

**DP2 : BREMORE**

**Order of Magnitude Costing of a new port to replace the existing Dublin Port**

**Prepared by Programme Management Office, Dublin Port Company**

**Estimate components :**

- New port infrastructure**
- Buildings & Equipment**
- Land acquisition at new site**
- Capitalised environmental mitigation costs at new port**
- Acquisition of stakeholder interests in existing port to allow development**
- Remediation of existing port lands to allow development**

**Phasing of new port for costing purposes :**

- Phase 1 - 77m tonnes p.a. total throughput**
- Phase 2 - 134m tonnes p.a. total throughput**

**Cost Timebase :** **Q3 2020 (with no allowance for subsequent inflation)**

**October 2020**

**2.1 INTRODUCTION**

The following is an Order of Magnitude Estimate for constructing a new port at Bremore to provide a complete replacement for the existing Dublin Port. The ultimate port capacity would be 134m Tonnes p.a after Phase 2 completion. Phase 1, at 77m Tonnes capacity, mirrors the projected required capacity of the existing Dublin Port in the year 2040 - if Masterplan 2040 is completed. The conceptual design of the new port was developed iteratively from initial layouts which were refined through first stage hydraulic modelling so as to produce the final design for costing. No site investigation work has been undertaken.

Costings are based on prices current at Q3 2020, with no allowance for subsequent price inflation.

**2.2 BREMORE : COST RANGE**

Estimated Cost Range	Lower Range			Upper Range	
Phase 1	7.7	Billion	to	8.9	Billion
Phase 2	1.3	Billion	to	1.5	Billion
<b>Phase 1 &amp; 2</b>	<b>8.9</b>	<b>Billion</b>	<b>to</b>	<b>10.4</b>	<b>Billion</b>

**2.3 COST SUMMARY**

	<u>PHASE 1</u>	<u>PHASE 2</u>	<u>TOTAL</u>
NEW PORT INFRASTRUCTURE	€3.7 bn	€0.9 bn	€4.6 bn
BUILDINGS & EQUIPMENT	€0.9 bn	€0.1 bn	€1.0 bn
LAND ACQUISITION	€0.7 bn	€0.0 bn	€0.7 bn
REMEDIAION EXISTING PORT LAND	€0.7 bn	€0.0 bn	€0.7 bn
ENVIRONMENTAL MITIGATION (capitalised)	€0.1 bn	€0.0 bn	€0.1 bn
<b>SUB-TOTAL (excl Contingency)</b>	<b>€6.1 bn</b>	<b>€1.0 bn</b>	<b>€7.1 bn</b>
<b>CONTINGENCY LOWER RANGE</b>	<b>€1.5 bn</b>	<b>€0.3 bn</b>	<b>€1.8 bn</b>
<b>TOTAL LOWER RANGE</b>	<b>€7.7 bn</b>	<b>€1.3 bn</b>	<b>€8.9 bn</b>
<b>CONTINGENCY UPPER RANGE</b>	<b>€2.8 bn</b>	<b>€0.5 bn</b>	<b>€3.2 bn</b>
<b>TOTAL UPPER RANGE</b>	<b>€8.9 bn</b>	<b>€1.5 bn</b>	<b>€10.4 bn</b>

**2.4 ASSUMPTIONS**

Yards finish level +5.6m MSL / 8.4m CD.

Assume dredged sand filled to level 5m MSL (300mm stone + 300mm Slab Finished Level to 5.6MSL).

Ro Ro Quay allows for Rock Revetments with Jetties for docking.

Assume dredge is uncontaminated and no treatment allowed for before infilling.

Assume sand can be dredged locally for infilling.

Assume an average 30% of dredge for Channel, Basin and Berths will be rock.

Assume no restrictions on rate of dredging per annum.

Buildings assume replication of existing Dublin Port buildings with some capacity adjustments.

Equipment assumes replication of existing with addition of Shore to Ship Power and Automatic Docking.

Equipment assumes half of the existing RTG, STS Cranes, and Port Cranes can be relocated to the new Port.

Assume remediation of existing Port Lands to a depth of 1m and also raising existing levels by a further 1m to allow for climate change.

Cruise remains in existing Dublin Port.

