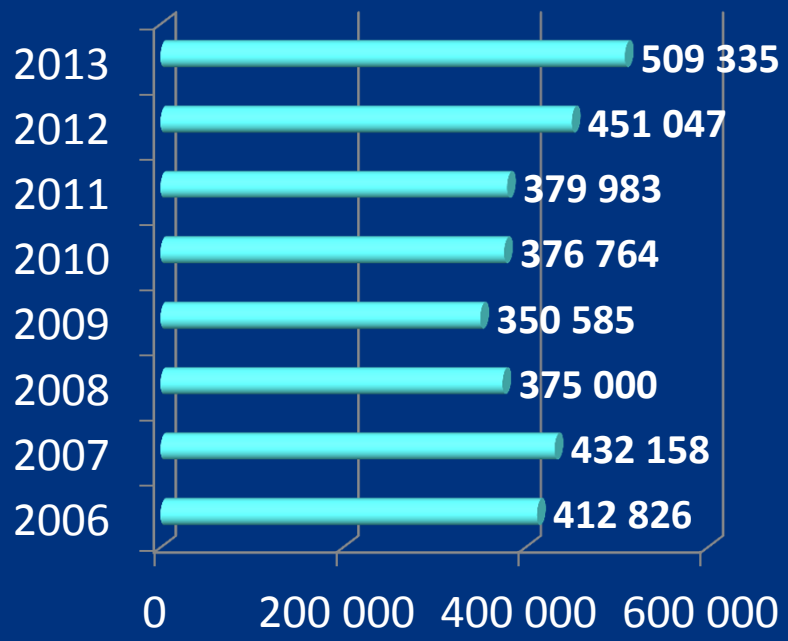


Ferries in Gdynia 2006 - 2013

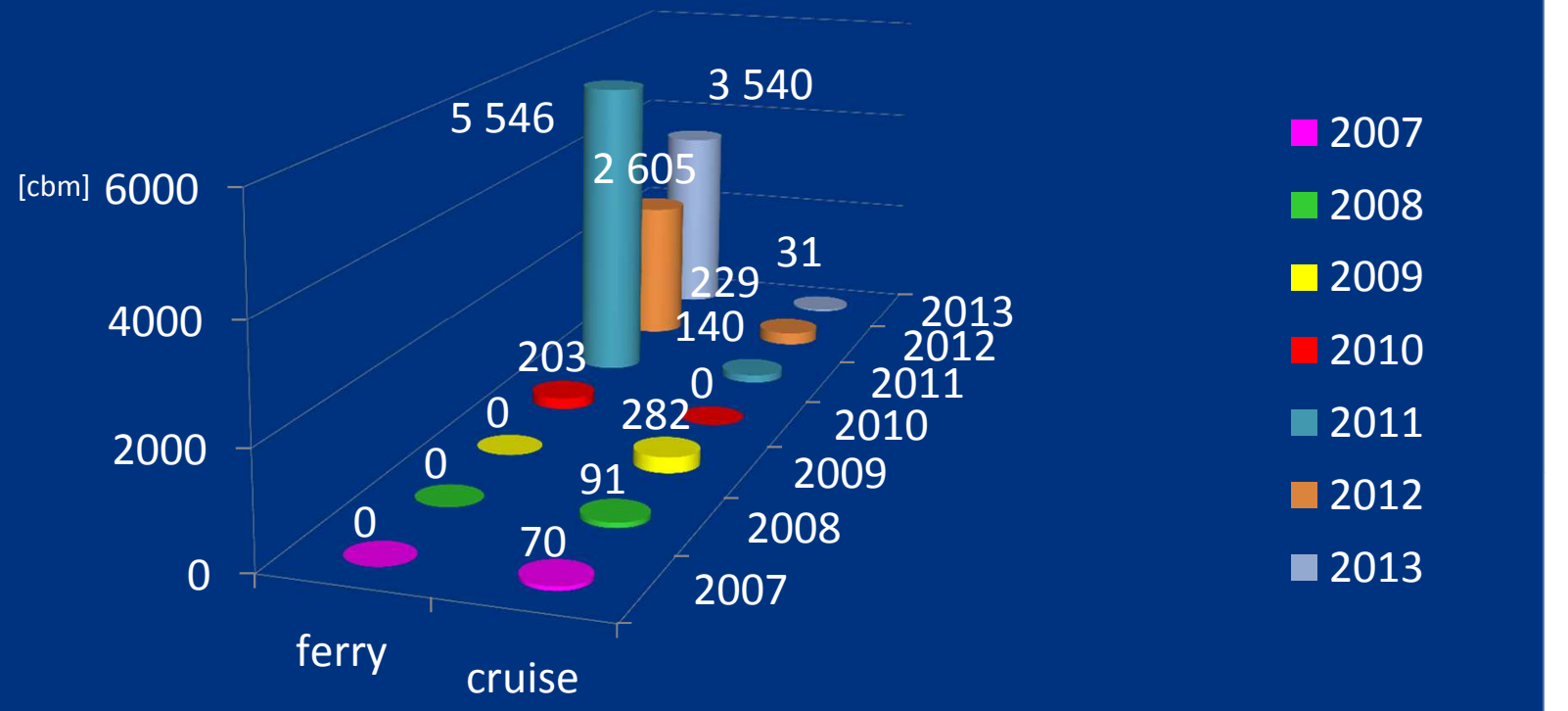
CALLS



PASSENGERS

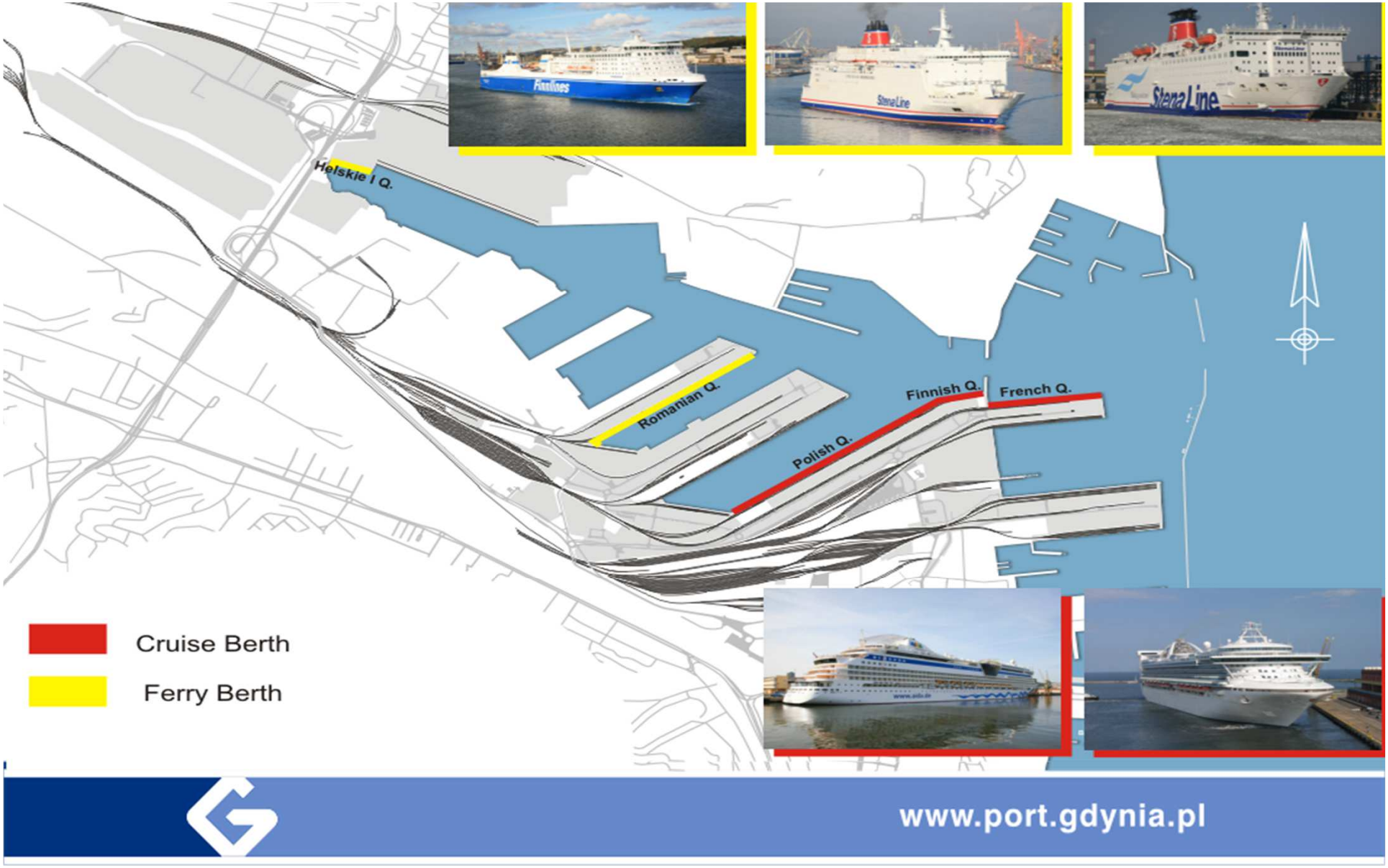


Quantity of collected sewage in Gdynia 2007 – 2013



Conception of adaptation of the sewer system for receiving sewage from ships calling at the Port of Gdynia

