Implementation of Regulation (EU) 2017/352 "establishing a framework for the provision of port services and common rules on the financial transparency of ports" to the port service of collection of ship-generated waste and cargo residues in the Port of Thessaloniki

Study to identify the maximum number of providers that may be engaged in the port service of collection of ship-generated waste and cargo residues in the Port of Thessaloniki

Technical report

Contents

1. Introduction - Object of study

This study was conducted by MARNET SA on behalf of Thessaloniki Port Authority SA (ThPA) within the framework of the obligation of ThPA, as managing body of the Port of Thessaloniki, to implement the Regulation (EU) 2017/352" establishing a framework for the provision of port services and common rules on the financial transparency of ports". In particular, this study concerns the implementation of the regulation to the port service of collection of ship-generated waste and cargo residues.

The Regulation (EU) 2017/352 applies to all seaports of the trans-European transport network, as listed in Annex II to Regulation (EU) 2013/1315 and thus to the Port of Thessaloniki. The Regulation applies to the provision of seven (7) categories of port services, including the "collection of ship-generated waste and cargo residues".

According to Article 3 of Regulation (EU) 2017/352, *"access to the market for the provision of port services in maritime ports may be subject to:*

a) minimum requirements for the provision of port services;

b) limitations on the number of providers;

c) public service obligations;

d) restrictions related to internal operators".

In addition, according to Article 6 of Regulation (EU) 2017/352, the managing body of the port *"may limit the number of providers of port services for a given port service for one or more of the following reasons:"*

(a) the scarcity or reserved use of land or waterside space, provided that the limitation is in accordance with the decisions or plans agreed by the managing body of the port and, where appropriate, any other public authorities competent in accordance with the national law;

b) the absence of such a limitation is obstructing the performance of public service obligations as provided for in Article 7, including when such absence leads to excessively high costs related to the performance of such obligations for the managing body of the port, the competent authority, or the port users;

c) the absence of such a limitation runs counter to the need to ensure safe, secure or environmentally sustainable port operations;

d) the characteristics of the port infrastructure or the nature of the port traffic are such that the operations of multiple providers of port services in the port would not be possible;

(e) where it has been established pursuant to Article 35 of Directive 2014/25/EU that a port sector or subsector, together with its port services, within a Member State carries out an activity that is directly exposed to competition in accordance with Article 34 of that Directive. In such cases, paragraphs 2 and 3 of this Article shall not apply".

Pursuant to the provisions of the aforementioned articles 3 and 6 of Regulation (EU) 2017/352 and in the context of corporate social responsibility and its environmental commitments, ThPA deemed necessary to determine the maximum number of providers that can offer the port service of collection of ship-generated waste and cargo residues in the Port of

Thessaloniki, in order to ensure the protection and safety of the environment and the environmental sustainability of the port, viewed from the perspective of the needs of the port, its specificities and always within the framework of Regulation (EU) 2017/352.

This study evaluates all the characteristics of the port and its wider area of development and operation, to the extent that they affect the provision of the port service of collection of ship-generated waste and cargo residues, in order to make the best estimate of the maximum number of providers to can offer this port service in the Port of Thessaloniki.

The team that carried out the study consisted of the following executives of MARNET SA:

- Vasiliki Tzanetatou, Dr. Environmental Engineer-Coastal Engineer, who had the general responsibility and coordination of the study
- Nikolaos Florios, Shipbuilding Engineer, M.Sc.
- Charilaos Antonopoulos, Dr. Civil Engineer - Port Engineer
- Georgia Varvitsioti, Spatial Planning and Development Engineer, M.Sc.

2. Port of Thessaloniki

The Port of Thessaloniki is a Port of International Interest according to the national classification of ports no. 8315.2/0207-2020 J.M.D. (GG 202/ N/16/02/2007). It is located at the narrow end of the Thermaic Gulf, and spreads in front of and further of the urban fabric of the city of Thessaloniki. To the east, it is bounded by the coastal front of the city and to the west, by the natural border of the estuary of Dendropotamos.

2.1. Current situation of the port

Currently, the Port of Thessaloniki occupies a land area of 1.5 km^2 in an elongated layout along the sea front, has six (6) piers and quays 6.2 km long and includes 0.5km2 of indoor and outdoor storage areas.

The Port of Thessaloniki has commercial and passenger traffic and its main activities are the handling of containers, general cargo, bulk dry and wet cargo, Ro-Ro, the service of cruise ships and seasonal coastal ships (see Figure 2.1). At the eastern end of the port (pier 1), it hosts cultural activities.

The port is divided into two parts, the eastern part which includes passenger traffic and cultural activities and is located in the immediate vicinity of the city center, and the western part (FREE ZONE) which houses the purely commercial traffic of the port (piers 4, 5 and 6). It is noted that the existing land areas and the existing berthing walls are not sufficient to meet the needs of the commercial traffic of the port and to this end, the expansion of the pier 6 is under way.

2.1.1. Port Traffic

During the period 2015-2018, the Port of Thessaloniki registered an increasing trend in the container throughput. In 2018, about 430,000 TEUs were handled, of which the largest percentage (85.5%) was domestic cargo.

During the same period, the throughput of total bulk cargo, general cargo, liquid cargo and cargo via Ro-Ro did not fluctuate significantly, with the total container throughput amounting to 4,000,000 tons.

Finally, during the same period, passenger traffic (coastal shipping and cruising) registered a slight gradual decrease. In 2018, passenger traffic amounted to approximately 45,000 passengers, the largest percentage of whom were in coastal shipping.

Figure 2.1: Activities of the Port of Thessaloniki

2.1.2. Current utilization of spaces

Today, the Port of Thessaloniki utilizes all its available spaces and its berthing walls to meet the needs of commercial and passenger traffic and other operational needs, while as mentioned above, part of the port is used for cultural activities.

In particular, the land areas of the port are utilized as follows:

- Cargo stowage and loading/unloading, given that the activity of both the container terminal (SEMPO) and the loading/unloading of bulk cargo requires extensive space.
- Entrance gates and waiting areas for trucks
- Storage spaces (outdoor and indoor) (see Table 2.1)
- Cruise and coastal shipping passenger traffic and service areas
- Administration, staff and Public Bodies buildings
- Vehicle parking spaces
- Electromechanical installation sites
- Land storage facilities for the reception of ship generated waste.
- Buildings leased to third parties used for catering and retail uses
- Buildings and outdoor areas for hosting cultural activities (pier 1)

Table 2.1: Warehouses of the Port of Thessaloniki (area, use, lease status)

ΧΩΡΟΙ	ΕΠΙΦΑΝΕΙΑ ΜΙΣΘΩΣΗΣ (Τ.Μ.)	ΧΡΗΣΗ
ΑΠΟΘΗΚΗ WH 17	250	αποθήκευση εξοπλισμού μισθωτή (εξοπλισμός ευκολιών υποδοχής αποβλήτων των πλοίων)
	300	αποθήκευση εξοπλισμού μισθωτή
	300	αποθήκευση αναλωσίμων,εξαρτημάτων, ναυτικών φραγμάτων,πυροσβεστήρων και λοιπών υλικών, για εργασίες ρυμούλκησης, αντιμετώπιση πυρκαγιών και θαλάσσιας ρύπανσης
	128	αποθήκευση υλικών-ανταλλακτικών για τα ρυμουλκά
	128	αποθήκευση διαφόρων υλικών για τα ρυμουλκά
	300	αποθήκευση εξοπλισμού για τα ρυμουλκά
ΑΠΟΘΗΚΗ WH 18	1.005	αποθήκευση/φύλαξη οπωροκηπευτικών - φρούτων μισθωτή
ΑΠΟΘΗΚΗ WH 21	4.030	αποθήκευση/φύλαξη οπωροκηπευτικών - φρούτων μισθωτή
		αποθήκευση/φύλαξη οπωροκηπευτικών - φρούτων μισθωτή
ΑΠΟΘΗΚΗ WH 22	1.000	αποθήκευση γενικού φορτίου μισθωτή
	943	αποθήκευση γενικού φορτίου μισθωτή
	1.800	αποθήκευση/φύλαξη οπωροκηπευτικών - φρούτων (ψυκτικοί θάλαμοι) μισθωτή
	33	γραφείακοί χώροι μισθωτή
ΑΠΟΘΗΚΗ WH 23	1.500	αποθήκευση γενικού φορτίου μισθωτή
	2.447	αποθήκευση/φύλαξη οπωροκηπευτικών - φρούτων μισθωτή
ΑΠΟΘΗΚΗ WH25	1.971	αποθήκευση/φύλαξη φρούτων (ψυκτικοί θάλαμοι)μισθωτή
	1.545	αποθήκευση γενικού φορτίου μισθωτή
	23	γραφείακοί χώροι μισθωτή
	67	γραφείακοί χώροι μισθωτή
	430	χώροι Υπουργείου Αγροτικής Ανάπτυξης & Τροφίμων
ΑΠΟΘΗΚΗ WH 27	2.480	αποθήκευση γενικού φορτίου μισθωτή
	2.320	αποθηκευση εξοπλισμού ΟΛΘ
ΑΠΟΘΗΚΗ ΣΤΟ ΚΡΗΠΙΔΩΜΑ 18	3.715	αποθήκευση σιδηρονικελίου μισθωτή
ΣΙΛΟ (ΠΡΟΒΛΗΤΑΣ 4)	2.824	αποθήκευση σιτηρών μισθωτή
ΥΠΟΣΤΕΓΟ Υ2 ΑΠΟΘΗΚΗ 20	2.353	αποθηκευση εξοπλισμού ΟΛΘ
ΥΠΟΣΤΕΓΟ (ΠΡΟΒΛΗΤΑΣ 6)	6.907	αποθηκευση φορτίων μισθωτή
ΧΩΡΟΣ ΔΕΞΑΜΕΝΩΝ ΑΠΟΘΗΚΕΥΣΗΣ ΑΣΦΑΛΤΟΥ (ΠΡΟΒΛΗΤΑΣ 6)	3.940	δεξαμενές μισθωτή
ΧΩΡΟΣ ΔΕΞΑΜΕΝΩΝ ΣΥΛΛΟΓΗΣ ΠΕΤΡΕΛΑΙΟΕΙΔΩΝ ΚΑΤΑΛΟΙΠΩΝ (ΠΡΟΒΛΗΤΑΣ 6)	2.150	δεξαμενενές μισθωτή
ΑΠΟΘΗΚΕΥΤΙΚΟΣ ΧΩΡΟΣ (ΠΡΟΒΛΗΤΑΣ 6)	250	γραφειακοί χώροι και προσωρινή αποθήκευση εμπορευμάτων μισθωτή
ΑΠΟΘΗΚΕΥΤΙΚΟΣ ΧΩΡΟΣ (ΠΡΟΒΛΗΤΑΣ 6)	500	γραφειακοί χώροι και προσωρινή αποθήκευση εμπορευμάτων μισθωτή
ΑΠΟΘΗΚΕΥΤΙΚΟΣ ΧΩΡΟΣ (ΠΡΟΒΛΗΤΑΣ 6)	500	αποθήκευση εμπορευματκιβωτίων μισθωτή
ΣΥΝΟΛΟ:	**46.138**	

Note: The warehouse spaces on the first floor with no elevator (as in warehouse 17) are unusable and are not included in the table above.

Also, the quays of the port are utilized in their entirety as follows:

- Berthing of merchant ships (containers, bulk cargo, general cargo)
- Ferry Mooring (for Ro-Ro activity)
- Mooring of coastal vessels
- Cruise ship side mooring

- Berthing of tugs and auxiliary vessels and the floating ship-generated waste reception facilities

The only part of the port that is not used is a narrow unformed zone near the estuary of Dendropotamos.

2.1.3. Current provision of port service of collection of ship-generated waste and cargo residues - Existing infrastructure

According to the current legislation (JMD 8111.1/41/2009 (GG 412 /B/06.03.2009 and amendment thereof GG 3085 / B / 28.09.2016, in compliance with Directive 2007/71/EC), the Port of Thessaloniki just like all the Greek ports (except for specific exceptions) must have port facilities for receiving ship-generated waste.

Today, in the Port of Thessaloniki, the port service of collection of ship-generated waste and cargo residues is provided by a specialized contractor.

Today, the contractor collects the total solid and liquid wastes of both ships that berth on the quays of the port and of ships at anchorage within the anchorage limits of ThPA and mainly:

- oily waste
- solid waste
- cargo residues
- animal by-products and hazardous waste from sanitary facilities

For the purpose of fulfilling the obligations arising from the contract, the contractor has the appropriate equipment as listed in the approved Ship-generated and cargo residues Reception and Management Plan (see below section 2.3.3). He also has cooperation agreements with legally operating treatment plants of the various types of waste that he collects, in order to ensure their safe and legal management.