	Qty	unit	Average Rate	Phase 1	Phase 2	TOTAL	Notes
<b>NEW PORT INFRASTRUCTURE</b>							
<b>PHASE 1</b>							
Enabling works	1	item	€244,661,945	€244,661,945		€244,661,945	
External Breakwater - Phase 1	9,200	m	€60,656	€558,036,801		€558,036,801	
Internal Revetments, permanent & temporary	5,700	m	€33,818	€192,762,137		€192,762,137	
Container Quay Wall Phase 1	1,200	m	€127,801	€153,361,561		€153,361,561	
Ro Ro Berth & Ramps Phase 1	1,450	m	€203,170	€294,596,546		€294,596,546	
Bulk Quay Walls Phase 1	900	m	€127,801	€115,021,171		€115,021,171	
Port Services Phase 1	200	m	€127,801	€25,560,260		€25,560,260	
Oil Berth Phase 1	630	m	€127,801	€80,514,820		€80,514,820	
Container Yard Phase 1	600,000	m2	€271	€162,414,654		€162,414,654	
Ro Ro Yard Phase 1	850,000	m2	€209	€177,418,984		€177,418,984	
Bulk Yard Phase 1	320,000	m2	€215	€68,745,799		€68,745,799	
Oil Berth Yard Phase 1	200,000	m2	€213	€42,632,494		€42,632,494	
Port & State Services Yard Phase 1	610,000	m2	€211	€128,654,913		€128,654,913	
Bulk Filling Phase 1	45,377,500	m3	€13	€570,925,494		€570,925,494	
Dredging Phase 1	23,476,440	m3	€19	€437,487,803		€437,487,803	
River Channel Phase 1	1,750	m	€12,221	€21,385,979		€21,385,979	
Roads Phase 1	18	km	€11,402,135	€202,958,000		€202,958,000	
Rail Phase 1	10	km	€11,405,670	€110,635,000		€110,635,000	
Environmental & Community Gain Costs				€80,000,000		€80,000,000	
<b>PHASE 2</b>							
External Breakwater - Phase 2	1,100	m	€27,857		€30,642,255	€30,642,255	
Container Quay Wall Phase 2	1,200	m	€127,801		€153,361,561	€153,361,561	
Ro Ro Berth & Ramps Phase 2	580	m	€214,495		€124,407,317	€124,407,317	
Container Yard Phase 2	600,000	m2	€270		€161,945,769	€161,945,769	
Ro Ro Yard Phase 2	350,000	m2	€213		€74,480,627	€74,480,627	
Bulk Quay Yards Phase 2	40,000	m2	€224		€8,944,889	€8,944,889	
Bulk Filling Phase 2	20,725,000	m3	€16		€321,885,623	€321,885,623	
Dredging Phase 2	345,600	m3	€19		€6,440,320	€6,440,320	
Roads Phase 2	2	km	€7,085,000		€12,044,500	€12,044,500	
Rail Phase 2	2	km	€5,790,625		€9,265,000	€9,265,000	
Sub-Total - New Port Infrastructure				€3,667,774,360	€903,417,866	€4,571,192,221	
<b>BUILDINGS &amp; EQUIPMENT</b>							
Port Buildings				€136,426,308	€0	€136,426,308	
Port Equipment Phase 1				€197,611,550		€197,611,550	
Port Equipment Phase 2					€97,462,350	€97,462,350	
Stakeholder Buildings Replacement				€215,022,120	€0	€215,022,120	
Stakeholder Equipment Replacement				€77,385,000	€0	€77,385,000	
Stakeholder Oil & Gas Facilities				€299,750,000	€0	€299,750,000	
Sub-Total - Buildings & Equipment				€926,194,978	€97,462,350	€1,023,657,328	
<b>LAND ACQUISITION</b>							
New Port - Land costs less sale proceeds of existing Dublin Inland Port lands				€2,269,153	€0	€2,269,153	
Existing Port - Stakeholder Leases CPO to secure vacant possession				€683,675,000	€0	€683,675,000	Existing Port Lands: cost of buying out existing stakeholder leases so as to get vacant possession. This assumes that at time of acquisition, existing port lands will have been, or will imminently be, rezoned to commercial/ residential. Benchmark price for calculation is the July '19 guide price of €10.4m per ha for the 15 ha Glass Bottle Site. Remediation cost was taken off site value at rate of €2.8m per ha (based on the overall estimate of remediation costs for the port lands). This benchmark price was then used in assessing acquisition costs of stakeholder sites with secure long term tenure. Other stakeholder sites were assessed on an individual basis.
Sub-Total - Land Acquisition				€685,944,153	€0	€685,944,153	
<b>REMEDIATION EXISTING PORT LAND</b>							
Existing Port - Site remediation	247	hectares	€2,843,723	€703,252,703	€0	€703,252,703	Assumptions:- Remediation of top layer across the site to a depth of 1M Building up levels to an average of 5.5m OD across site (1M additional imported fill) Includes a perimeter high L shaped wall to retain the material
Sub-Total - Remediation of Existing Port				€703,252,703	€0	€703,252,703	
<b>ENVIRONMENTAL MITIGATION (capitalised)</b>							
New Port - Liabilities - Ongoing Environmental Mitigation Measures				€147,000,000	N/A	€147,000,000	Environmental Mitigation Measures. Ongoing due to impact of port on natural coastal sediment movements. Continuing OPEX of €5.9m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when northern breakwater completed.
Sub-Total - Environmental Mitigation (Capitalised)				€147,000,000	€0	€147,000,000	
<b>NATIONAL INFRASTRUCTURE</b>							
National Infrastructure - National Roads Network Impact							Bringing forward of elements of the national roads programme due to impact of port traffic on M1. Not allowed for in costs.
National Infrastructure - National Rail Network Impact							Bringing forward elements of improvement of national rail network to handle traffic from new port. Not allowed for in costs.
Sub-Total - National Infrastructure Impact				€0	€0	€0	
<b>TOTAL</b>				€6,130,166,194	€1,000,880,210	€7,131,046,404	

## BREMORE (2.0) : SUMMARY EXCLUDING CONTINGENCY

CAPEX Summary Excluding Contingency	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Phase 1	3,667,774,360	926,194,978	685,944,153	703,252,703	147,000,000	6,130,166,194
Phase 2	903,417,860	97,462,350	0	0	0	1,000,880,210
<b>Total Phase 1 &amp; 2</b>	<b>€4,571,192,221</b>	<b>€1,023,657,328</b>	<b>€685,944,153</b>	<b>€703,252,703</b>	<b>€147,000,000</b>	<b>€7,131,046,404</b>

## CONTINGENCY CALCULATION

Lower Range Contingency Allowance	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Minimum Contingency Allowance	25%	25%	25%	25%	25%	
Phase 1	4,584,717,950	1,157,743,722	857,430,192	879,065,879	183,750,000	7,662,707,742
Phase 2	1,129,272,326	121,827,938	0	0	0	1,251,100,263
<b>Total Phase 1 &amp; 2</b>	<b>€5,713,990,276</b>	<b>€1,279,571,659</b>	<b>€857,430,192</b>	<b>€879,065,879</b>	<b>€183,750,000</b>	<b>8,913,808,006</b>

Upper Range Contingency Allowance	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Maximum Contingency Allowance	45%	45%	45%	50%	45%	
Phase 1	5,318,272,822	1,342,982,717	994,619,022	1,054,879,054	213,150,000	8,923,903,616
Phase 2	1,309,955,898	141,320,408	0	0	0	1,451,276,305
<b>Total Phase 1 &amp; 2</b>	<b>€6,628,228,720</b>	<b>€1,484,303,125</b>	<b>€994,619,022</b>	<b>€1,054,879,054</b>	<b>€213,150,000</b>	<b>10,375,179,922</b>