1. Analysis of requirements for sewage discharge infrastructure on each quay
2. Evaluation of sewage volume to be received from ships
3. Analysis of an alternative solution
4. Analysis of the cost
5. PEWIK regulations / demands for collecting sewage


Helskie I Q.
Romanian Q.
Polish Q.
Finnish Q.
French Q.
Cruise Berth
Ferry Berth
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Adaptation for merchant ships

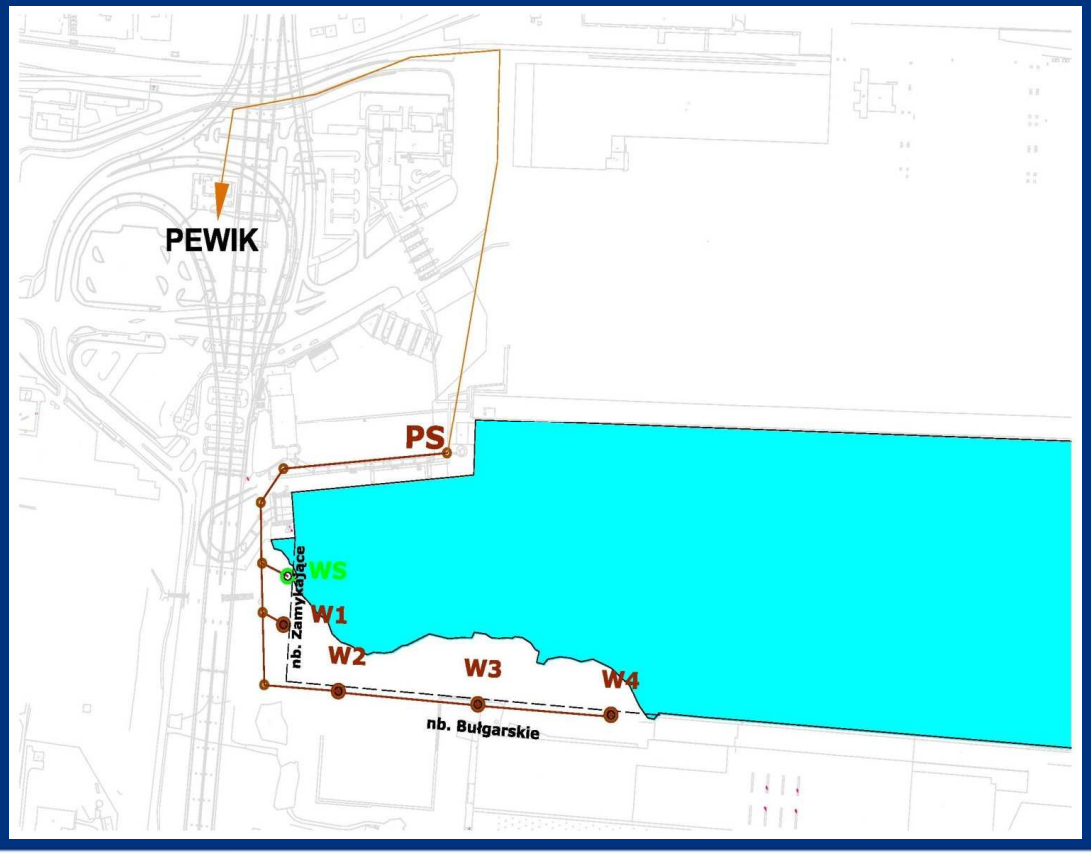
UNDER CONSTRUCTION

- Bulgarian Q.
- Closing Q.
- Swedish Q.

PLANNED FOR DEVELOPMENT

- Romanian Q.

Construction investment – Bulgarian and Closing Q.