Also, for the smooth and perfect operation of the port reception facilities for ship-generated waste (which he is obliged to have according to the current legislation), and in accordance with the current Ship-generated and cargo residues Reception and Management Plan, the contractor is provided with an outdoor space 200sqm on quay 13 of pier 3, an indoor space 250sqm. in the Warehouse 17 at pier 3 and vessel berth places on quays 12 and 13 of pier 3. These sites are used exclusively and completely for the installation of the necessary equipment for the collection of reception facilities and the temporary storage of the collected waste.

Finally, in order to reduce the traffic of tankers in/out of port and for a more efficient management of oily waste (which make up the most significant amount of ship-generated waste, see section 2.4), ThPA has provided, in addition to the above spaces, an area for the installation of storage tanks for oily waste with a total capacity of 1,440 sqm receiving oil residues from both the aforementioned waste collection facilities and sources outside the port. It is clarified that these tanks are not directly related to the port service of collection of ship-generated waste, but to their subsequent storage and transhipment.

2.2. Approved Master Plan

The new Masterplan of the Port of Thessaloniki was approved with the no. 3121.6/22971/2018 Decision of the Port Planning and Development Committee (ESAL) (GG 77/ΑΑΠ / 25.04.2018) following the 72nd meeting of ESAL of 07.02.2018. Figure 2.2 shows the general layout of the works accompanying this decision.

2.2.1. General - Permitted land uses & new infrastructure

Briefly, the proposed new / additional port facilities of the new Masterplan are the following (see Figure 2.2)

- Extension of the Pier 6 (quays 26 (SEMPO) and 24 (bulk cargo).
- Merger of Pier 4 and 5 in order to develop a new pier with much greater capacity (due to the larger area, but also the increased useful depth of its new frontal - south quay).
- Construction of additional quay walls on both sides of the base of Pier 3, for the stern to-side mooring of passenger ships-ferries, Ro-Pax, and purely Ro-Ro ships.
- Construction of a new (relatively small) pier, west of the Pier 6, for the service of ships carrying liquid cargo (excluding oils) of up to 15,000 DWT.
- Construction of a new small harbour for auxiliary vessels at the western end of the land zone of the port (L.Z).
- In order for the first two port facilities mentioned above to become operational, it is also necessary to carry out general excavations/dredging in specific sea areas of the port, and tear down a small part (approximately 60 m) of the existing detached breakwater to facilitate navigation of larger ships.

Also, the approved masterplan includes:

- Reconstruction, landscaping and utilization of outdoor spaces and construction of green spaces within the Port of Thessaloniki.
- Cold ironing infrastructure for electrification of ships during mooring on the quays according to EU Directive.
- Renovation and utilization of existing buildings of ThPA SA.
- Construction of a cruise terminal, a tourist boat shelter for the mooring of mega and giga yachts in the area of Pier 1 and 2 and a water airport.
- Utilization of existing warehouses and open spaces and design of new ones for the development of Logistics services - Management of special cargoes.
- Supply of electric cranes and gantrycranes and their installation on the respective quays.

The above can be implemented in connection with the Urban Planning Organization of L.Z. included in the masterplan. To this end, the masterplan approval decision stipulates that the "historic part" of the port (Pier 1 and Quay 4 - 8, as well as the land areas behind/ north of them, will be treated *"as a separate port unit, with uses that will not be related to the freight transport service." Therefore, the specific areas - infrastructure should have functional autonomy in relation to the other activities in the L.Z".*

Finally, according to the approved masterplan, *"the future freight project that will pass through the port is planned to be served by the following Terminal Facilities:*

• Container Management (Extension of the existing SEMPO on Pier 6).

• Bulk Solid Cargo Management (Upgrade of the existing infrastructure on the quay 24 and extension thereof, with parallel transfer of the General Cargo to another location).

• Management of General and Other Cargoes and Agricultural Bulk Cargoes (Merger of Pier 4 and 5 and creation of a new Pier, which in addition to the General Cargo, will manage other categories of cargo / goods such as scrap, car imports).

• Ro-Pax, Ro-Ro distribution. Upgrade of Pier 3 with the addition of the area to the north and the removal of old warehouses to serve ferries, Ro-Pax and purely Ro-Ro ships, with domestic or international connections.

In addition to the freight transport project, the port is planning to upgrade its current Cruise services/activities with the addition of infrastructure for the development of cruise launching functions (Home Porting)".

Within the framework of the masterplan, in the Port of Thessaloniki, the following Sectors were distinguished with specific permitted land uses and building conditions (see Figure 2.3):

- Sector 1: Old Port Area
- Sector 2: Cruise Support Area
- Sector 3: New cruise terminal
- Sector 4: Commercial use-service area
- Sector 5: Listed building - stables area
- Sector 6: New Ro-Ro operations terminal
- Sector 7: Port management - service area
- Sector 8: Free storage area - warehouse area
- Sector 9: New general and other cargo terminal
- Sector 10: Workshop area - quay 23
- Sector 11: Development area of west accesses (road-rail) of the L.Z.
- Sector 12: Western sector outside the Free Zone of the port
- Sector 13: Container terminal (SEMPO)
- Sector 14: New bulk cargo terminal
- Sector 15: Fields of storage/stacking of unitised cargo (containers) and/or bulk cargo

From the aforementioned proposed port facilities and other interventions, ThPA has already initiated the procedures only for the expansion of Pier 6, while it has begun to explore the possibilities of renovation, utilization and construction of new storage spaces in order to meet its increased needs.

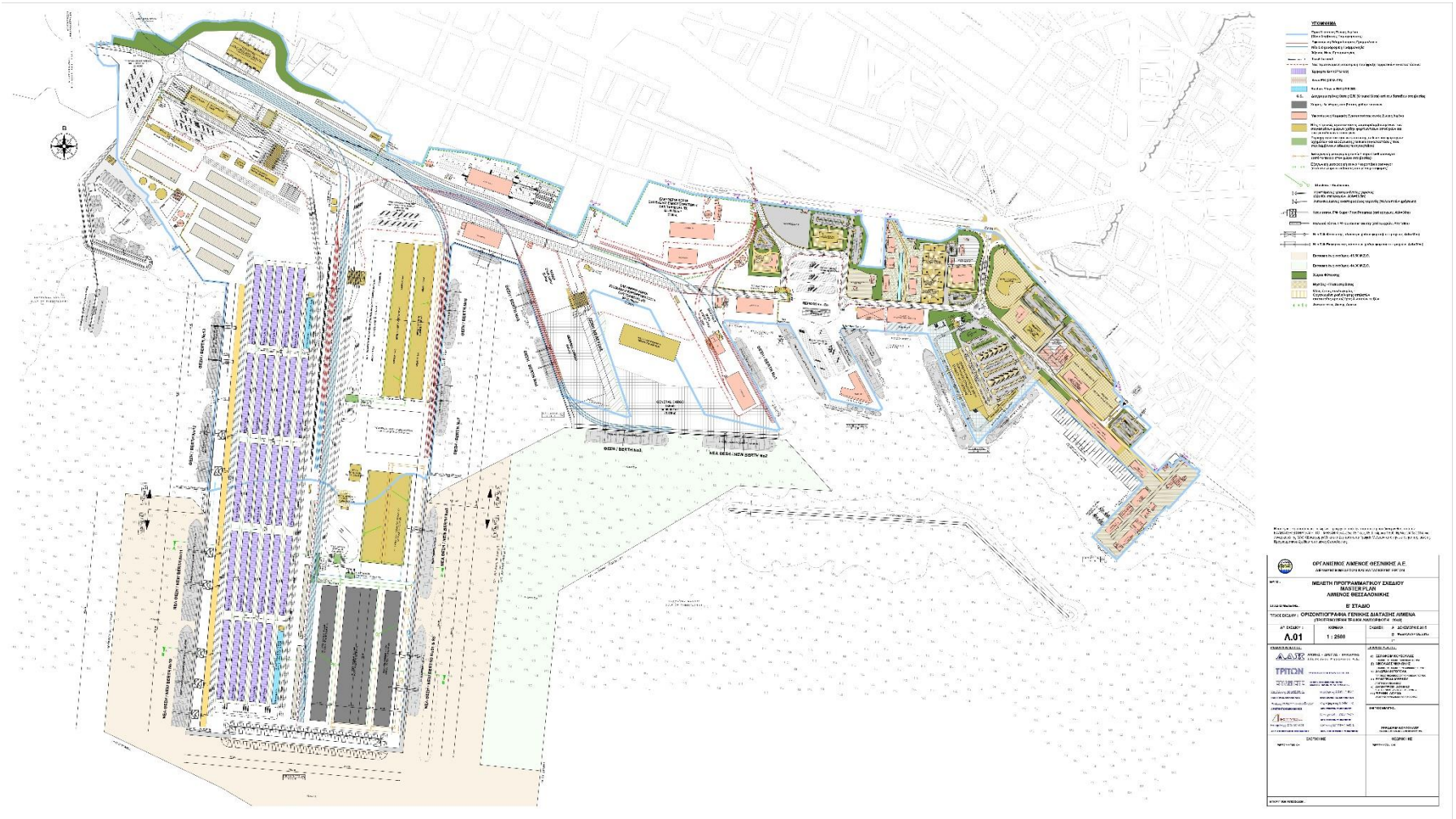

Figure 2.2: “Horizontal alignment of general layout of the port (proposed final layout - 2040)", plan that accompanies the no. 3121.6/22971/2018 Decision of the Port Planning and Development Committee (ESAL)

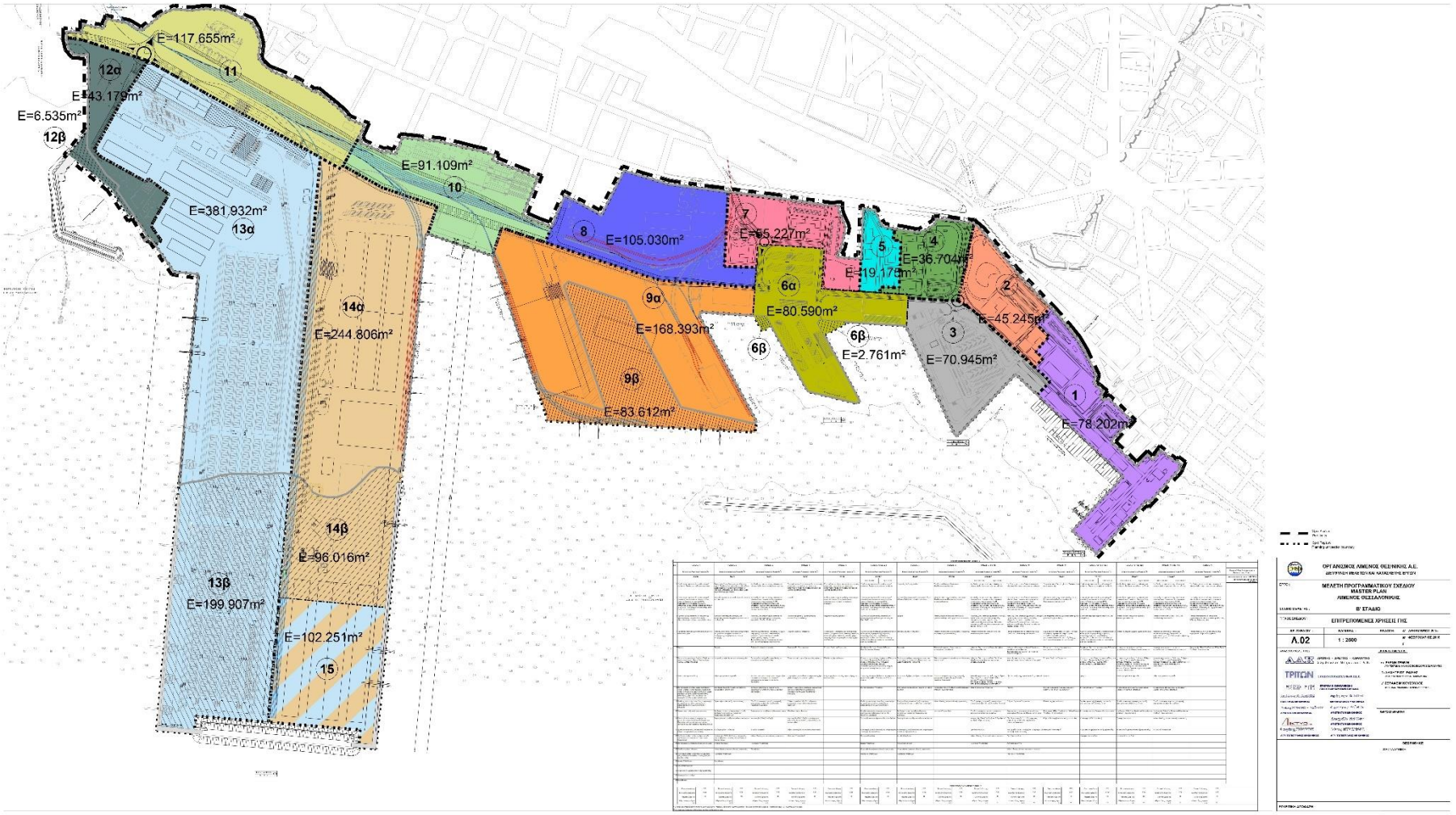

Figure 2.3: Map of permitted land uses, according to the 2nd stage of the approved Master plan of the Port of Thessaloniki

2.2.2. Masterplan Provisions regarding the provision of a port service of collection of ship-generated waste and cargo residues

Regarding the provision of the port service of collection of ship-generated waste and cargo residues, the Masterplan study provides for the permitted land uses per sector:

- Infrastructure and installations for berthing of vessels, boats and crafts for the provision of port services (CPA, fire service, pilotage service, towing, refueling of ships - bunkering, collection of ship-generated waste and cargo residues, etc.) in the Sectors 1, 3, 6, 9, 10, 12, 13, 14 and 15, i.e. in those areas of the port that have quays (excluding purely land areas)
- Port areas supporting port auxiliary vessels (CPA, fire service, pilotage service, towing, refueling of ships - bunkering, collection of ship-generated waste and cargo residues, etc.) in Sectors 4, 9, 10 and 12

Especially with regard to the infrastructure and facilities of berthing of vessels, boats and crafts, they clearly concern the temporary approach and berth for the provision of the respective port service (including the collection of ship-generated waste) to ships and not a permanent berth. After all, all the mentioned port services must be provided in each of the sectors, which makes the long-term stay of all the vessels and boats concerned by these services impossible.

