Project Title	Cappakeel SID Works
Project Number	P23-226
File Name	P23226-FT-XX-XX-CA-CE-0001

Revision Number	Date	Status	Description of Issue/Changes Made	Issued/Updated By	Reference
A	01-01-23	Draft	Template	TB	
B	30-04-23	Draft	Update to No. of Panels/Tables per load based on industry guidance and increase in typical panel dimensions.	LD	https://uss.ftco.ie/DMS/view_document.aspx?ID=1032337&Latest=true
C	25-08-26	Draft	Cappakeel SID	PM	

Construction Programme																		
Construction Activity: Substation & Grid Connection	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Mobilisation																		
Onsite Substation and Compound																		
Grid Connection Works																		
Testing and Commissioning																		
Landscaping and Reinstatement																		
Demobilisation																		

Load Calculations

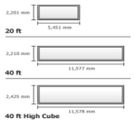
Type	Tables	Tables F16	Modules ('	Modules Tot	
1	624	6240	54	33696	
2	4903	73545	81	397143	
3	394	1970	27	10638	
Total		81755		441477	176.5908 MW

Category	Element	Stage	Ea	L (m)	W (m)	D (m)	A (m2)	Units	Units Per Loa	Loads	Import/Export	Vehicle Type	Notes
Mobilisation and site setup	Site set up	Site cabins, offices, plant deliveries	4					4	1	4	Import	HGV	Estimate
Mobilisation and site setup	Temporary compound hard standing	CL804 import				0.3	2800	840	10	84	Import	HGV	CL804 import
Mobilisation and site setup	Perimeter fencing	Site perimeter		3307				1203	8	150	Import	HGV	2.75m = 1 Fence Bay. 1 post per bay, 2 rails, 1 fixing pack
Mobilisation and site setup	Temp Comp Drainage and wastewater	Drainage aggregates	2	150	1	0		30	10	3	Import	HGV	Estimate
Mobilisation and site setup	Temp Comp Drainage and wastewater	Excavations for wastewater holding tank						0	10	0	Export	HGV	Assume no export of excavated material
Mobilisation and site setup	Temp Comp Drainage and wastewater	Wastewater holding tank	2					2	2	1	Import	HGV	Delivered and dropped into place on HIAB truck
Onsite Access Tracks and Hard Standings	New access track	Earthworks						0	10	0	Export	HGV	Assume no export of excavated material
Onsite Access Tracks and Hard Standings	New access track	Structural fill		1265	5	0.3		1897.5	10	190	Import	HGV	Assume average of 0mm depth of fill to be imported
Onsite Access Tracks and Hard Standings	New access track	CL804 import		1265	5	0.15		948.75	10	95	Import	HGV	
Onsite Access Tracks and Hard Standings	Existing track upgrade	Earthworks						0	10	0	Export	HGV	Assume no export of excavated material
Onsite Access Tracks and Hard Standings	Drainage	Pipes and culverts	2					2	2	1	Import	HGV	Estimate
Onsite Access Tracks and Hard Standings	Drainage	Drainage aggregates		1265	1	0.1		126.5	10	13	Import	HGV	Assume re-use of existing track drainage
Onsite Access Tracks and Hard Standings	Structures	Crane Mobilisation	1							1	Import	HGV	From Layout DWG P23-226-0101-000X
Onsite Substation and Compound	Compound hard standing	Earthworks					0	87	10	9	Import	HGV	Assume no export of excavated material
Onsite Substation and Compound	Compound hard standing	Structural fill				0.3	16400	4920	10	492	Import	HGV	Assume average of 0mm depth of fill to be imported
Onsite Substation and Compound	Compound hard standing	CL804 import				0.15	16400	2460	10	246	Import	HGV	
Onsite Substation and Compound	Drainage and wastewater	Drainage aggregates		500	1	0.1		50	10	5	Import	HGV	
Onsite Substation and Compound	Drainage and wastewater	Excavations for wastewater holding tank						0	10	0	Export	HGV	Assume no export of excavated material
Onsite Substation and Compound	Drainage and wastewater	Wastewater holding tank	1					1	1	1	Import	HGV	Delivered and dropped into place on HIAB truck
Onsite Substation and Compound	Substation building	Foundation excavations						0	10	0		HGV	Assume no export of excavated material
Onsite Substation and Compound	Substation building	Shuttering	1					1	1	1	Import	HGV	
Onsite Substation and Compound	Substation building	Steel fixing	2					2	1	2	Import	HGV	
Onsite Substation and Compound	Substation building	Concrete pour to foundation		142	0.9	0.3		38.34	8	5	Import	HGV	Assume 0.9m x 0.3m strip foundation
Onsite Substation and Compound	Substation building	Subfloor				0.6	642	385.2	10	39	Import	HGV	Assume average depth of 0.6m
Onsite Substation and Compound	Substation building	Floor				0.15	642	96.3	8	12	Import	HGV	
Onsite Substation and Compound	Substation building	Superstructure	100					100	1	100	Import	HGV	Estimate
Onsite Substation and Compound	Compound structures and boundaries	Equipment plinths, bunds etc.	20					20	1	20	Import	HGV	Estimate
Onsite Substation and Compound	Compound structures and boundaries	Perimiter fencing	5					5	1	5	Import	HGV	Estimate
Onsite Substation and Compound	Electrical plant and equipment	Compound plant and equipment	20					20	1	20	Import	HGV	
Onsite Substation and Compound	Electrical plant and equipment	Substation fit out	15					15	1	15	Import	HGV	
Grid Connection Works	Cabling works	Trenching		15000	0.6	1.2		10800	10	1080	Export	HGV	
Grid Connection Works	Cabling works	Bedding		15000	0.6	0.3		2700	10	270	Import	HGV	Full GCR route bedded
Grid Connection Works	Cabling works	Ducting		15000				15000	1000	15	Import	HGV	
Grid Connection Works	Cabling works	Backfill/road reinstatement materials		1500	0.6	0.9		810	10	81	Import	HGV	Assume 90% of excavated material can be re-used on site
Grid Connection Works	Cabling works	Joint bays	30					30	1	30	Import	HGV	Assume 1no. JB every 500m
Grid Connection Works	Cabling works	Cable installation		15000				15000	2000	8	Import	HGV	
Testing and Commissioning			193.5					193.5	1	194	Import	LGV	3 crews of 2 commissioning for 4 months
Landscaping and Reinstatement			50					50	1	50	Import	HGV	Estimate
Demobilisation			20					20	1	20	Export	HGV	Estimate
Site Maintenance	Site Maintenance	Waste Collection Etc	30					30	1	30	Export	HGV	Assume 1no. HGV per week on average
Site staff - Main Works	Site staff - Main Works		8127					8127	2	4064	Staff	LGV	Average of 15 rising to 45 during peak activities Assume 3 months of peak activity over course of 12 month programme Assume 6 day week Assume average sharing of 2 per vehicle
Site staff - Grid connection cable works	Site staff - Grid connection cable works		928.8					928.8	2	464	Staff	LGV	Average of 3 operatives Assume 6 day week for 1 months Assume average sharing of 2 per vehicle