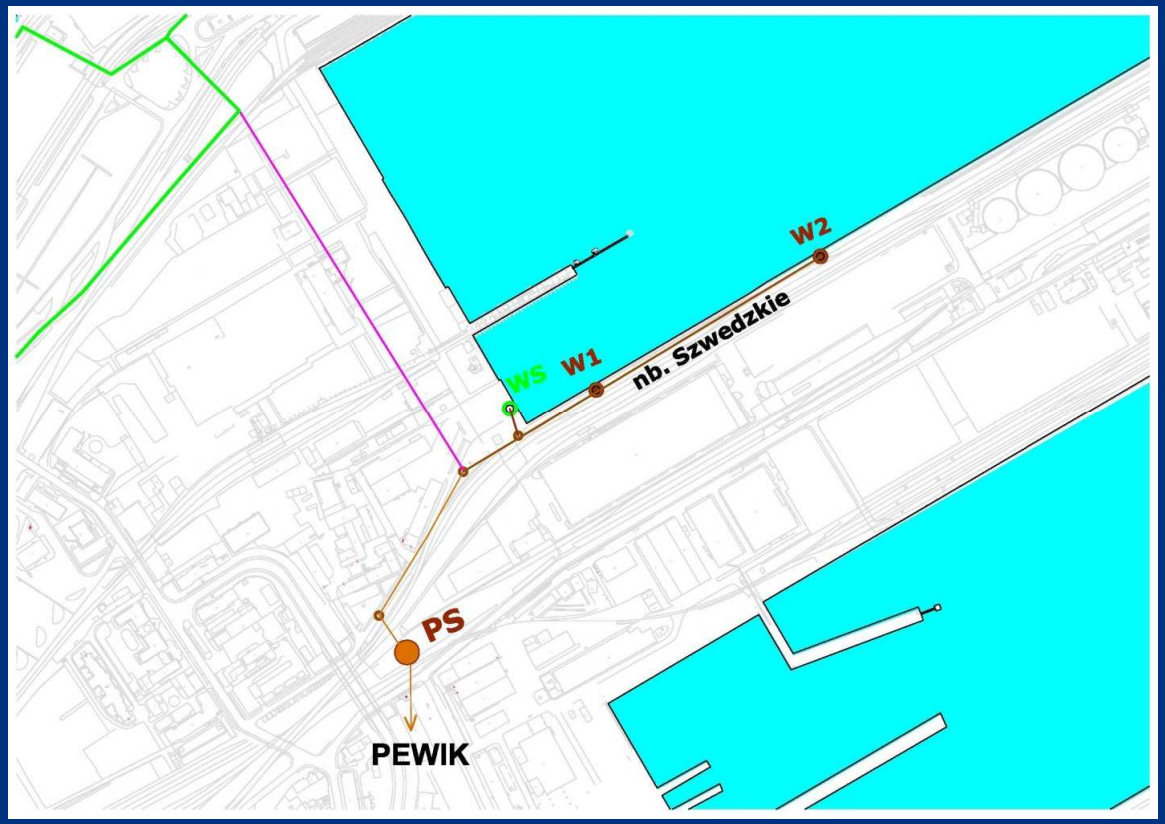
W1–W4 inlet for discharging sewage from ships including measurement of quality of sewage

PS pumping station

WS inlet for receiving the sewage by specialized barge

BTP connection to municipal **B**iological **T**reatment **P**lant Dębogórze

Construction investment – Swedish Q.



W1–W2 inlet for discharging sewage from ships including measurement of quality of sewage

PS pumping station

WS inlet for receiving the sewage by specialized barge

BTP connection to Municipal **B**iological **T**reatment **P**lant Dębogórze

Inlet (WS) on Danish Quay for the specialized barge collecting sewage from vessels

Adaptation for cruise liners and ferries

ADAPTED

Helskie II Q.

PLANNED FOR DEVELOPMENT

Polish Q.

French Q.

Current situation on Helskie II Q.