Mid-point of the Lower and Upper Contingency Range	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Phase 1	€4,951,495,386	€1,250,363,220	€926,024,607	€966,972,467	€198,450,000	€8,293,305,679
Phase 2	€1,219,614,112	€131,574,173	€0	€0	€0	€1,351,188,284
<b>Total Phase 1 &amp; 2</b>	<b>€6,171,109,498</b>	<b>€1,381,937,392</b>	<b>€926,024,607</b>	<b>€966,972,467</b>	<b>€198,450,000</b>	<b>€9,644,493,964</b>

		Quantity	Rate	Phase 1	Phase 2
	<b>ENABLING WORKS</b>				
Enabling works	Temporary Road from R132 to Shore, including lighting & services 12m wide	500 m	€2,000	€1,000,000	
Enabling works	Temporary Road Along Shore linking the two Breakwaters, incl lighting and services, 12m wide	3,000 m	€2,000	€6,000,000	
Enabling works	Temporary Double Road Bridge Over Rail Tracks	1 nr	€6,500,000	€6,500,000	
Enabling works	Temporary Bridge Over River	1 nr	€5,000,000	€5,000,000	
Enabling works	Laydown Area	100,000 m2	€50	€5,000,000	
Enabling works	Marine Site Investigations	1 item	€15,000,000	€15,000,000	
Enabling works	Land Investigations	1 item	€5,000,000	€5,000,000	
Enabling works	ESB Substation & Connection for Permanent Works	1 item	€70,000,000	€70,000,000	
Enabling works	Allow for Sustainable Power Supply (wind Farm / Solar)	1 item	€25,000,000	€25,000,000	
Enabling works	Gas Connection & Infrastructure Upgrade for Permanent works	1 item	€15,000,000	€15,000,000	
Enabling works	Water Connection & Infrastructure Upgrade for Permanent Works	1 item	€15,000,000	€15,000,000	
Enabling works	Fibre / Telephone Services Connection & Infrastructure Upgrade	1 item	€10,000,000	€10,000,000	
Enabling works	Foul & Surface Water Connection & Infrastructure Upgrade	1 item	€15,000,000	€15,000,000	
Enabling works	Archaeological excavations - Allowance for Archaeological Excavation and potential disruption. Note allowance for Archaeological supervision allowed under dredging. (Anticipate Low Risk)	1 item	€10,000,000	€10,000,000	
Enabling works	Works / Diversion work to Gas Interconnector, Interconnector to be avoided, confirmed by RPS			Interconnector avoided	
Enabling works	<b>Contractor Preliminaries</b>				
Enabling works	Allow for Management and Preliminaries	10.00%	€203,500,000	€20,350,000	
Enabling works	PSCS	0.30%	€203,500,000	€610,500	
Enabling works	<b>Design &amp; Management</b>				
Enabling works	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€224,460,500	€20,201,445	
	<b>EXTERNAL BREAKWATER</b>				
External Breakwater - Phase 1	Breakwater A1	1,600 m	€19,529	€31,247,040	
External Breakwater - Phase 1	Breakwater A2	1,650 m	€40,344	€66,566,940	
External Breakwater - Phase 1	Breakwater B	1,550 m	€51,323	€79,550,185	
External Breakwater - Phase 1	Breakwater C (lined both sides, smaller armour internally)	3,000 m	€68,688	€206,065,200	
External Breakwater - Phase 1	Breakwater Channel Entrance	0 m		€0	
External Breakwater - Phase 1	Southern Breakwater (lined both sides, smaller armour internally)	1,400 m	€57,659	€80,723,280	
External Breakwater - Phase 1	<b>Contractor Preliminaries</b>				
External Breakwater - Phase 1	Allow for Management and Preliminaries	10.00%	€464,152,645	€46,415,265	
External Breakwater - Phase 1	PSCS	0.30%	€464,152,645	€1,392,458	
External Breakwater - Phase 1	<b>Design &amp; Management</b>				
External Breakwater - Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€511,960,367	€46,076,433	
	<b>INTERNAL REVETMENTS, PERMANENT &amp; TEMPORARY</b>				
Internal Revetments, permanent & temporary	RoRo - Internal Breakwater (A2 with Smaller Armour)	2,300 m	€30,796	€70,829,880	
Internal Revetments, permanent & temporary	RoRo - Internal Breakwater (Lining one side of existing A2 with Smaller Armour)	2,300 m	€20,552	€47,270,520	
Internal Revetments, permanent & temporary	RoRo - Internal Breakwater (B with Smaller Armour)	1,100 m	€38,392	€42,231,420	
Internal Revetments, permanent & temporary	<b>Contractor Preliminaries</b>				
Internal Revetments, permanent & temporary	Allow for Management and Preliminaries	10.00%	€160,331,820	€16,033,182	
Internal Revetments, permanent & temporary	PSCS	0.30%	€160,331,820	€480,995	
Internal Revetments, permanent & temporary	<b>Design &amp; Management</b>				
Internal Revetments, permanent & temporary	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€176,845,997	€15,916,140	
	<b>CONTAINER QUAY WALL PHASE 1</b>				
Container Quay Wall Phase 1	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	1,200 m	€106,300	€127,560,000	
Container Quay Wall Phase 1	<b>Contractor Preliminaries</b>				
Container Quay Wall Phase 1	Allow for Management and Preliminaries	10.00%	€127,560,000	€12,756,000	
Container Quay Wall Phase 1	PSCS	0.30%	€127,560,000	€382,680	
Container Quay Wall Phase 1	<b>Design &amp; Management</b>				
Container Quay Wall Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€140,698,680	€12,662,881	
	<b>RO RO BERTH &amp; RAMPS PHASE 1</b>				
Ro Ro Berth & Ramps Phase 1	Ro Ro Area Int Breakwater Type A2	1,000 m	€30,796	€30,795,600	
Ro Ro Berth & Ramps Phase 1	Ro Ro Jetty similar to Holyhead	5 nr	€20,100,000	€100,500,000	
Ro Ro Berth & Ramps Phase 1	Ro Ro Ramps 2nr + support Piles and concrete ramp (2 nr Single)	3 nr	€14,900,000	€44,700,000	
Ro Ro Berth & Ramps Phase 1	Ro Ro Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps)	2 nr	€34,519,000	€69,038,000	
Ro Ro Berth & Ramps Phase 1	<b>Contractor Preliminaries</b>				
Ro Ro Berth & Ramps Phase 1	Allow for Management and Preliminaries	10.00%	€245,033,600	€24,503,360	
Ro Ro Berth & Ramps Phase 1	PSCS	0.30%	€245,033,600	€735,101	
Ro Ro Berth & Ramps Phase 1	<b>Design &amp; Management</b>				
Ro Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€270,272,061	€24,324,485	
	<b>BULK QUAY WALLS PHASE 1</b>				
Bulk Quay Walls Phase 1	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	900 m	€106,300	€95,670,000	
Bulk Quay Walls Phase 1	<b>Contractor Preliminaries</b>				
Bulk Quay Walls Phase 1	Allow for Management and Preliminaries	10.00%	€95,670,000	€9,567,000	
Bulk Quay Walls Phase 1	PSCS	0.30%	€95,670,000	€287,010	
Bulk Quay Walls Phase 1	<b>Design &amp; Management</b>				
Bulk Quay Walls Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€105,524,010	€9,497,161	