Frame and Module Calcs







International

odules are transported on pallets and
tons. We offer deliveries in container



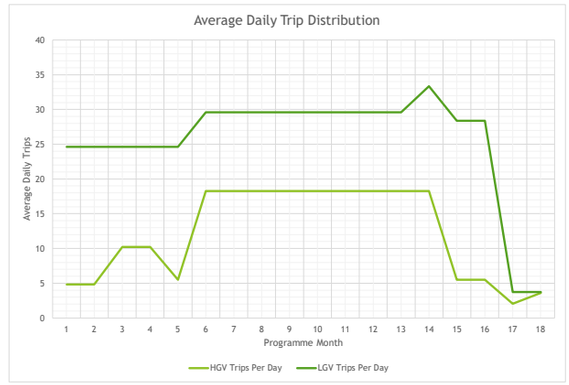


Inland

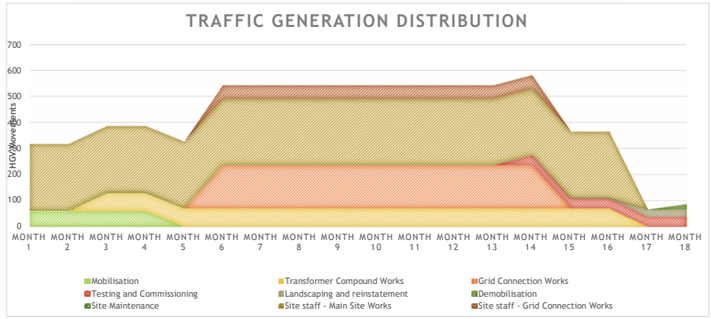
		L	W	H
	Container	11.5	2.45	2.425
F16	Frame	2.1	1	0.35
		5	2	6
Frames per truck		60		
		L	W	H
	Container	11.5	2.45	2.425
F16	Carton	2.1	1.1	1
		5	2	2
Cartons Per Truck		20		
Modules Per carton		30		
Modules Per Truck		600		