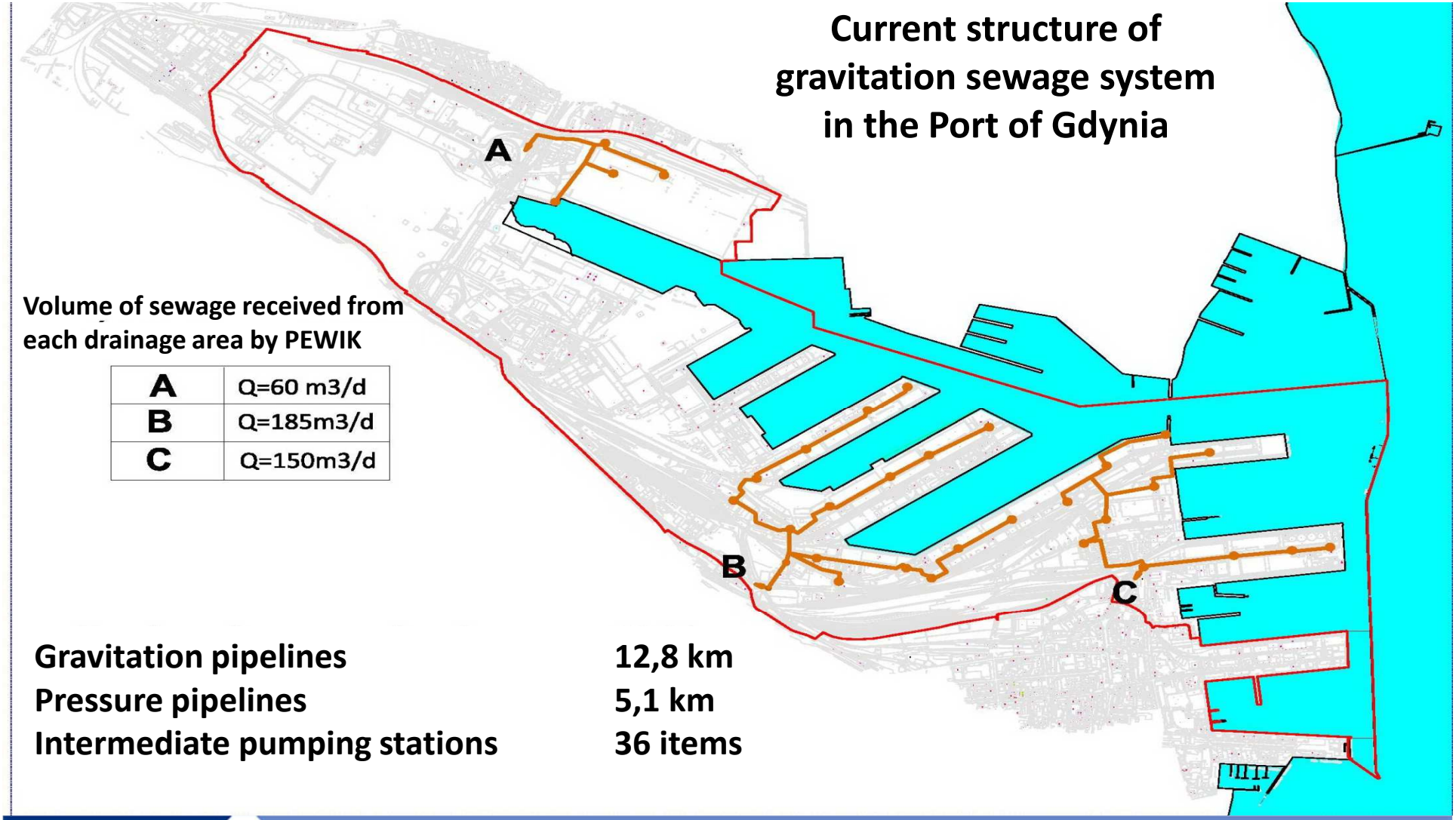
Technical parameters of facilities:

✓ Sewage system capacity	**max. 100m³ / h**
✓ Diameter of pipe connector	**D = 100 mm**
✓ Quantity measuring method	**flow-meter** MAG 8000
✓ Sewage quality parameters	according **to PEWIK-GDYNIA agreement**
✓ Procedure of measuring sewage	test valve in the inlet
✓ Facilities availability	**24h/7**

Challenges

1. Sewage from ships → Industrial waste → Ports Treatment Plant
2. Special restrictions on discharging sewage to municipal treatment plants: limited capacity, quality, even inflow of sewage …
3. Predicted use/construction of the onboard sewage treatment by the ship-owners, and whether these systems will be able to handle waste water sufficiently to reach required level of treatment?
4. Procedures of reception of sludge from on-board sewage treatment plants in ports
5. COOPERATION in handling ships sewage!!! : ship-owners → ports → municipality
6. Gradual upgrading of PRF to achieve their adequacy by 1 January 2016 at least on main cruise berths