On the other hand, the port zones supporting the port auxiliary vessels concern both the permanent mooring of vessels and the land infrastructure supporting such port services (including collection of ship-generated waste).

2.2.3. Traffic regulations in the port

With no. 3121.6/85327/2019 Decision of the Port Planning and Development Committee (ESAL) approved the updating of the Masterplan of the Port of Thessaloniki regarding the setting of traffic regulations in the land zone of the port (GG 732/D /11.12.2019), following the 80th meeting of ESAL of 25.09.2019.

The decision approved the Port Traffic Study, which provides for the completion of both the existing horizontal marking with new markings, directional arrows, road reflectors, and the vertical marking with the addition of new signs and the removal of some old ones or their transfer in another site.

Also, in selected points, in order to facilitate traffic and for safety reasons, the existing signage will be completed, left-hand lanes will be built, marked traffic separators will be built, plastic safety railings will be used to exclude some areas from unregulated vehicle traffic and for a better demarcation of lanes.

2.3. Obligations - Licensing

2.3.1. Obligations arising from the Concession Agreement between the Grekk State and ThpA

On February 2, 2018, a "Concession Agreement regarding the Use and Exploitation of Specific Spaces and Assets within the Port of Thessaloniki" was signed between the Greek State and the Thessaloniki Port Authority SA (ThPA). This agreement was ratified by Law 4522/2018 (GG 39 / A / 07.03.2018).

According to the above ratification, the following obligations for the ThPA regarding the collection of ship-generated waste and cargo residues derive from the Concession Agreement:

"11.1 (...), THPA shall at its own risk and cost be responsible for providing all services and ancillary services required:

***(a)** for the operation of:*

(i) the Cruise and Ferry Terminal;

(ii) the Conventional Cargo Terminal (Bulk and Breakbulk cargo); and

(iii) the Container Terminal,

***(b) f**or the maintenance of infrastructure and ancillary services,*

in such a way that, in each of the above cases, it will meet or exceed the Minimum Service Levels (…).

11.2 Ancillary services which fall within the responsibility of ThPA include, in particular:

(...) (i) reception of ship-generated waste including without limitation sludge and oil waste, sewage disposal and garbage removal, as well as cargo residue reception and management;

(...)

and, to the extent applicable or relevant, they must be sufficient in order to be in line with the Minimum Service Levels, the applicable laws, the Regulatory Rules and laws of general application. Subject to the provisions of this Agreement, ThPA may engage third parties, whether by way of Subcontracts or Sub-Concessions, but (without prejudice to any other obligations of ThPA hereunder) ThPA will remain accountable to the Greek State for compliance with the Minimum Service Levels."

Also, clause 11.3 of the Concession Agreement clarifies that in addition to the port services specified in clause 11.2, *"for all <u>other</u> available services normally provided in a port, ThPA will generally promote competition by allowing access to the required infrastructure and facilities , providing fair Subconcessions without discrimination to external service providers (…)".*

2.3.2. Environmental licensing

As regards the operation of the Port of Thessaloniki, the ΑΠ 203978 / 21.12.2012 Decision of Approval of Environmental Terms (AEPO) of the Minister of Environment, Energy & Climate Change was issued. This AEPO is in force and has been amended in terms of individual infrastructure with the Decisions no. οικ.171836 / 02.04.2014, οικ.173239 / 16.06.2014, οικ.151696 / 04.09.2015, 101351 / 03.08.2016, οικ.11067 / 06.08.2018, ΥΠΕΝ/ΔΙΠΑ/51180/1096/16.03.2021 of the General Manager of the Ministry of Environment and Energy. More specifically:

DECISION No.	TITLE
Α.Π. 203978/21.12.2012	Approval of Environmental Terms for the "Operation of Thessaloniki Port"
Α.Π. οικ.171836/02.04.2014	Amendment of the Α.Π. 18098/95 J.M.D. on the Approval of Environmental Terms for the project "Expansion of Pier 6 of

	ThPA located in the marine area of the Port of Thessaloniki", as amended and in force, regarding the oily waste storage tanks of NORTH AEGEAN SLOPS - ILIAS ORFANIDIS
Α.Π. οικ.173239/16.06.2014	Amendment of the Α.Π. Α.Π.203978/21-12-2012 Decision on the Approval of Environmental Terms of the project "Operation of the Port of Thessaloniki" as regards the storage of sodium hydroxide (NAOH) in Pier 4.
Α.Π. οικ173239/14	Amendment of the Α.Π. 203978/21-12-2012 on the Approval of Environmental Terms of the project "Operation of the Port of Thessaloniki" as regards the installation of vehicle refuelling stations with liquid fuels.
Α.Π. οικ.151696/04.09.2015	Amendment of the Ministerial Decision with Ref. Num. οικ. 203978/21-12-2012 on the Approval of Environmental Terms of the project "Operation of the Port of Thessaloniki", as regards the construction of a natural gas pipeline and the installation of cranes, gantry cranes and a medium voltage substation.
Α.Π. 101351/03.08.2016	"Amendment of the environmental terms of the Port of Thessaloniki for the environmental licensing of a water aerodrome"
Α.Π. οικ.11067/06.08.2018	Amendment of the environmental terms of the project "Operation of the Port of Thessaloniki" as regards the operation of a car wash with a lubrication area and the extension of the implementation time of the Rainwter Drainage Management Plan
Α.Π. ΥΠΕΝ/ΔΙΠΑ/51180/1096/16-3-2021	Amendment of the Α.Π. 203978/21.12.2012 Decision of Approval of Environmental Terms of the project "Operation of the port of Thessaloniki" as amended and in force, regarding the operation of cereal silos.

Also, regarding the construction of the extension and the future operation of the Pier 6 of the port, and other facilities at the base thereof, the Α.Π. 18098/1995 J.M.D of the Approval of Environmental Terms was issued, has been amended and is in force.

According to the applicable Α.Π. 203978/21.12.2012 ΑΕΡΟ on the operation of the port, and, in particular, the environmental term (d)17, ThPA shall meet the following criteriaregarding the collection of ship-generated waste and cargo residues:

"A waste management plan of the port must be implemented in order to record and control the type and quantity of waste generated from the operation of the port, to ensure their management in accordance with the applicable legislation. Consider the possibility to develop a solid waste recycling program.

More specifically:

- *The waste and oil residues of the ships must be managed in accordance with the "Ship-generated and cargo residues Reception and Management Plan" approved under the Α.Π. 11473.15/10/2008 Decision of the Secretary General of the Region of Central Macedonia.*
- *The urban, non-hazardous, solid waste in accordance with the JMD 50910/2727/03 (GG 1909/B/03) and the Law 4042/12 (GG 24/A/12).*
- *The waste of lubricants oils in accordance with the P.D. 82/04 (GG 64/A/04).*
- *The end-of-life vehicles in accordance with the P.D. 116/04 (GG 81/A/04)*

- *The used batteries and accumulators in accordance with the P.D. 115/04 (GG 80/A/04).*
- *The hazardous waste must be managed in accordance with the JMD 13588/725/06 (GG 383/B/06), the JMD 24944/1159/06 (GG 791/B/06) and the JMD 8668/07 (GG 287/B/07)".*

2.3.3. Waste Reception and Management Plan

The Port of Thessaloniki implements the approved "Plan for the Reception and Management of Waste and Cargo Residues generated by Ships calling at the Port of Thessaloniki, under the jurisdiction of "Thessaloniki Port Authority SA.", Municipality of Thessaloniki, Regional Unit of Thessaloniki" (Ref. No. 3122.3-1.8/51954/2021.2017 decision of the Minister of Maritime Affairs and Insular Policy). This Plan entered into force on 16.07.2021 and shall be valid for a period of 3 years. The following are the provisions of this Plan.

According to the current Plan, depending on the types of ships calling at Thessaloniki Port and the types of waste recorded in the last years, ship-generated reception facilities are usually required for the following types of waste:

- ✓ Oily waste According to ANNEX I of the I.C. MARPOL 73/78, such as:
  - Oily bilge water
  - (oily residues (sludge))
  - (oily tank washings (slops))
  - Dirty ballast water
  - Scale and sludge from tank cleaning

- ✓ Sewage According to ANNEX IV of the I.C. MARPOL 73/78 International Convention.

- ✓ Garbage According to ANNEX V of the I.C. MARPOL 73/78, such as:
  - A. Plastics
  - B. Food wastes
  - C. Domestic wastes
  - D. Edible oils
  - E. Ashes from incinerators
  - F. operational waste
  - G. Animal carcasses/Animal by-products
  - H. Fishing gear
  - I. Electric-electronic waste (CATEGORY I – E-WASTE)
  - J. Non-noxious cargo residues (Non- marine environment harmful HME)
  - K. Noxious cargo residues (Marine environment harmful HME).

Also, occasionally, there is a need for the reception of the following waste:

- Noxious Liquid Substances In bulk – ANNEX II of the International Convention MARPOL 73/78
- Noxious substances in packaged form- ANNEX III of the International Convention MARPOL 73/78, if the package is destroyed
- Ozone depleting substances - Annex VI of the International Convention. MARPOL 73/78

Based on the correlation of the above categories of ship-generated waste under MARPOL with the codes of the European Waste Catalogue (EWC) included in the said Plan, it is possible to deliver waste falling under the following EWC codes

(this list is not exhaustive):