		Quantity	Rate	Phase 1	Phase 2
	<b>PORT SERVICES</b>				
Port Services Phase 1	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	200 m	€106,300	€21,260,000	
Port Services Phase 1					
Port Services Phase 1	<b>Contractor Preliminaries</b>				
Port Services Phase 1	Allow for Management and Preliminaries	10.00%	€21,260,000	€2,126,000	
Port Services Phase 1	PSCS	0.30%	€21,260,000	€63,780	
Port Services Phase 1					
Port Services Phase 1	<b>Design &amp; Management</b>				
Port Services Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€23,449,780	€2,110,480	
	<b>OIL BERTH</b>				
Oil Berth Phase 1	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	630 m	€106,300	€66,969,000	
Oil Berth Phase 1					
Oil Berth Phase 1	<b>Contractor Preliminaries</b>				
Oil Berth Phase 1	Allow for Management and Preliminaries	10.00%	€66,969,000	€6,696,900	
Oil Berth Phase 1	PSCS	0.30%	€66,969,000	€200,907	
Oil Berth Phase 1					
Oil Berth Phase 1	<b>Design &amp; Management</b>				
Oil Berth Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€73,866,807	€6,648,013	
	<b>CONTAINER YARD PHASE 1</b>				
Container Yard Phase 1	Container Yard RTG Yard	600,000 m2	€221	€132,600,000	
Container Yard Phase 1	Site Enclosures	4,150 m	€600	€2,490,000	
Container Yard Phase 1					
Container Yard Phase 1	<b>Contractor Preliminaries</b>				
Container Yard Phase 1	Allow for Management and Preliminaries	10.00%	€135,090,000	€13,509,000	
Container Yard Phase 1	PSCS	0.30%	€135,090,000	€405,270	
Container Yard Phase 1					
Container Yard Phase 1	<b>Design &amp; Management</b>				
Container Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€149,004,270	€13,410,384	
	<b>RO RO YARD PHASE 1</b>				
Ro Ro Yard Phase 1	Yard allow 300mm thick Yard	850,000 m2	€171	€145,350,000	
Ro Ro Yard Phase 1	Site Enclosures	3,700 m	€600	€2,220,000	
Ro Ro Yard Phase 1					
Ro Ro Yard Phase 1	<b>Contractor Preliminaries</b>				
Ro Ro Yard Phase 1	Allow for Management and Preliminaries	10.00%	€147,570,000	€14,757,000	
Ro Ro Yard Phase 1	PSCS	0.30%	€147,570,000	€442,710	
Ro Ro Yard Phase 1					
Ro Ro Yard Phase 1	<b>Design &amp; Management</b>				
Ro Ro Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€162,769,710	€14,649,274	
	<b>BULK YARD PHASE 1</b>				
Bulk Yard Phase 1	Yard allow 300mm thick Yard	320,000 m2	€171	€54,720,000	
Bulk Yard Phase 1	Site Enclosures	4,100 m	€600	€2,460,000	
Bulk Yard Phase 1					
Bulk Yard Phase 1	<b>Contractor Preliminaries</b>				
Bulk Yard Phase 1	Allow for Management and Preliminaries	10.00%	€57,180,000	€5,718,000	
Bulk Yard Phase 1	PSCS	0.30%	€57,180,000	€171,540	
Bulk Yard Phase 1					
Bulk Yard Phase 1	<b>Design &amp; Management</b>				
Bulk Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€63,069,540	€5,676,259	
	<b>OIL BERTH YARD</b>				
Oil Berth Yard Phase 1	Yard allow 300mm thick Yard	200,000 m2	€171	€34,200,000	
Oil Berth Yard Phase 1	Site Enclosures	2,100 m	€600	€1,260,000	
Oil Berth Yard Phase 1					
Oil Berth Yard Phase 1	<b>Contractor Preliminaries</b>				
Oil Berth Yard Phase 1	Allow for Management and Preliminaries	10.00%	€35,460,000	€3,546,000	
Oil Berth Yard Phase 1	PSCS	0.30%	€35,460,000	€106,380	
Oil Berth Yard Phase 1					
Oil Berth Yard Phase 1	<b>Design &amp; Management</b>				
Oil Berth Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€39,112,380	€3,520,114	
	<b>PORT SERVICES &amp; STATE SERVICES YARD</b>				
Port & State Services Yard Phase 1	Yard allow 300mm thick Yard	610,000 m2	€171	€104,310,000	
Port & State Services Yard Phase 1	Site Enclosures	4,500 m	€600	€2,700,000	
Port & State Services Yard Phase 1					
Port & State Services Yard Phase 1	<b>Contractor Preliminaries</b>				
Port & State Services Yard Phase 1	Allow for Management and Preliminaries	10.00%	€107,010,000	€10,701,000	
Port & State Services Yard Phase 1	PSCS	0.30%	€107,010,000	€321,030	
Port & State Services Yard Phase 1					
Port & State Services Yard Phase 1	<b>Design &amp; Management</b>				
Port & State Services Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€118,032,030	€10,622,883	
	<b>BULK FILLING PHASE 1</b>				
Bulk Filling Phase 1	Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to infill areas)	28,943,992 m3	€5.00	€144,719,960	
Bulk Filling Phase 1	Transporting dredge to area for Filling	28,943,992 m3	€2.00	€57,887,984	
Bulk Filling Phase 1	Drying, Filling & Double handling	45,377,500 m3	€3.00	€136,132,500	
Bulk Filling Phase 1	Levelling and Compacting	45,377,500 m3	€3.00	€136,132,500	
Bulk Filling Phase 1					
Bulk Filling Phase 1	<b>Contractor Preliminaries</b>				
Bulk Filling Phase 1	Allow for Management and Preliminaries	10.00%	€474,872,944	€47,487,294	
Bulk Filling Phase 1	PSCS	0.30%	€474,872,944	€1,424,619	
Bulk Filling Phase 1					
Bulk Filling Phase 1	<b>Design &amp; Management</b>				
Bulk Filling Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€523,784,857	€47,140,637	