Current structure of gravitation sewage system in the Port of Gdynia

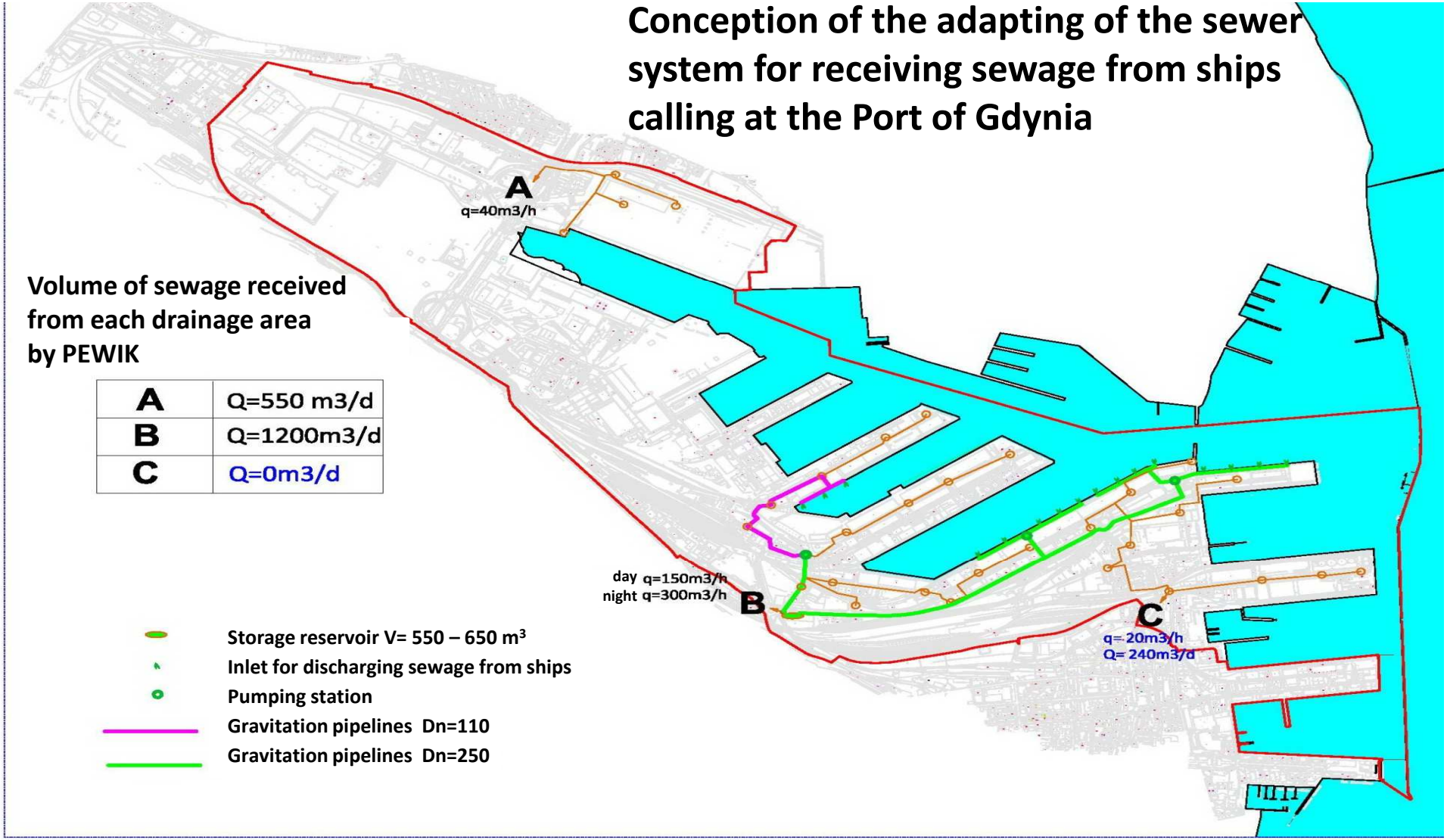


Volume of sewage received from each drainage area by PEWIK

A	Q=60 m3/d
B	Q=185m3/d
C	Q=150m3/d

Gravitation pipelines	12,8 km
Pressure pipelines	5,1 km
Intermediate pumping stations	36 items

Conception of the adapting of the sewer system for receiving sewage from ships calling at the Port of Gdynia



Volume of sewage received from each drainage area by PEWIK

A	Q=550 m3/d
B	Q=1200m3/d
C	Q=0m3/d

- Storage reservoir V= 550 – 650 m³
- Inlet for discharging sewage from ships
- Pumping station
- Gravitation pipelines Dn=110
- Gravitation pipelines Dn=250

Thank you for your attention

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