Απόβλητα – MARPOL	Κωδικός ΕΚΑ	Περιγραφή ΕΚΑ
MARPOL Annex I - Πετρελαιοειδή		
Σεντινόνερα (oily bilge water)	13 04	έλαια υδροσυλλεκτών πλοίων (Bilge oil)
	13 04 01*	έλαια υδροσυλλεκτών πλοίων εσωτερικής ναυσιπλοΐας
	13 04 02*	έλαια υδροσυλλεκτών πλοίων από αποχετεύσεις προκυμαίων
	13 04 03*	έλαια υδροσυλλεκτών πλοίων άλλης ναυσιπλοΐας
Ελαιώδη κατάλοιπα (oily residues (sludge)	13 02	Απόβλητα έλαια μηχανής κιβωτίου ταχυτήτων και λίπανσης
	13 02 04*	Χλωριωμένα έλαια μηχανής, κιβωτίου ταχυτήτων και λίπανσης με βάση τα ορυκτά
	13 02 05*	Μη χλωριωμένα έλαια μηχανής, κιβωτίου ταχυτήτων και λίπανσης με βάση τα ορυκτά
	13 02 08*	Άλλα έλαια μηχανής, κιβωτίου ταχυτήτων και λίπανσης
	13 03 10*	Άλλα έλαια μόνωσης και μεταφοράς θερμότητας
	13 05 08*	Μείγματα αποβλήτων από θαλάμους υπολειμμάτων και διαχωριστές ελαίου/νερού
Εκπλύματα δεξαμενών (oil tank washings)	13 05 08*	Μείγματα αποβλήτων από θαλάμους υπολειμμάτων και διαχωριστές ελαίου/νερού
Ακάθαρτο θαλάσσερμα (dirty ballast)	13 05 08*	Μείγματα αποβλήτων από θαλάμους υπολειμμάτων και διαχωριστές ελαίου/νερού
Λάσπες από τον καθαρισμό δεξαμενών (scale and sludge from tank cleaning)	13 05 02*	Λάσπες διαχωριστή ελαίου/νερού
	13 05 03*	Λάσπες υποδοχέα
MARPOL Annex II–Επιβλαβείς υγρές ουσίες χύδην (Bulk)		
Κατηγορία X		Τα απόβλητα του Annex II κατηγοριοποιούνται βάσει της MEPC.2/Circ.23 1-12-2017 Κατάλογος αποτελούμενος από δύο παραρτήματα (σελ. 7 έως 47)
Κατηγορία Y		
Κατηγορία Z		
Άλλες ουσίες		
MARPOL Annex III - Επιβλαβείς ουσίες σε συσκευασμένη μορφή		
		Υλικά/ουσίες εκτός ραδιενεργών. Τα κριτήρια για την αναγνώριση ουσιών που ανήκουν σε αυτή την ομάδα δίνονται από το σύστημα «Globally Harmonized System of Classification and Labelling of Chemicals (GHS)» που έχει αναπτυχθεί από τα Ηνωμένα Έθνη, έτσι όπως έχει τροποποιηθεί
MARPOL Annex IV– Λύματα πλοίων		
«λύματα» ή 'blackwaters'	19 08	Απόβλητα από εγκαταστάσεις επεξεργασίας υγρών αποβλήτων μη προδιαγραφόμενα άλλως
	19 08 05	Λάσπες από την επεξεργασία αστικών λυμάτων
	20 03 04	
«φαιόχρωα ύδατα» ή graywaters'		
MARPOL Annex V – Απορρίμματα/ Απόβλητα πλοίων		
Α. Πλαστικά	20 01 39	Πλαστικά
	15 01 02	Πλαστική συσκευασία
Β. Απόβλητα τροφίμων	20 01 08	Βιοαποικοδομήσιμα απόβλητα κουζίνας και χώρων ενδιαίτησης
C. Οικιακά απόβλητα	20 03 01	Ανάμεικτα αστικά απόβλητα
	20 01 01	Χαρτιά και χαρτόνια
	15 01 01	Συσκευασία από χαρτί και χαρτόνι

Απόβλητα – MARPOL	Κωδικός ΕΚΑ	Περιγραφή ΕΚΑ
	20 01 02	Γυαλιά
	15 01 07	Γυάλινη Συσκευασία
	20 01 38	Ξύλο εκτός εκείνων που περιέχουν επικίνδυνες ουσίες (ΕΚΑ 200137)
	15 01 03	Ξύλινη συσκευασία
	20 01 40	Μέταλλα
	15 01 04	Μεταλλική συσκευασία
	15 01 06	Μεικτή συσκευασία
	20 01 10	Ρούχα
	20 01 11	Υφάσματα
D. Βρώσιμα έλαια	20 01 25	Βρώσιμα έλαια και λίπη
Ε. Τέφρες από Κλιβάνους	10 01 01	Τέφρα κλιβάνου, σκωρία και σκόνη λέβητα (εξαιρουμένης της σκόνης λέβητα που περιλαμβάνεται στο σημείο 10 01 04)
	10 01 14*	Τέφρα κλιβάνου, σκωρία και σκόνη λέβητα απ' κοινή αποτέφρωση που περιέχει επικίνδυνες ουσίες
	10 01 15	Τέφρα κλιβάνου, σκωρία και σκόνη λέβητα από κοινή καύση εκτός εκείνων που περιλαμβάνονται στο σημείο 10 01 14
	19 01 11*	Τέφρα και σκωρία κλιβάνου που περιέχουν επικίνδυνες ουσίες
	19 01 12	Τέφρα και σκωρία κλιβάνου άλλες από τις αναφερόμενες στο σημείο 19 01 11
F. Λειτουργικά απόβλητα	02 01 01	Λάσπες από πλύση και καθαρισμό
	06 04 04*	Απόβλητα που περιέχουν υδράργυρο
	06 04 04*	Απόβλητα που περιέχουν υδράργυρο
	08 01 11*	Απόβλητα από χρώματα και βερνίκια με επικίνδυνες ουσίες
	08 01 11*	Απόβλητα από χρώματα και βερνίκια με επικίνδυνες ουσίες
	08 01 17*	Απόβλητα από αφαίρεση χρωμάτων/βερνικιών
	08 01 17*	Απόβλητα από αφαίρεση χρωμάτων/βερνικιών
	08 03 18	Απόβλητα toner
	08 03 18	Απόβλητα toner
	08 04 09*	Απόβλητα κολλών και στεγανωτικών
	08 04 09*	Απόβλητα κολλών και στεγανωτικών
	09 01 01*	Διαλύματα εμφανιστηρίου
	09 01 01*	Διαλύματα εμφανιστηρίου
	09 01 05*	Διαλύματα ξεπλύματος και έκπλυσης σταθεροποιητή
	12 01 02	Σκόνη και σωματίδια σιδηρούχων μετάλλων
	12 01 06*	Απόβλητα αμμοβολής με επικίνδυνες ουσίες
	12 01 17	Απόβλητα αμμοβολής
	13 05 08*	Μείγματα αποβλήτων από διαχωριστές ελαίου / νερού
	14 06 02*	Άλλοι αλογονωμένοι διαλύτες και μείγματα διαλυτών
	15 01 01	Συσκευασία από χαρτί και χαρτόνι
	15 01 03	Ξύλινη συσκευασία
	15 01 04	Μεταλλική συσκευασία
	15 01 06	Μεικτή συσκευασία
	15 01 06	Μεικτή συσκευασία
	15 01 07	ΓυάλινηΣυσκευασία
	15 01 10*	Συσκευασίες που περιέχουν επικίνδυνες ουσίες
	15 02 02*	Απορροφητικά υλικά που έχουν ρυπανθεί από επικίνδυνες ουσίες
	15 02 03	Απορροφητικά υλικά
	16 01 03	Ελαστικά στο τέλος κύκλου ζωής τους
	16 01 04*	ΟΤΚΖ

Απόβλητα – MARPOL	Κωδικός ΕΚΑ	Περιγραφή ΕΚΑ
	16 01 07*	Φίλτρα λαδιού
	16 02 09*	Μετασχηματιστές και πυκνωτές με PCB
	16 03 03*	Ανόργανα απόβλητα με επικίνδυνες ουσίες
	16 03 04	Ανόργανα απόβλητα
	16 03 05*	Οργανικά απόβλητα με επικίνδυνες ουσίες
	16 03 06	Οργανικά απόβλητα
	16 05 04*	Αέρια σε δοχεία πίεσης με επικίνδυνες ουσίες
	16 05 06*	Εργαστηριακά χημικά υλικά
	16 05 07*	Απορριπτόμενα ανόργανα χημικά
	16 05 08*	Απορριπτόμενα οργανικά χημικά
	16 06 01*	Μπαταρίες μολύβδου
	16 06 02*	Μπαταρίες Ni - Cd
	16 07 08*	Απόβλητα που περιέχουν πετρέλαιο
	16 07 09*	Απόβλητα που περιέχουν άλλες επικίνδυνες ουσίες
	17 02 01	Ξύλο
	17 02 03	Πλαστικά
	17 04 07	Μεικτά Μέταλλα
	17 06 01*	Μονωτικά υλικά που περιέχουν αμίαντο
	17 06 03*	Μονωτικά με επικίνδυνες ουσίες
	17 06 04	Μονωτικάυλικά
	17 09 03*	Μείγματα αποβλήτων δομικών υλικών και κατεδαφίσεων με επικίνδυνες ουσίες
	17 09 04	Μείγματα αποβλήτων δομικών υλικών και κατεδαφίσεων
	18 01	Απόβλητα από την περιγεννητική φροντίδα, τη διάγνωση, τη θεραπεία η την πρόληψη ασθενειών σε ανθρώπους
	19 08 05	Λάσπες από επεξεργασία αστικών λυμάτων
	19 08 10*	Μείγματα λιπών και ελαίων
	20 01 02	Γυαλιά
	20 01 19*	Παρασιτοκτόνα
	20 01 19*	Παρασιτοκτόνα
	20 01 33*	Μεικτές μπαταρίες και συσσωρευτές
	20 01 33*	Μεικτές μπαταρίες και συσσωρευτές
	20 01 38	Ξύλο εκτός εκείνων που περιέχουν επικίνδυνες ουσίες (ΕΚΑ 200137)
	20 01 40	Μέταλλα
	20 01 99	Άλλα μέρη μη προδιαγραφόμενα άλλως
G. Ζωικά Υποπροϊόντα	02 02 03	Υλικά ακατάλληλα για κατανάλωση ή επεξεργασία
	02 02 02	Απόβλητα ιστώνζώων
	02 05 01	Υλικά ακατάλληλα για κατανάλωση ή επεξεργασία
	02 03 04	Υλικά ακατάλληλα για κατανάλωση ή επεξεργασία
	19 05 02	Μη λιπασματοποιημένο τμήμα ζωικών και φυτικών αποβλήτων
Η. Αλιευτικός εξοπλισμός	02 01	Απόβλητα από γεωργία, κηπευτική, υδατοκαλλιέργεια, δασοκομία, θήρα και αλιεία
	02 01 10	Απόβλητα μέταλλα
	02 01 04	Απόβλητα πλαστικά (εξαιρούνται της συσκευασίας)
Ι. Ηλεκτρικά – ηλεκτρονικά απόβλητα, (CATEGORY I – E-WASTE)		
	16 02 09*	Μετασχηματιστές και πυκνωτές που περιέχουν PCB
	16 02 11*	απορριπτόμενος εξοπλισμός που περιέχει χλωροφθοράνθρακες HCFC, HFC
	16 02 13*	Απορριπτόμενος εξοπλισμός που περιέχει επικίνδυνα συστατικά στοιχεία (2) άλλος από τους αναφερόμενους στα σημεία 16 02 09 έως 16 02 12
	16 02 14	Απορριπτόμενος εξοπλισμός που περιέχει επικίνδυνα

Απόβλητα – MARPOL	Κωδικός ΕΚΑ	Περιγραφή ΕΚΑ
		συστατικά στοιχεία άλλος από τον αναφερόμενο στα σημεία 16 02 09 έως 16 02 13
	16 02 16	Συστατικά στοιχεία που έχουν αφαιρεθεί από απορριπτόμενο εξοπλισμό άλλα από αυτά που αναφέρονται στο σημείο 16 02 15
	20 01 21*	Σωλήνες φθορισμού και άλλα απόβλητα περιέχοντα υδράργυρο
	20 01 23*	Απορριπτόμενος εξοπλισμός που περιέχει χλωροφθοράνθρακες
	20 01 35*	απορριπτόμενος ηλεκτρικός και ηλεκτρονικός εξοπλισμός άλλος από τον αναφερόμενο στα σημεία 20 0121και 20 0123 που περιέχει επικίνδυνα συστατικά στοιχεία (6) 20 01 36 απορριπτόμενος ηλεκτρικός και ηλεκτρονικός εξοπλισμός άλλος από τον αναφερόμενο στα σημεία 20 0121
	20 01 36	απορριπτόμενος ηλεκτρικός και ηλεκτρονικός εξοπλισμός άλλος από τον αναφερόμενο στα σημεία 20 0121 , 20 0123 και 20 0135
J. Κατάλοιπα φορτίου μη επιβλαβή (Non-HME)		Ανάλογα με το είδος του φορτίου
Κ. Κατάλοιπα φορτίου επιβλαβή (HME)		Ανάλογα με το είδος του φορτίου
MARPOL Annex VI – Ουσίες που καταστρέφουν το όζον κ.α.		
Ουσίες που καταστρέφουν το όζον (CFCsκαι HALON)	14 06 01*	Χλωροφθοράνθρακες, HCFC, HFC
Υπολείμματα από συστήματα καθαρισμού καυσαερίων πλοίων	10 01 05	Απόβλητα αντιδράσεων με βάση ασβέστιο από αποθείωση καυσαερίων σε στερεά μορφή
	10 01 07	Απόβλητα αντιδράσεων με βάση ασβέστιο από αποθείωση καυσαερίων σε μορφή λάσπης
	10 01 09*	Θειικό οξύ

The ship-generated waste port reception facilities must be available 24/24 seven days a week.