		Quantity	Rate	Phase 1	Phase 2
	<b>DREDGING PHASE 1</b>				
Dredging Phase 1	Dredging Basin to -12 (-12.5)	15,969,600 m3	€5.00	€79,848,000	
Dredging Phase 1	Dredging Container and Bulk Berths to -14 (-14.5)	820,800 m3	€5.00	€4,104,000	
Dredging Phase 1	Dredging channel Entrance	6,686,040 m3	€5.00	€33,430,200	
Dredging Phase 1	Transporting - Pump from Dredger - Included	23,476,440 m3	incl		
Dredging Phase 1	Extra over Rock excavation - allow 30%	7,042,932 m3	€35.00	€246,502,620	
Dredging Phase 1	<b>Contractor Preliminaries</b>				
Dredging Phase 1	Allow for Management and Preliminaries	10.00%	€363,884,820	€36,388,482	
Dredging Phase 1	PSCS	0.30%	€363,884,820	€1,091,654	
Dredging Phase 1	<b>Design &amp; Management</b>				
Dredging Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€401,364,956	€36,122,846	
	<b>RIVER CHANNEL PHASE 1</b>				
River Channel Phase 1	2 nr lined Berms to form river 1500m long - River Delvin	1,750 m	€8,112.00	€14,196,000	
River Channel Phase 1	Culvert under Double Rail Line	2 nr	€476,000.00	€952,000	
River Channel Phase 1	Culvert under Dual Carriageway	3 nr	€660,000.00	€1,980,000	
River Channel Phase 1	Culvert through Berm	1 nr	€660,000.00	€660,000	
River Channel Phase 1	<b>Contractor Preliminaries</b>				
River Channel Phase 1	Allow for Management and Preliminaries	10.00%	€17,788,000	€1,778,800	
River Channel Phase 1	PSCS	0.30%	€17,788,000	€53,364	
River Channel Phase 1	<b>Design &amp; Management</b>				
River Channel Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€19,620,164	€1,765,815	
	<b>ROADS PHASE 1</b>				
Roads Phase 1	Dual Carriageways on reclaimed land	11.2 km	€6,500,000	€72,800,000	
Roads Phase 1	Dual Carriageways on main land	6.6 km	€9,000,000	€59,400,000	
Roads Phase 1	Road Bridge Over Existing Rail Tracks	2 nr	€15,000,000	€30,000,000	
Roads Phase 1	Pedestrian Bridge Over Existing Rail Tracks	2 nr	€2,000,000	€4,000,000	
Roads Phase 1	Connection to existing Motorway connection	1 item	€20,000,000	€20,000,000	
Roads Phase 1	<b>Design &amp; Management</b>				
Roads Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€186,200,000	€16,758,000	
	<b>RAIL PHASE 1</b>				
Rail Phase 1	Double Rail Line mainly on reclaimed land	9.7 km	€5,000,000	€48,500,000	
Rail Phase 1	Rail switch existing line	2 nr	€500,000	€1,000,000	
Rail Phase 1	Rail switch new line	4 nr	€250,000	€1,000,000	
Rail Phase 1	Road Bridge Over New Rail Tracks	3 nr	€15,000,000	€45,000,000	
Rail Phase 1	Pedestrian Bridge Over New Rail Tracks	3 nr	€2,000,000	€6,000,000	
Rail Phase 1	<b>Design &amp; Management</b>				
Rail Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€101,500,000	€9,135,000	