According to the current Plan, taking into account the characteristics of the port facilities of ThPA and the estimate of the quantities and types of waste, the total equipment of the ship-generated waste reception facilities that is currently available at the Port of Thessaloniki includes at least the following:

"Oily waste

- *One (1) oily waste storage land-based installation.*
- *One (1) self-propelled reception vessel for the temporary storage and treatment of liquid oily waste. The vessel has the possibility to receive and temporarily store waste oils.*
- *One (1) towed reception vessel for the temporary storage and treatment of liquid oily waste. The vessel has the possibility to receive and temporarily store waste oils.*
- *Four (4) road tankers (with vacuum pressure) for the collection and transportation of liquid oily waste.*
- *One (1) road tanker for the collection and transportation of waste oils.*

Sewage

- *Two (2) road tankers for the collection and transport of sewage.*

Garbage

- *One (1) self-propelled vessel for garbage reception*
- *Two (2) specially designed vehicles for the disposal and transport of container bins with 7-10 m3 capacity.*
- *Two (2) specially designed vehicles for the disposal and transport of container bins with over 30m3 capacity.*
- *Five (5) container bins with a 7-10 m3 capacity.*
- *Five (5) container bins with an over 30 m3 capacity.*

Noxious and Special Waste

- *One (1) tanker for the reception and transport of hazardous liquid waste and residues.*
- *One (1) covered van-type truck for the collection and transport of used batteries and accumulators and other materials.*
- *One (1) covered reefer for the reception and transport of hazardous health unit waste.*
- *One (1) covered reefer for the collection and transport of animal by-products.*
- *Packaging (bib bags, barrels etc) suitable for hazardous solid waste.*

According to the current Plan, the appropriate location in the port for the installation of the above equipment of the reception facilities is the south-eastern section of Pier 3 (see Figure 2.4). Specifically, it provides for the following:

- On the eastern front of the quay 13, installation of the floating equipment of the oil reception and treatment facilities
- At the southern end of quay 12, installation of floating equipment of waste collection facility.
- At the south-eastern end of pier 3, at an open space of 200 sqm installation and storage of dry equipment for waste collection facilities, such as tankers, specially designed vehicles, trucks, bins, containers, other packaging.
- In Warehouse 17, in an indoor area of 250 sqm, installation and storage of dry equipment for waste collection facilities, such as bins, containers, other packaging.
- To the east of the base of Pier 3, an area will be exclusively used for the parking of the aforementioned vehicles when they are off duty, provided that they are unloaded and washed.

It is noted that, for the storage of larger quantities of oil residues, despite the fact that the quay extends west of Pier 6, storage tanks with a total capacity of 1,440 sqm have been installed receiving oil residues from both the aforementioned waste collection facilities and sources outside the port. It is estimated that this facility can be conceded for a monthly rent to a body other than the contractor/s providing the port service of collection of ship-generated waste and residues as it does not directly concern the collection of ship-generated waste (but its subsequent storage and transhipment) as the necessary equipment of the concession facilities includes the temporary storage of the collected oil waste on the vessels.

For the successful implementation of this Ship-Generated Waste and Cargo Residues Collection and Management Plan, it is necessary to observe an appropriate environmental management system.

Finally, to date in the framework of the procedure provided for in the current Plan (MEPC.1/CIRC834 / 15.04.2014 circular of the IMO), ThPA has not received any inadequacy complaint regarding the waste reception facilities of the Port of Thessaloniki.

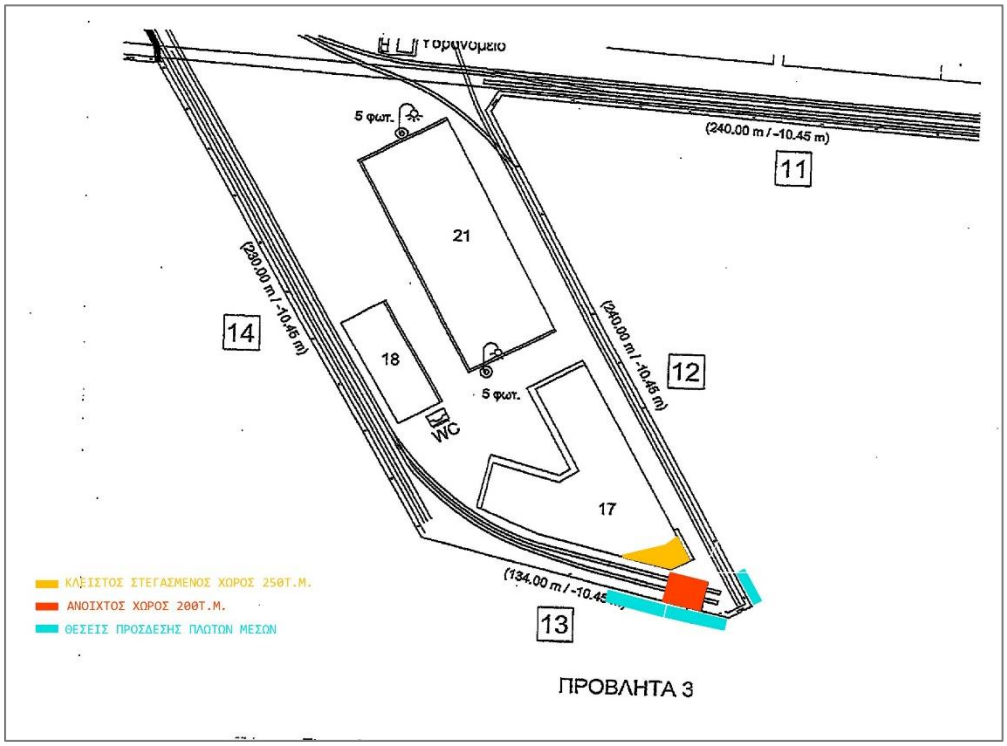

Figure2.4: Areas for the installation of the land and floating equipment of the waste reception facilities

2.4. Type and quantities of waste received

According to the data of the Annual Waste Reports submitted to the Electronic Waste Register of the Ministry of Environment and Energy (YPEN), by ThPA for the Port of Thessaloniki for the last 3 years, the following quantities per type of waste are produced on an annual basis in the port:

Κατηγορία συλλεχθέντων αποβλήτων MARPOL 73/78	Είδος συλλεχθέντων αποβλήτων	Κωδικός Ε.Κ.Α. συλλεχθέντος αποβλήτου	Ποσότητα συλλεχθέντων αποβλήτων 2017 (tn)	Ποσότητα συλλεχθέντων αποβλήτων 2018 (tn)	Ποσότητα συλλεχθέντων αποβλήτων 2019 (tn)	Μέση ετήσια ποσότητα συλλεχθέντων αποβλήτων (tn)
I	μείγματα αποβλήτων από θαλάμους υπολλειμμάτων και διαχωριστές ελαίου / νερού	13 05 08*	5.201,440	3.982,118	4.889,035	4.690,864
V	συσκευασία από χαρτί και χαρτόνι	15 01 01	0,251	-	3,231	1,161
V	Μεικτή συσκευασία	15 01 06	102,180	145,698	135,347	127,742
V	Αλουμίνιο	17 04 02	-	0,130	-	0,043
V	Σίδηρος και χάλυβας	17 04 05	26,860	33,870	34,053	31,594
V	Μεικτά Μέταλλα	17 04 07	-	-	0,197	0,066
V	Καλώδια εκτός εκείνων που περιέχουν πετρέλαιο, λιθανθρακόπισσα και άλλες επικίνδυνες ουσίες	17 04 11	-	-	0,218	0,073
V	βρώσιμα έλαια και λίπη	20 01 25	1,154	0,991	0,575	0,907
V	ανάμεικτα δημοτικά απόβλητα	20 03 01	139,590	89,480	116,658	115,243

Also, according to the available data for the year 2020, the following quantities of waste have been received at the Port of Thessaloniki:

Κατηγορία συλλεχθέντων αποβλήτων MARPOL 73/78	Είδος συλλεχθέντων αποβλήτων	Ποσότητα συλλεχθέντων αποβλήτων (m^3)
I	Σεντινόνερα (Oily bilge water)	1.308,951
I	Πετρελαιοειδή κατάλοιπα (Oily residues (sludge))	3.306,188
I	Απόβλητα λιπαντικών ελαίων (Waste lubricant oils)	2,450
IV	Λύματα (Sewage)	24,590
V	Πλαστικά (Plastics)	321,130
V	Απορρίμματα τροφίμων (Food waste)	222,513
V	Οικιακά απορρίμματα (Domestic waste)	418,259
V	Μαγειρικό λάδι (Cooking oil)	3,502
V	Στάχτες αποτεφρωτήρα (Incinerator ashes)	3,468
V	Λειτουργικά απόβλητα (Operational waste)	50,775
V	Κατάλοιπα φορτίου (Cargo residues)	1,900
V	Άλλες ουσίες (Other substances)	2,018

From the above data, it becomes clear that from the waste collected at the port only the oily residues (waste category I of MARPOL 73/78) are of a considerable quantity. Household waste (mixed municipal waste), food waste and plastic or mixed packaging are received in smaller quantities. The demand for the collection of other types of waste is low (such as iron and steel) or extremely low, while it does not apply every year to the same types (same EWC codes).

2.5. Corporate social responsibility - Environment

The need for sustainable development through the provision of high quality and environmentally friendly services is one of the main strategic goals of ThPA SA. In this context, ThPA SA has designed and implements an Environmental Management System in accordance with the requirements of the International Standard ELOT EN ISO 14001: 2015 based on its

needs and aspirations and in accordance with the Legal and Regulatory requirements of applicable Greek and EU legislation.

In this context, ThPA operates in such a way as to ensure the prevention of pollution and the improvement of the environmental performance of the Environmental Management System and take appropriate measures and objectives in order to improve the environmental performance, reduce the negative and increase the positive effects of its activities.

3. Characteristics of a wider port area

3.1. Thermaic Gulf

Thermaic Gulf, with a total area of 5,100 km2, is located in the north-western Aegean. It is bounded on the east by the Kassandra peninsula, on the west by the coasts of the Prefecture of Pieria and on the north by the coastline of the city of Thessaloniki. To the south, the gulf communicates only with the Aegean, 55 km long.

Morphologically, the Thermaic Gulf is divided into three sub-sections:

1. the Gulf of Thessaloniki which is delimited with an invisible line by the capes of Vardaris and Megalo Embolo (with depths <35 m). At the narrow end of the Gulf of Thessaloniki, where the port of Thessaloniki is located, the Bay of Thessaloniki can be seen, which is the northernmost inland part of the gulf to the cape Paliomana - Mikro Embolo (with depths <25 m),
2. the Inner Thermaic Gulf that extends to the capes Atherida and Epanomi (with depths <50 m), and
3. The Outer Thermaic Gulf that extends to the capes of Poseidon and Platamon (with depths <200 m).

Four rivers (Gallikos, Axios, Loudias and Aliakmonas), which are among the most important ones in Greece, with extensive catchments and significant runoff flow into the Gulf of Thessaloniki. At the estuaries of these four rivers and torrents, an extensive plain with fertile soils is formed. It is obvious that the inflow of this significant amount of fresh water from the rivers and torrents into the Thermaic Gulf largely determines the nutritional status of the marine ecosystem, given that these fresh waters are highly enriched with nutrients from the leaching of soil.

In addition, the Bay and the Gulf of Thessaloniki are the marine recipients of urban and industrial wastewater of the wider area of the city of Thessaloniki and its suburbs and the agricultural waste from the aforementioned lowland surrounding the Bay and the Gulf of Thessaloniki. Also, in the area of the Inner Thermaic Gulf there is significant fishing activity and there are extensive shellfish farms (among the most important in Greece). Finally, leisure and tourism activities have been developed along the shores of the Thermaic Gulf.

It is obvious that the inflow of fresh river water, which is enriched with nutrients from soil leaching (including fertilizers and other pesticides), in combination with other anthropogenic activities and mainly the disposal of urban and industrial wastewater weigh greatly on the physicochemical and biological characteristics of the coastal areas of the Gulf of Thessaloniki and the Inner Thermaic Gulf.

The operation of the Wastewater Treatment Plants (WTP) of Thessaloniki (start of operation in 1997 in the area of Angelochori and 2000 in Kalochori), Thermi (start of operation in1993) and Chalastra (start of operation in 2008), has significantly improved the situation in the North Thermaic Gulf.

3.1.1. *Management Plan of the River Basins of the Water Department of Central Macedonia*

According to the current Management Plan of the River Basin of the Water Department of Central Macedonia EL10 (no. Ε.Γ. οικ. 905/21.12.2017 decision of the National Water Committee, GG 4675/B/29.12.2017) , the port infrastructure of the Port of Thessaloniki are located in the coastal water body (WB) "Thessaloniki Bay" with code EL1005C0011H (see Figure …..), which has an area of 179.94km2 and is classified in the Heavily Modified Water Bodies (HMWB) due to the extensive interventions on its coastline that affect its operation for the benefit of many activities. It is also noted that the coastal system "Thessaloniki Bay" is under significant hydro-morphological pressure, which is mainly due to the *"construction of works to hold water, flood protection and port projects (the most important being the port of Thessaloniki)"* (See Figure 3.1) Therefore, as regards the possibility of achieving the objectives of the Framework Directive 2000/60/EC for the said HMWB, according to the Plan, there is a risk that the objectives will not be achieved.