		Quantity	Rate	Phase 1	Phase 2
	<b>PHASE 2</b>				
	<b>EXTERNAL BREAKWATER</b>				
External Breakwater - Phase 2	Breakwater Phase 2 G1	1,100 m	€23,170		€25,487,000
External Breakwater - Phase 2	Breakwater Channel Entrance	0 m	€0		€0
External Breakwater - Phase 2	<b>Contractor Preliminaries</b>				
External Breakwater - Phase 2	Allow for Management and Preliminaries	10.00%	€25,487,000		€2,548,700
External Breakwater - Phase 2	PSCS	0.30%	€25,487,000		€76,461
External Breakwater - Phase 2	<b>Design &amp; Management</b>				
External Breakwater - Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€28,112,161		€2,530,094
	<b>CONTAINER QUAY WALL PHASE 2</b>				
Container Quay Wall Phase 2	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	1,200 m	€106,300		€127,560,000
Container Quay Wall Phase 2	<b>Contractor Preliminaries</b>				
Container Quay Wall Phase 2	Allow for Management and Preliminaries	10.00%	€127,560,000		€12,756,000
Container Quay Wall Phase 2	PSCS	0.30%	€127,560,000		€382,680
Container Quay Wall Phase 2	<b>Design &amp; Management</b>				
Container Quay Wall Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€140,698,680		€12,662,881
	<b>RO RO BERTH &amp; RAMPS PHASE 2</b>				
Ro Ro Berth & Ramps Phase 2	Ro Ro Area Int Breakwater Type A2	450 m	€30,796		€13,858,020
Ro Ro Berth & Ramps Phase 2	Ro Ro Jetty similar to Holyhead	2 nr	€20,100,000		€40,200,000
Ro Ro Berth & Ramps Phase 2	Ro Ro Ramps 2nr + support Piles and concrete ramp (2 nr Single)	1 nr	€14,900,000		€14,900,000
Ro Ro Berth & Ramps Phase 2	Ro Ro Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps)	1 nr	€34,519,000		€34,519,000
Ro Ro Berth & Ramps Phase 2	<b>Contractor Preliminaries</b>				
Ro Ro Berth & Ramps Phase 2	Allow for Management and Preliminaries	10.00%	€103,477,020		€10,347,702
Ro Ro Berth & Ramps Phase 2	PSCS	0.30%	€103,477,020		€310,431
Ro Ro Berth & Ramps Phase 2	<b>Design &amp; Management</b>				
Ro Ro Berth & Ramps Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€114,135,153		€10,272,164
	<b>CONTAINER YARD PHASE 2</b>				
Container Yard Phase 2	Container Yard RTG Yard	600,000 m2	€221		€132,600,000
Container Yard Phase 2	Site Enclosures	3,500 m	€600		€2,100,000
Container Yard Phase 2	<b>Contractor Preliminaries</b>				
Container Yard Phase 2	Allow for Management and Preliminaries	10.00%	€134,700,000		€13,470,000
Container Yard Phase 2	PSCS	0.30%	€134,700,000		€404,100
Container Yard Phase 2	<b>Design &amp; Management</b>				
Container Yard Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€148,574,100		€13,371,669
	<b>RO RO YARD PHASE 2</b>				
Ro Ro Yard Phase 2	Yard allow 300mm thick Yard	350,000 m2	€171		€59,850,000
Ro Ro Yard Phase 2	Site Enclosures	3,500 m	€600		€2,100,000
Ro Ro Yard Phase 2	<b>Contractor Preliminaries</b>				
Ro Ro Yard Phase 2	Allow for Management and Preliminaries	10.00%	€61,950,000		€6,195,000
Ro Ro Yard Phase 2	PSCS	0.30%	€61,950,000		€185,850
Ro Ro Yard Phase 2	<b>Design &amp; Management</b>				
Ro Ro Yard Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€68,330,850		€6,149,777
	<b>BULK QUAY YARDS PHASE 2</b>				
Bulk Quay Yards Phase 2	Yard allow 300mm thick Yard	40,000 m2	€171		€6,840,000
Bulk Quay Yards Phase 2	Site Enclosures	1,000 m	€600		€600,000
Bulk Quay Yards Phase 2	<b>Contractor Preliminaries</b>				
Bulk Quay Yards Phase 2	Allow for Management and Preliminaries	10.00%	€7,440,000		€744,000
Bulk Quay Yards Phase 2	PSCS	0.30%	€7,440,000		€22,320
Bulk Quay Yards Phase 2	<b>Design &amp; Management</b>				
Bulk Quay Yards Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€8,206,320		€738,569
	<b>BULK FILLING PHASE 2</b>				
Bulk Filling Phase 2	Dredging sand locally (less Dredging for Basin & Channel + Rock as unlikely to fill)	20,483,080 m3	€5.00		€102,415,400
Bulk Filling Phase 2	Transporting (less Dredging for Basin & Channel)	20,483,080 m3	€2.00		€40,966,160
Bulk Filling Phase 2	Filling & Double handling	20,725,000 m3	€3.00		€62,175,000
Bulk Filling Phase 2	Levelling and Compacting	20,725,000 m3	€3.00		€62,175,000
Bulk Filling Phase 2	<b>Contractor Preliminaries</b>				
Bulk Filling Phase 2	Allow for Management and Preliminaries	10.00%	€267,731,560		€26,773,156
Bulk Filling Phase 2	PSCS	0.30%	€267,731,560		€803,195
Bulk Filling Phase 2	<b>Design &amp; Management</b>				
Bulk Filling Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€295,307,911		€26,577,712

		Quantity	Rate	Phase 1	Phase 2
	<b>DREDGING PHASE 2</b>				
Dredging Phase 2	Dredging Container and Bulk Berths to -14 (-14.5)	345,600 m3	€5.00		€1,728,000
Dredging Phase 2	Transporting to infill areas - Pump	345,600 m3	incl		
Dredging Phase 2	Extra over Rock excavation - allow 30%	103,680 m3	€35.00		€3,628,800
Dredging Phase 2	<b>Contractor Preliminaries</b>				
Dredging Phase 2	Allow for Management and Preliminaries	10.00%	€5,356,800		€535,680
Dredging Phase 2	PSCS	0.30%	€5,356,800		€16,070
Dredging Phase 2	<b>Design &amp; Management</b>				
Dredging Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€5,908,550		€531,770
	<b>ROADS PHASE 2</b>				
Roads Phase 2	Dual Carriageways on reclaimed land	1.7 km	€6,500,000		€11,050,000
Roads Phase 2	<b>Design &amp; Management</b>				
Roads Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€11,050,000		€994,500
	<b>RAIL PHASE 2</b>				
Rail Phase 2	Double Rail Line mainly on reclaimed land	1.6 km	€5,000,000		€8,000,000
Rail Phase 2	Rail switch new line	2 nr	€250,000		€500,000
Rail Phase 2	<b>Design &amp; Management</b>				
Rail Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€8,500,000		€765,000
	<b>ENVIRONMENTAL &amp; COMMUNITY GAIN COSTS</b>				
Environmental & Community Gain Costs	Environmental Conservation Measures (RPS)				
Environmental & Community Gain Costs	Community Gain	1 item	€30,000,000	€30,000,000	
Environmental & Community Gain Costs	Environmental Monitoring Programmes during Construction	1 item	€15,000,000	€15,000,000	
Environmental & Community Gain Costs	Compensate loss of local fishing grounds (potting)	1 item	€5,000,000	€5,000,000	
Environmental & Community Gain Costs	Landscaping cycle and pedestrian pathways including appropriate setting of archaeology sites	1 item	€20,000,000	€20,000,000	
Environmental & Community Gain Costs	Enhancement works to nearby beaches	1 item	€10,000,000	€10,000,000	
Environmental & Community Gain Costs	Section 49 or equivalent Contributions, Assume not required as this is National Infrastructure and Section 48 is a contribution towards public infrastructure and facilities benefiting development in the area of the planning authority.			Assume not required	
	<b>PORT BUILDINGS</b>				
Port Buildings	Port Centre Office (increase by 25% To allow 2040 increase in capacity)	6,813 m2	€4,500	€30,656,250	
Port Buildings	Port Engineering/ Maintenance Facilities - Office	1,500 m2	€3,500	€5,250,000	
Port Buildings	Port Engineering/ Maintenance Facilities - workshop	1,750 m2	€1,500	€2,625,000	
Port Buildings	Port Harbour Office (increase by 50% To allow 2040 increase in capacity)	750 m2	€3,500	€2,625,000	
Port Buildings	Port Terminal 1 Building (increase by 35% To allow 2040 increase in capacity)	4,320 m2	€5,500	€23,760,000	
Port Buildings	Port Terminal 2 Building (increase by 35% To allow 2040 increase in capacity)	2,106 m2	€5,500	€11,583,000	
Port Buildings	Port Terminal 3 Building (increase by 35% To allow 2040 increase in capacity)	675 m2	€5,500	€3,712,500	
Port Buildings	Check-in Facilities Terminal 1, Booths, Weighbridges, Security infrastructure , Inspection sheds	1 item	€7,500,000	€7,500,000	
Port Buildings	Check-in Facilities Terminal 2	1 item	€7,500,000	€7,500,000	
Port Buildings	Check-in Facilities Terminal 3	1 item	€7,500,000	€7,500,000	
Port Buildings	Additional Customs Facilities	1 item	€15,000,000	€15,000,000	
Port Buildings	Additional Garda Facilities	1 item	€2,000,000	€2,000,000	
Port Buildings	Fire Engine Building	1,000 m2	€2,000	€2,000,000	
Port Buildings	Driver Welfare Facilities	500 m2	€2,500	€1,250,000	
Port Buildings	Seafarer Facilities	400 m2	€3,000	€1,200,000	
Port Buildings	Lighthouses , 2 nr at Port entrance Only	2 nr	€500,000	€1,000,000	
Port Buildings	<b>Design &amp; Management</b>				
Port Buildings	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%		€11,264,558	€0

		Quantity	Rate	Phase 1	Phase 2
	<b>PORT EQUIPMENT PHASE 1</b>				
Port Equipment Phase 1	<u>Cathodic Protection (€5k / m of quay wall approx.)</u>				
Port Equipment Phase 1		Container Quay		€6,000,000	
Port Equipment Phase 1		Ro Ro Quay		€15,000,000	
Port Equipment Phase 1		Bulk Quay		€4,500,000	
Port Equipment Phase 1		Port Services Quay		€500,000	
Port Equipment Phase 1		Oil Services Quay		€1,500,000	
Port Equipment Phase 1					
Port Equipment Phase 1	<u>Automatic Docking Facilities (€22k per m) - Enhancement based on 2016 operations</u>				
Port Equipment Phase 1		Container Quay		€26,400,000	
Port Equipment Phase 1		Ro Ro Quay		€55,000,000	
Port Equipment Phase 1		Bulk Quay		€19,800,000	
Port Equipment Phase 1		Port Services Quay		€2,200,000	
Port Equipment Phase 1		Oil Services Quay		€6,600,000	
Port Equipment Phase 1					
Port Equipment Phase 1	<u>Shore Crane - Panzer P2B / Channel / Fixing Strips, approximately €450 per metre (Cavotec), Enhancement based on 2016 operations</u>				
Port Equipment Phase 1		Container Quay		€540,000	
Port Equipment Phase 1		Ro Ro Quay		N/A	
Port Equipment Phase 1		Bulk Quay		€405,000	
Port Equipment Phase 1		Port Services Quay		N/A	
Port Equipment Phase 1		Oil Services Quay		N/A	
Port Equipment Phase 1					
Port Equipment Phase 1	<u>Shore to Ship Facilities (€5k per M), Shore power transfer unit, Junction Box, local Substation and local transformers. (Main transformer allowed in enabling), Enhancement based on 2016 operations.</u>				
Port Equipment Phase 1		Container Quay		€6,000,000	
Port Equipment Phase 1		Ro Ro Quay		€12,500,000	
Port Equipment Phase 1		Bulk Quay		€4,500,000	
Port Equipment Phase 1		Port Services Quay		€500,000	
Port Equipment Phase 1		Oil Services Quay		€1,500,000	
Port Equipment Phase 1					
Port Equipment Phase 1	Lights and Buoys	1 item	€500,000	€500,000	
Port Equipment Phase 1	VTS Installation	1 item	€3,000,000	€3,000,000	
Port Equipment Phase 1	CCTV Installation	1 item	€750,000	€750,000	
Port Equipment Phase 1					
Port Equipment Phase 1	Pilot Boats, 2 extra over required for Ships	2 nr	€1,500,000	€3,000,000	
Port Equipment Phase 1	Tugs, allow 1 extra over required for ships	1 nr	€10,000,000	€10,000,000	
Port Equipment Phase 1	Fire Fighting Equipment / Engines, allowed as may not have capacity locally	2 nr	€250,000	€500,000	
Port Equipment Phase 1	Harbour Road Vehicles, 2 extra over required	2 nr	€50,000	€100,000	
Port Equipment Phase 1					
Port Equipment Phase 1	<b>Design &amp; Management</b>				
Port Equipment Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%		€16,316,550	
	<b>PORT EQUIPMENT PHASE 2</b>				
Port Equipment Phase 2	<u>Cathodic Protection (€5k / m of quay wall approx.)</u>				
Port Equipment Phase 2		Container Quay			€7,000,000
Port Equipment Phase 2		Ro Ro Quay			€6,000,000
Port Equipment Phase 2		Bulk Quay			€1,500,000
Port Equipment Phase 2		Port Services Quay			N/A
Port Equipment Phase 2		Oil Services Quay			N/A
Port Equipment Phase 2					
Port Equipment Phase 2	<u>Automatic Docking Facilities (€22k per m) - Enhancement based on 2016 operations</u>				
Port Equipment Phase 2		Container Quay		€30,800,000	
Port Equipment Phase 2		Ro Ro Quay		€22,000,000	
Port Equipment Phase 2		Bulk Quay		€6,600,000	
Port Equipment Phase 2		Port Services Quay		N/A	
Port Equipment Phase 2		Oil Services Quay		N/A	
Port Equipment Phase 2					
Port Equipment Phase 2	<u>Shore Crane - Panzer P2B / Channel / Fixing Strips, approximately €450 per metre (Cavotec), Enhancement based on 2016 operations</u>				
Port Equipment Phase 2		Container Quay		€630,000	
Port Equipment Phase 2		Ro Ro Quay		N/A	
Port Equipment Phase 2		Bulk Quay		€135,000	
Port Equipment Phase 2		Port Services Quay		N/A	
Port Equipment Phase 2		Oil Services Quay		N/A	
Port Equipment Phase 2					
Port Equipment Phase 2	<u>Shore to Ship Facilities (€5k per M), Shore power transfer unit, Junction Box, local Substation and local transformers. Main transformer allowed in enabling. (Enhancement based on 2016 operations)</u>				
Port Equipment Phase 2		Container Quay			€7,000,000
Port Equipment Phase 2		Ro Ro Quay			€5,000,000
Port Equipment Phase 2		Bulk Quay			€1,500,000
Port Equipment Phase 2		Port Services Quay			N/A
Port Equipment Phase 2		Oil Services Quay			N/A
Port Equipment Phase 2					
Port Equipment Phase 2	VTS Installation	1 item	€1,000,000		€1,000,000
Port Equipment Phase 2	CCTV Installation	1 item	€250,000		€250,000
Port Equipment Phase 2					
Port Equipment Phase 2	<b>Design &amp; Management</b>				
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%			€8,047,350
Port Equipment Phase 2					