The waters of the coastal WB of "Thessaloniki Bay" (EL1005C0011H) have a moderate ecological status. Also, the chemical status is good and therefore, the overall status of the water body is moderate (see Figure 3.2).

The WB "Thessaloniki Bay" as a whole receives the drains of the city and *"at the same time, it is a field of fishing, tourism and shipping activities.*

For this reason, it requires special treatment". In the area of the port, the main measures proposed by the revision, which are related to the implementation of European Union Directives, apply, while some additional measures are also provided. The additional measures include, among others, the development of a monitoring system of the measure program of SDLAP. of Y.D. and provision of support services in the implementation of the program of measures (measure code M10S0201), the performance of sampling and analysis of waters inside and outside the port of Thessaloniki (measure code M10S0503) and finally the elaboration of the Masterplan for the Gulf of Thessaloniki (measure code M10S0504).

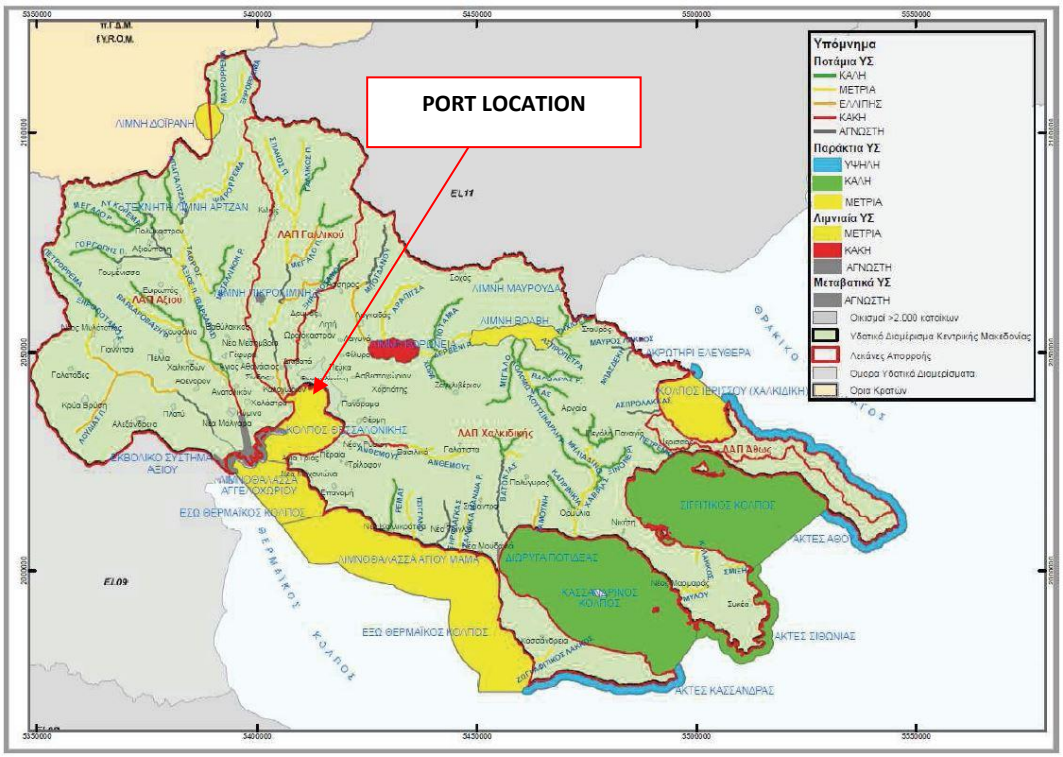

Figure.....: Classification of the overall status of the surface WB of the WD of Central Macedonia (EL10) (Source: Map 20, 1st Revision of the Management Plan of the River Basin of the Water Department of Central Macedonia, GG 4675/B/29.12.2017)

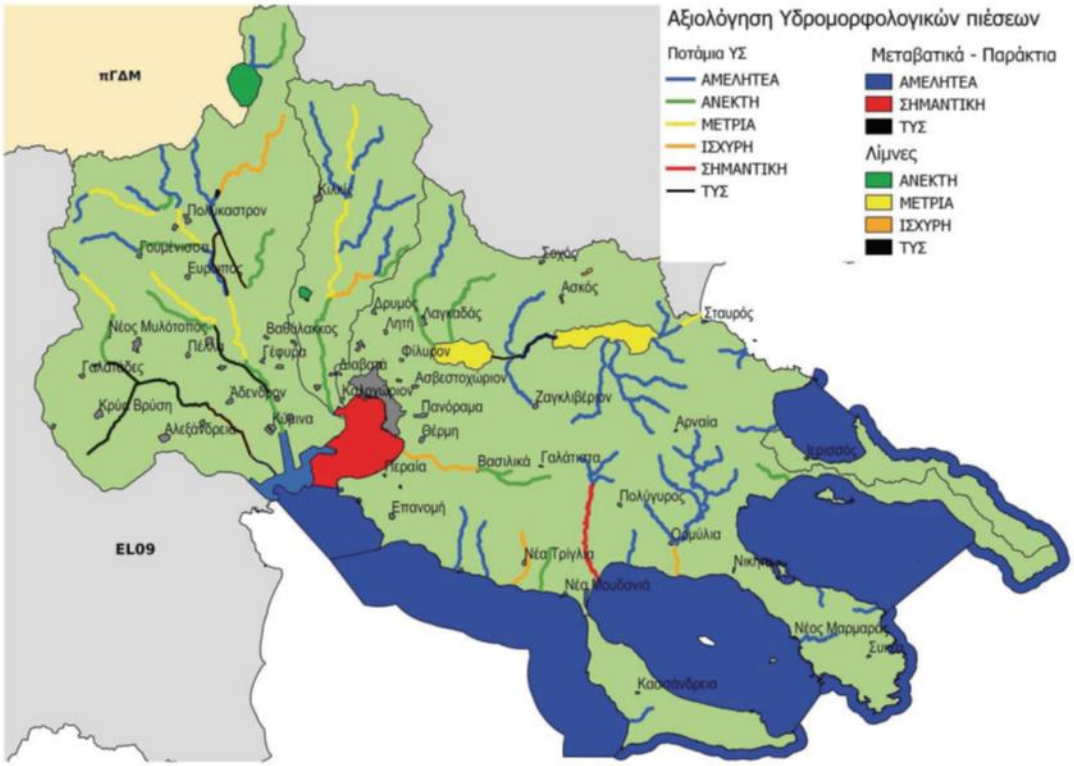

Figure 3.2: Evaluation of pressures on the hydro-morphological characteristics in WD of Central Macedonia (Map 16 - GG 4675/B/29.12.2017)

3.2. Spatial planning and protection regime of the wider area

3.2.1. Overlying spatial planning

The provisions of the Masterplan of Thessaloniki and those of the General Urban Plan (GUP) of the Municipality of Thessaloniki apply to the wider area of the port of Thessaloniki.

The current Regulatory Plan (RPTHE) and the environmental protection program of the greater area of Thessaloniki was approved by Law 1561/1985 (GG 148/A /6-9-1985). By the same law, the organization of regulatory plan and environmental protection of the wider area of Thessaloniki was established under the name "Thessaloniki Organisation" (OR.THE). The Draft Law of the new Regulatory Plan of Thessaloniki (RPT) that has been approved with no. 3/15/14.09.2012 Decision of the Executive Committee of OR.THE. is at the stage of consultation. The general objectives of RPT for the wider area of Thessaloniki are the following:

- *"The promotion of the historical character of Thessaloniki and the upgrading of its central area."*
- *Improving the quality of life for all its inhabitants and protecting the natural environment.*
- *Balancing social inequalities from region to region.*
- *Exploring the options of residence and work, leisure and entertainment in every area of Thessaloniki.*
- *Upgrading the quality of each neighbourhood and protecting the residential areas from disturbing functions and uses".*

Also regarding the environmental protection program of the RPT, it should be noted, inter alia, that it should include measures to reduce pollution from any source.

The current General Urban Plan (GUP) of the Municipality of Thessaloniki was approved by the Decision of the Minister of Environment, Spatial Planning and Public Works dated 31.3.1993 (GG 420/D/27-4-1993). It is noted that the amendment of this GUP is under approval, and the approval process reaches the end of Stage B2.

According to the current GUP of the Municipality of Thessaloniki (GG 420/D/27.04.1993), northwest of the Piers 4 and 5 of the port, the non-disturbing professional facility was defined as the predominant use, while east of the port infrastructure the residence is defined as the predominant use. In addition, north and northwest of the Pier 6, the dominant use are the central functions of the city and there is also an urban green area. Regarding the port infrastructure, in the said urban plan, they are referred to as special uses.

According to the new GUP under approval, in the immediate vicinity of the port there will be mainly tourism - leisure uses. In the western part of the port near Denropotamos, there will be open-green spaces, as well as a cargo center. North of Piers 4 and 5, the use of an urban center is foreseen.

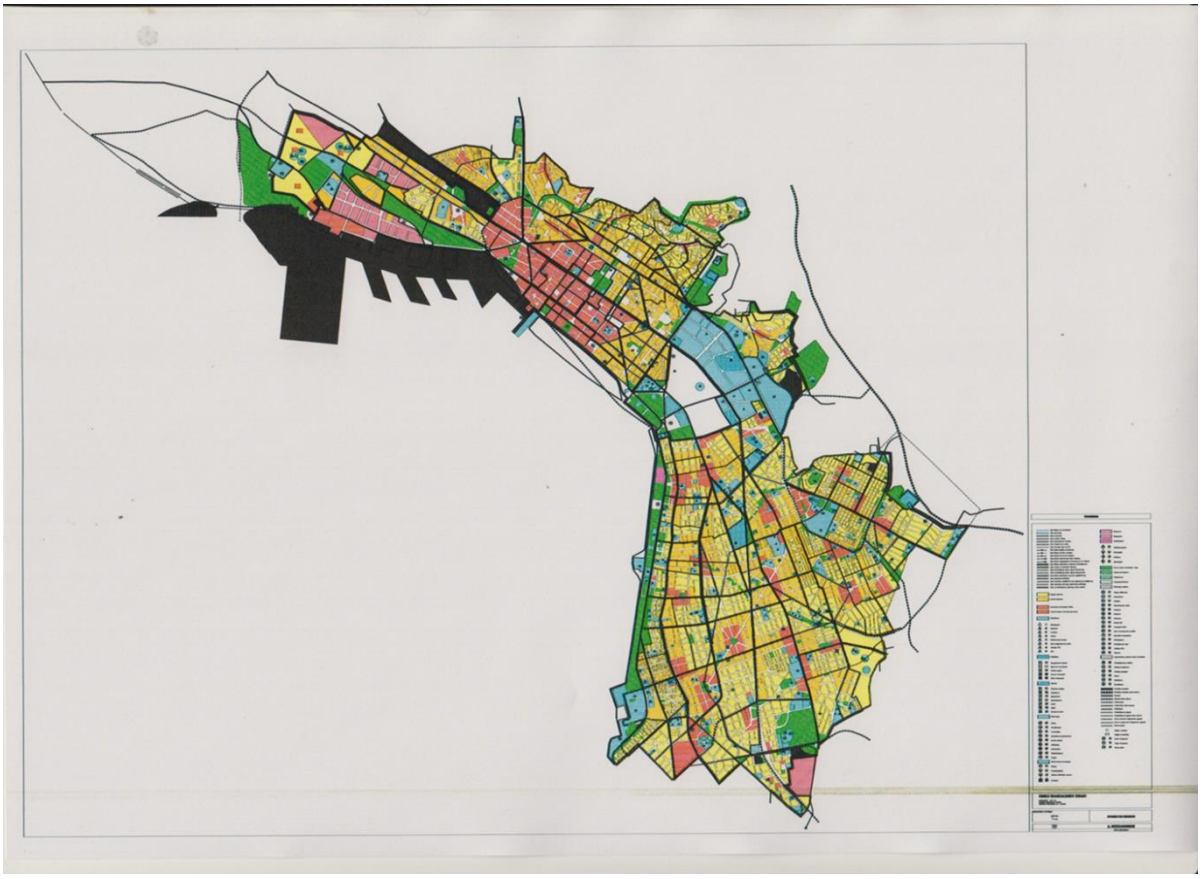

Figure.....: Applicable GUP Municipality of Thessaloniki (GG 420/D/27.04.1993)

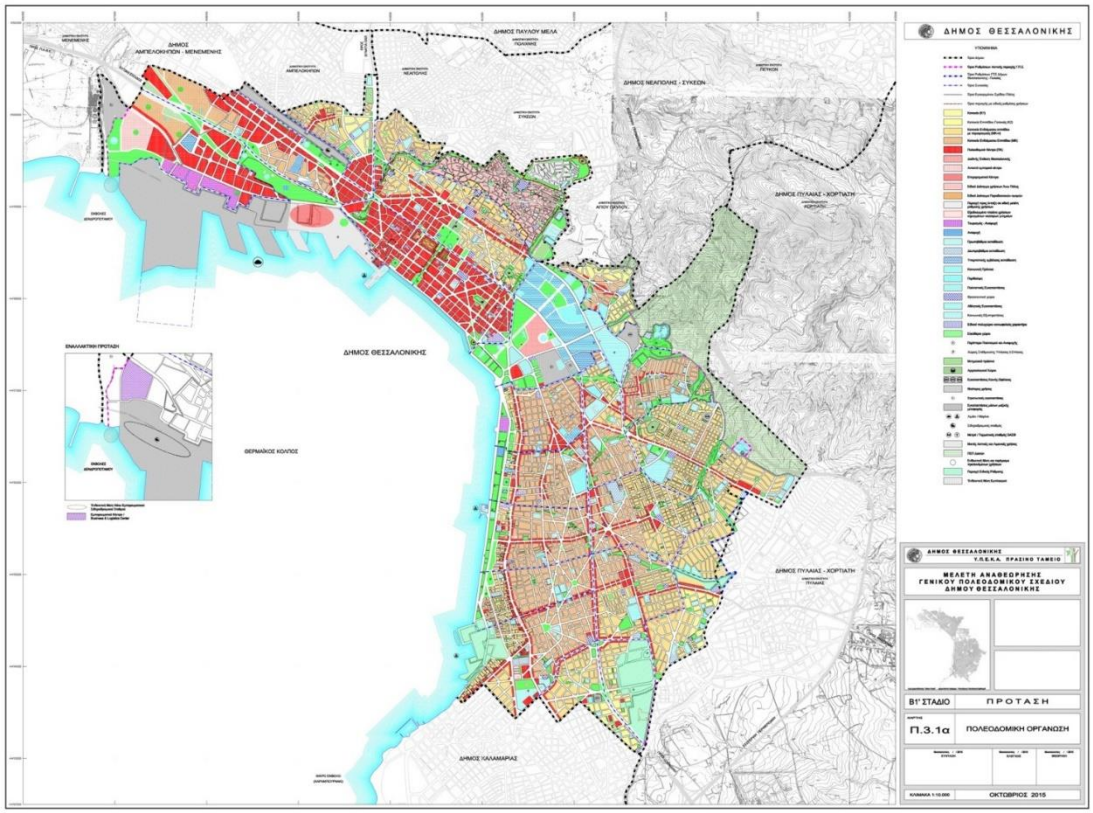

Figure.....: New GUP under approval of the Municipality of Thessaloniki

3.2.2. Protected areas of Law 3937/2011 (A'60)

To the west of Thermaic Gulf and at a distance of less than 2.5 km from the Port of Thessaloniki the National Park Delta Axiou - Loudia - Aliakmonas extends (see Figure 3.5). The National Park includes all the land, water and sea areas of the estuaries of the rivers Gallikos, Axios, Loudia and Aliakmonas, Alyki Kitros and the lagoon of Kalochori. The National Park was institutionalized with the no. 12966/2009/2005 JMD (GG 220/APP/14.05.2009), which defines protection zones and sets terms and special conditions for its protection and management.

In addition, in the west of Thermaic Gulf, there is a wetland protected by the RAMSAR International Convention for the wetlands named "Delta Axios-Loudias-Aliakmonas" at a distance of less than 3 km from the Port of Thessaloniki.

In the area of the National Park, we also find the following protected areas of the European Ecological Network Natura 2000, as revised with the no. 50743/11.12.2017 JMD (GG 4432/B/15.12.2017) (see Figure 3.5):

* The Special Area of Conservation (SAC) entitled: "Delta Axios-Loudias-Aliakmonas - Wider area - Axioupolis" with the code: GR1220002
* The Special Protection Zone for birdlife (SPA) entitled: "Delta Axios - Loudias - Aliakmonas - Aliki Kitrou" with the code: GR1220010

Also, in the National Park there are three Wildlife Refuges (see Figure 3.5).

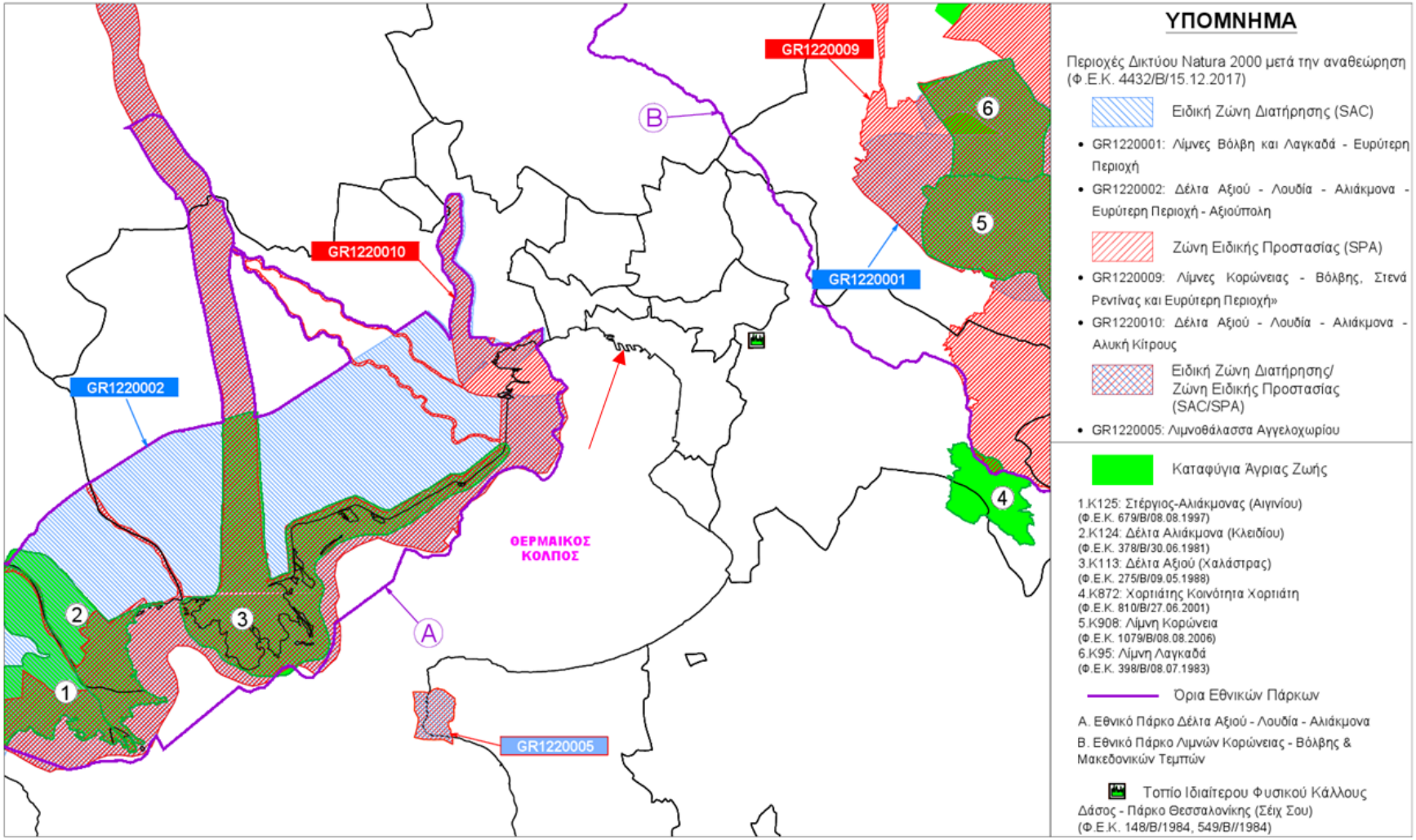

Figure.....: Boundaries of areas of the national system in the wider area of Thermaic Gulf

3.2.3. Places of archaeological interest and cultural heritage

According to the data of the Permanent Catalogue of the Listed Archaeological Sites and Monuments of Greece of the Ministry of Culture and Sports, in the wider area of Thessaloniki there is a large number of listed historical and archaeological monuments, archaeological sites and museums, Byzantine monuments and monuments of the ottoman rule, and newer monuments, mainly buildings that have been designated either as works of art or as historic listed buildings.

The following historic listed monument buildings, as well as remarkable monuments are located near the port area:

- The building of the First Customs in the eastern part of the Passenger Port together with the listed warehouses,
- The building of Yahoudi Hammam of the Ottoman period located east of the Port of Thessaloniki.
- To the north of the eastern part of the port, there are relics of the walls of the Hellenistic and successively of the Roman fortifications of the city. During the Byzantine era, repairs and some additions were made, while they took their final form (as they survive to this day) during the Ottoman period.
- North of the eastern part of the port there is the church of Saint Apostles of the Byzantine period.
- Northeast of the port there is Vienna Hotel, built in 1925.
- The Pasha Hammam building, also known as the Phoenix, is located northeast of the port and was built in the decade 1520-1530.
- The Zeitelnik Allied Cemetery is located north of the port and is the largest military cemetery in the country. It is the cemetery of the allies who fought on the Macedonian Front during the First World War.
- Villa Mehmet Kapantzi is located north of the port. This is a villa that was built at the end of the 19th century and now houses the Cultural Center of Thessaloniki of the National Bank of Greece Cultural Foundation.
- Built in the late 19th century, the old main pumping station is located north of Pier 4 and now houses the Water Museum.
- North of the old central pumping station there is the Indian Cemetery of Harman Koy, where Indians of British colonial troops who lost their lives during World War I are buried.
- East of Pier 1 is the Holocaust Memorial. This is a sculpture that was unveiled in 1997 and depicts the menorah.

In addition, in the area there are numerous museums, such as the Railway Museum, the Museum of the Balkan Wars, the Museum of Photography, the Cinema-Film Museum of Thessaloniki, the Center of Contemporary Art, the Jewish Museum at a distance less than 500 meters from the Port of Thessaloniki. Also, the White Tower, which is a protected monument, is at a greater distance.

Also, with the no. ΥΠΠΟ/ΔΙΛΑΠ/Γ/3046/51009/14.10.1994 Ministerial Decision (GG 833/B/09.11.1994) the historical center of Thessaloniki was designated as a historical site. Part of the Port of Thessaloniki and specifically the eastern part of the port is located within the boundaries of this historic site. It is stated that *"the corresponding coastal zone from the White Tower to the port with the Customs building (designed by the architector Eli Modiano) known as the "old coast" is a traditional recreation and walk area preserving memories and testimonies from past functions and activities."*

According to the study of the 1st stage of the Masterplan Port of Thessaloniki (Thessaloniki Port Authority, April 2015, Masterplan of the Port of Thessaloniki, First Stage of the Study of the designers "ADK Consulting Engineers SA," "TRITON Consulting Engineers Ltd", "EVIAM Ltd.", "MILIONIS Nikolaos Civil Engineer etc.), in the eastern part of the port (Sector 1) among the determined uses, there are cultural buildings and cultural facilities, as shown in Figure 3.6 below.