5.0 MAIN QUANTITIES

BREMORE

PHASE 1	Lengths	Fill Stone	Armour	Concrete	GeoTextile	Piled wall,	Scour Protection	Yards	Ro Ro Jetty	Bulk Filling	Dredging	Bridge	River Channel	Roads	Rail
Enabling												2 nr		4 km	
External Breakwater	9,200 m	4,930,100 m3	1,044,600 m3	196,000 m3	164,900 m2	0 m	0 m2								
Internal Revetments, permanent & temporary	5,700 m	1,775,600 m3	485,000 m3	125,400 m3	111,800 m2										
Ro Ro Jetty Revetment	1,000 m	426,000 m3	82,000 m3	22,000 m3	20,000 m2										
Ro Ro Jetty									5 nr						
Quay Wall						2,930 m									
Yards								2,580,000 m2							
Bulk Filling										45,377,500 m3					
Dredging											23,476,440 m3				
River Channel													1.8 km		
Roads												4 nr		17.8 km	
Rail												6 nr			9.7 km
Planning & Environmental															
Prelims & Design															
PHASE 1		7,131,700 m3	1,611,600 m3	343,400 m3	296,700 m2	2,930 m	0 m2	2,580,000 m2	5 nr	45,377,500 m3	23,476,440 m3	12 nr	2 km	21 km	10 km
PHASE 2		Fill Stone	Armour	Concrete	GeoTextile	Piled wall,	Scour Protection	Yards	Ro Ro Jetty	Bulk Filling	Dredging	Bridge	River Channel	Roads	Rail
External Breakwater	1,100 m	368,500 m3	106,150 m3	5,500 m3	13,750 m2	0 m	0 m2								
Ro Ro Jetty Stone Wall	450 m	191,700 m3	36,900 m3	9,900 m3	9,000 m2										
Ro Ro Jetty									2 nr						
Quay Wall						1,200 m									
Yards								990,000 m2							
Bulk Filling										20,725,000 m3					
Dredging											345,600 m3				
Roads														2 km	
Rail															2 km
Prelims & Design															
PHASE 2		560,200 m3	143,050 m3	15,400 m3	22,750 m2	1,200 m	0 m2	990,000 m2	2 nr	20,725,000 m3	345,600 m3	0 nr	0 km	2 km	2 km
PHASE 1 & 2		7,691,900 m3	1,754,650 m3	358,800 m3	319,450 m2	4,130 m	0 m2	3,570,000 m2	7 nr	66,102,500 m3	23,822,040 m3	12 nr	2 km	23 km	11 km

6.0 TOTAL BERTHAGE AND TERMINAL AREA AFTER EACH DEVELOPMENT PHASE

Dublin Port Company, Programme Management Office

Order of Magnitude Estimate

DP2 Bremore

October 2020

Phase 1, 77m tonnes p.a. throughput in 2040 :

Trade/Activity	Berth numbers	Berth length (m)	Berth depth (m)	Terminal (ha)
Bulk Liquid	2	600 total	14.5	20
Bulk Solid	2	600 total	14.5	20
Trade Vehicles	1	250	11	12
Container	4	1,200 total	14	60
RoRo	9	325 each, using 5 double berth finger piers, min 180m apart. Berth length = 9*325 = 2925m	10	85
Port/ State Services	1	100	10	60
<b>TOTAL</b>	<b>19</b>	<b>5,675m</b>		<b>257</b>

Phase 2, 134m tonnes p.a. throughput in 2080 :

Trade/Activity	Berth numbers	Berth length (m)	Berth depth (m)	Terminal (ha)
Bulk Liquid	2	600 total	14.5	20
Bulk Solid	2	600 total	14.5	20
Trade Vehicles	1	250 each	11	16
Container	8	2,400 total	15	120
RoRo	14	325 each, using 7 double berth finger piers, min 180m apart. Berth length = 14*325 = 4550m	10	120
Port/ State Services	1	100	10	60
<b>TOTAL</b>	<b>28</b>	<b>8,500m</b>		<b>356</b>