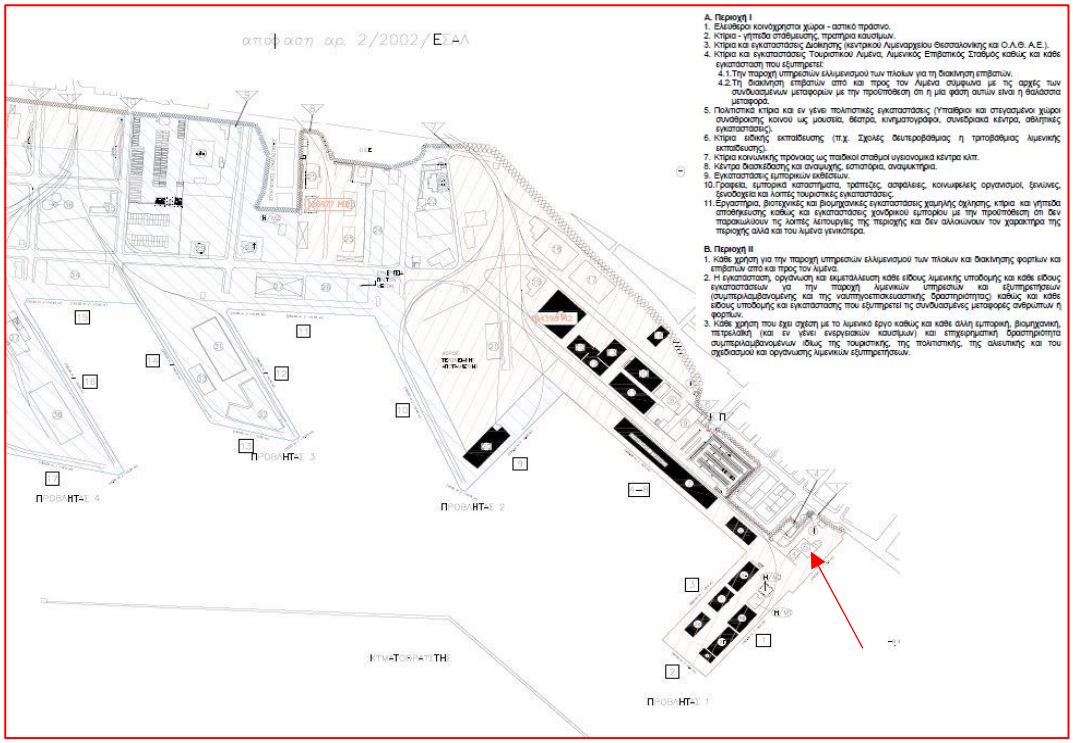

Figure 3.6: Existing land uses and building-plot ratio (Source: Thessaloniki Port Authority, April 2015, Study of the Masterplan of the Port of Thessaloniki, 1st Stage of Study, no Of Plan X.03 of the designers "ADK Consulting Engineers SA," "TRITON Consulting Engineers Ltd", "EVIAM Ltd.", "MILIONIS Nikolaos Civil Engineer etc.),

3.3. Current land uses around the port

In the immediate vicinity of the port and to the east, there are mainly central functions of the city of Thessaloniki, as well as urban green spaces, playgrounds and squares. North of piers 2 and 3, the predominant land uses are general residence and education areas, while north of piers 4, 5 and 6, there are catering-recreation areas, training areas, scattered areas where wholesale trade, handicrafts-industries, urban green areas, playgrounds and squares, unformed green spaces and areas with crops. In some places there are unbuilt areas, areas of

general residence, small residential areas and to the north there is a large area with public transport facilities.

Near the Port of Thessaloniki, north and northwest of the port and specifically near the Piers 3 and 6, there are educational and welfare facilities which is also due to the fact that Thessaloniki Urban Area is a center, where most of the educational and other services of the wider area are gathered. In addition, near the eastern part of the port that is practically adjacent to the historic center of the city there are special education buildings, as well as social welfare buildings.

Therefore, the human presence in the wider study area is intense, mainly through residential, industrial and commercial uses, while in front of the waterfront of Thessaloniki Urban Area extends the port infrastructure of the Port of Thessaloniki under consideration.

4. Estimation of the maximum number of port service providers for the collection of ship-generated waste and cargo residues

4.1. Parameters limiting the number of port service providers for the collection of ship-generated waste and cargo residues

Following the previous presentation and evaluation of the characteristics of the Port of Thessaloniki but also of its wider area of development and operation, the following parameters are identified that affect the provision of the port service of collection of ship-generated waste and cargo residues:

- The Port of Thessaloniki, as Port of International Interest, has significant traffic, especially freight traffic that mainly concerns the domestic market. However, this freight traffic, which in fact requires significant space (unloading/loading, stowage, storage, vehicle traffic, etc.), is served in a limited land area, the layout of which (elongated and narrow, along a sea front of less than 3km) creates further restrictions on the layout of individual storage areas, loading / unloading areas and the movement of machinery and heavy vehicles. Besides, in order to meet these increased needs both on land and on the berthing fronts, after a significant period of time since its initial licensing, the extension of Pier 6 has been launched. Due to the limited port infrastructure available, the operation of numerous port service providers becomes extremely difficult.

- The available spaces of the Port of Thessaloniki are further reduced as Pier 1, quay 4-8 and the land area around them constitute the "historic part" of the port that has been classified by the approved Masterplan of the port (2018) *"as a special port section, with uses not related to the freight transport service"* and hosts cultural activities. In addition, the Concession Agreement between the Greek State and ThPA SA defines a significant part of the activity developed in Pier 1 as a cultural one, which imposes the control and limitation on the provision of port services in this area. Therefore, the cultural significance of this section of the port, as defined in the Concession Agreement, the existence of protected monuments in it and its overall use by the general public imposes a strictly controlled way of providing port services in it. Especially with regard to the port service of collection of ship-generated waste and cargo residues, which due to the collection and transport of hazardous and non-hazardous waste is of increased nuisance and risk, it is necessary to limit providers to the strictly necessary activity, which, in any case, is not significant in this part of the port (they occasionally berth coastal ships or cruise ships on quay 4-8).

- The instructions of the approved Masterplan of the port (2018) regarding the possibility of developing "port zones for the support of port auxiliary vessels (CPA, fire service, pilotage service, towing, refuelling of ships - bunkering, ship-generated waste and cargo residue collection, launch boats etc.) only in Sectors 4, 9, 10 and 12, also impose the restriction of port service providers that may be active in the port.

- The traffic regulations provided by the approved update of the port Masterplan (2019) and in particular the need to exclude some areas due to the unregulated traffic are an indication of the need to reduce traffic load in the port, which is already increased due to heavy-duty vehicles transporting goods. Therefore, the number of port service providers that use vehicles (such as ship-generated waste and cargo

residue collection providers) should also be limited to the one that is absolutely necessary.

- According to the "Concession Agreement regarding the Use and Exploitation of Specific Spaces and Assets within the Port of Thessaloniki" ThPA has the obligation to properly collect and manage ship-generated waste and cargo residues. ThPA bears exclusive responsibility for the adequacy of the service provided and although it may hire third parties to fulfill this goal, it remains accountable to the Greek State. In this context, ThPA is called to choose the optimal way of providing this port service.

- According to the current national legislation, the Port of Thessaloniki, like all Greek ports (except for specific exceptions) must have port ship-generated waste collection facilities. Furthermore, ThPA must strictly comply with the approved environmental terms of the port (ΑΕΡΟ with Α.Π. 203978/21.12.2012 as amended and in force), as well as the approved Waste Collection and Management Plan. Based on the above, the categories of ship-generated waste to be received by the port have been identified, the necessary equipment for the provision of ship-generated waste and cargo residues service has been specified and specific capacity areas have been specified for the port ship-generated waste reception facilities (equipment of ship-generated waste and cargo residues facilities).

- The location of the port at the head of the Thermaic Gulf in combination with the sensitive environment of the gulf which is under pressure, and the fact that its western part is under the protection of a National Park, the RAMSAR International Convention and the Natura 2000 European Ecological Network, impose the strict environmental management of the port and strict control of potentially polluting activities. In addition, according to the current Management Plan of the River Basin of the Water Department of Central Macedonia, the classification of the Gulf of Thessaloniki in the Heavily Modified Water Bodies (HMWB) with waters of moderate ecological status, make the need for optimal environmental operation of the port even more imperative. In this context, to ensure the environmental sustainability of the port services, it is necessary to limit all activities thereof (vehicle traffic, vessel voyage, equipment and waste transport) to the absolutely necessary and thus reduce the number of providers operating in them to the strict minimum.

- In the wider area of the Gulf of Thessaloniki, there is no other port infrastructure (the fishing reserve of Angelochori and the fishing port of Michaniona are at a considerable distance from the port and are not suitable for berthing of non-fishing boats) that could serve the berthing and storage of the floating and land equipment of the providers of the ship-generated waste and cargo residues collection port service so as not to occupy additional space in the port (since the provision of this service is planned 24 hours in advance between the ship and the provider). After all, even if there was other port infrastructure to serve the providers, the regular voyage to and from the port would contribute to the intensification of navigation in the bay, which is one of the main anthropogenic pressures on it with obvious adverse effects for the sensitive marine environment of the area.

- Due to the proximity of the port to the city center of Thessaloniki and its central functions and attractions, it is necessary to arrange the uses in its land area appropriately, so that they cause the least possible nuisance and be as compatible as possible with the neighboring uses and infrastructure of the city. In this context, the onshore ship-generated waste reception facilities are not compatible with the uses of tourism - leisure, urban planning and housing. It is therefore recommended to limit them to the parts of the port that are not in direct contact with the city. This results in the further reduction of the spaces available to meet the needs of the providers of the ship-generated waste and cargo residues reception port service and thus the need to reduce their number.

- In the context of corporate social responsibility, ThPA seeks to provide environmentally friendly services and ensure the prevention of pollution and the optimal environmental performance of the port. Therefore, the reduction of the negative and increase of the positive effects resulting from its activities which is sought by ThPA, in combination with the aforementioned environmental and licensing commitments, the protection regime and the operational needs of the port make it necessary to estimate the maximum and absolutely necessary number of providers that can exercise the ship-generated waste and cargo residues reception port service in the Port of Thessaloniki.

From the above analysis and the data provided, it appears that the value and rarity of both the sea (Thermaic Gulf) and the coastal area in the port area (protected areas, monuments, historic center of Thessaloniki), the need to protect the environment and avoid pollution through the environmental sustainability of the port services provided, and finally the geometrical and functional characteristics of the port impose the restriction of providers of port services and mainly the reception of ship waste and cargo residues.

4.2. Port capabilities in terms of the number of port service providers

Based on the above, the Port of Thessaloniki is called to reduce the number of providers of the ship-generated waste and cargo residues reception port service to a minimum. Taking into account the principle of free competition and financial transparency on the basis of which EU Regulation 2017/352 was adopted, the present study estimates the maximum number of providers of the ship-generated waste and cargo residues port service that may operate in the port, in order to ensure the protection and safety of the environment and the environmental sustainability of the port. The following were taken into account for this estimate:

- The port service of collection of ship-generated waste and cargo residues concerns the total waste generated both by ships that berth at the port quays and by ships at anchorage within the anchorage limits of ThPA and mainly the following categories of waste:
    - oily waste
    - solid waste
    - cargo residues
    - animal by-products and hazardous waste from sanitary facilities.

  According to the data of the Port Annual Waste Reports, in addition to oily waste and solid waste (mixed municipal, paper, mixed packaging), the provider is required to receive small quantities of various other types of waste (mainly cargo residues) that

may differ from case to case. Consequently, the provider is obliged to have the means for the collection and temporary storage of different types of waste and consequently needs more premises, vehicles and staff. Consequently, an increased number of providers implies reserving more useful areas of the port, but also a burden on the traffic load in the port. Also, apart from oily waste, the annual collected quantity of which is significant, the quantity of the rest of the waste collected on an annual basis is small, which makes the temporary waste storage infrastructure crucial, as the enable the provider to collect a sufficient quantity from any type of waste thus rendering its transport and disposal more efficient. In this context, and especially in the case of an increased number of providers, ThPA is called to have significant area of useful spaces for the installation of temporary storage infrastructure for any type of waste.

- The Port of Thessaloniki uses all its available spaces and its berthing structures to meet the needs of commercial and passenger traffic and other operational needs, while as mentioned above part of the port is used for hosting cultural activities. Therefore, the port currently lacks exploitable free spaces.

- Today, in the Port of Thessaloniki, the port service in question is provided efficiently and safely by a single provider who implements the Waste Reception and Management Plan, in full compliance with the requirements of the applicable environmental conditions of the port and the contractual obligations of ThPA.

- The need to protect the marine environment in Thermaic Gulf and therefore in the port area is imperative. Limiting the number of vessels and the intensity of each port service contributes in this direction.

Therefore, to ensure the environmental sustainability and safety of the ship-generated waste and cargo residue port service, the Port of Thessaloniki must have sufficient land areas and sufficiently long berthing places for each provider that will offer this service. Given the lack of sufficient free space suitable for this purpose in the port (as presented in detail in section 4.1 hereof) and the fact that to date the needs of the port are met efficiently by a single provider, it is estimated that ThPA is recommended to limit the number of providers to one (1) for liquid waste and one (1) for solid waste.

5. Conclusion

From the above analysis, it appears that the value and rarity of both the marine and coastal are in the port area, the need to protect the environment and avoid pollution through the environmental sustainability of the port services provided, and finally the geometrical and functional characteristics of the port impose the limitation on the providers of port services and mainly the reception of ship-generated waste and cargo residues.

Therefore, to ensure the sustainability and safety of the ship-generated waste and cargo residue port service, the Port of Thessaloniki must have sufficient land areas and sufficiently long berthing places for each provider that will offer this service. Given the lack of sufficient free space suitable for this purpose in the port and the fact that to date the needs of the port

are met efficiently by a single provider, it is estimated that ThPA is recommended to limit the number of providers to one (1) for liquid waste and one (1) for solid waste.