Trip Distribution

		316	316	386	386	325	541	541	541	541	541	541	541	541	580	364	364	65	85			
	One-Way Vehicle									Month												
Activity	**Movements**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**Total OWM's**	**Δ**	**Ave**
Mobilisation	242	61	61	61	61															**242**	**0**	61
Onsite Substation and Compound	971			69	69	69	69	69	69	69	69	69	69	69	69	69	69			**971**	**0**	69
Grid Connection Works	1484						165	165	165	165	165	165	165	165	165					**1484**	**0**	165
Testing and Commissioning	194														39	39	39	39	39	**194**	**0**	39
Landscaping and Reinstatement	50																	25	25	**50**	**0**	25
Demobilisation	20																		20	**20**	**0**	20
Site Maintenance	30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	**30**	**0**	2
Site staff - Main Site Works	4064	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254			**4064**	**0**	254
Site staff - Grid Connection Works	464						52	52	52	52	52	52	52	52	52					**464**	**0**	52
Total Trips per month	17398	759	759	898	898	777	1236	1236	1236	1236	1236	1236	1236	1236	1333	874	874	150	190			967
Total HGV Trips per month (x2)	5595	124	124	263	263	142	472	472	472	472	472	472	472	472	472	142	142	53	93			311
Total LGV Trips per month (x2.5)	11804	635	635	635	635	635	764	764	764	764	764	764	764	764	861	732	732	97	97			656
Total Trips Per Week	4046	177	177	209	209	181	287	287	287	287	287	287	287	287	310	203	203	35	44			225
Total HGV Trips Per Week	1301	29	29	61	61	33	110	110	110	110	110	110	110	110	110	33	33	12	22			72
Total LGV Trips Per Week	2745	148	148	148	148	148	178	178	178	178	178	178	178	178	200	170	170	23	23			153
										Month												
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**			
Total Trips Per Day	674.4	29	29	35	35	30	48	48	48	48	48	48	48	48	52	34	34	6	7	Total	37	
HGV Trips Per Day	216.9	5	5	10	10	6	18	18	18	18	18	18	18	18	18	6	6	2	4	HGV	12	
LGV Trips Per Day	457.5	25	25	25	25	25	30	30	30	30	30	30	30	30	33	28	28	4	4	LGV	25	
Total Trips Per Hour	67.4	3	3	3	3	3	5	5	5	5	5	5	5	5	5	3	3	1	1	Total	4	
Total HGV Trips Per Hour	21.7	0	0	1	1	1	2	2	2	2	2	2	2	2	2	1	1	0	0	HGV	1	
Total LGV Trips Per Hour	45.8	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	0	0	LGV	3	



Total HGV Trips over Course of Construction (x2)	100705																		
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	
Totals	316	316	386	386	325	541	541	541	541	541	541	541	541	580	364	364	65	85	
Mobilisation	61	61	61	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Transformer Compound Works	0	0	69	69	69	69	69	69	69	69	69	69	69	69	69	69	0	0	
Grid Connection Works	0	0	0	0	0	165	165	165	165	165	165	165	165	165	0	0	0	0	
Testing and Commissioning	0	0	0	0	0	0	0	0	0	0	0	0	0	39	39	39	39	39	
Landscaping and reinstatement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	
Demobilisation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	
Site Maintenance	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Site staff - Main Site Works	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	0	0	
Site staff - Grid Connection Works	0	0	0	0	0	52	52	52	52	52	52	52	52	52	0	0	0	0	



Traffic Growth

Links

NRA Project Appraisal Guidelines for National Roads: Unit 5.5 Link-Based Traffic Growth Forecasting, 2011.	https://www.tii.ie/tii-library/strategic-planning/project-appraisal-guidelines/Unit-5.5-Link-Based-Traffic-Forecasting.pdf
TII Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections, 2019	https://www.tiipublications.ie/library/PE-PAG-02017-02.pdf
TII Project Appraisal Guidelines for National Roads Unit 5.3 - Travel Demand Projections, 2021	chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.tiipublications.ie/library/PE-PAG-02017-03.pdf
TII Traffic Data	https://trafficdata.tii.ie/publicmultinodemap.asp

National Traffic Growth Forecasts: Annual Growth Factors

Region	East
Growth Factor	Central Growth Rates
Period	2026-2040
LV	1.0197
HV	1.0378

Assumed construction start 2027

Traffic Growth	**M07 Between Jn14 and Jn15 M7**		
Year	**AADT**	**HGV**	**LGV**
2025	35417	3506	31911
2026	36178	3,639	32,539
2027	36957	3,776	33,180

Road	**Projected Baseline AADT**		
	HGV	**LGV**	**AADT**
M07 Between Jn14 and Jn15 M7	3,776	33,180	36,957

Trip Impact

Predicted AADT Volumes with Average Construction Phase Traffic

Location	Predicted AADT During Construction (Estimated Site Start 2027)	HGV AADT Pre-Development	Average Daily HGV Trips Generated by Development	Predicted HGV AADT During Construction	% Increase	LGV AADT Pre-Development	Average Daily LGV Trips Generated by Development	Predicted LGV AADT During Construction	% Increase	Average Daily Trips Generated by Development (Combin	Predicted Combined AADT During Construction	% Increase
M07 Between Jn14 and Jn15 M7	36,957	3,776	12	3,788	0.3%	33,180	25	33,206	0.1%	37	36,994	0.1%

Predicted AADT Volumes with Peak Construction Phase Traffic

Location	Predicted AADT During Construction (Estimated Site Start 2027)	HGV AADT Pre-Development	Average Daily HGV Trips Generated by Development during Peak Construction Month	Predicted HGV Daily Trips During Peak Construction Month	% Increase	LGV AADT Pre-Development	Average Daily LGV Trips Generated by Development during Peak Construction Month	Predicted LGV AADT During Construction	% Increase	Average Daily Trips Generated by Development (Combined) During Peak Construction Month	Predicted Combined AADT During Peak Construction Month	% Increase
M07 Between Jn14 and Jn15 M7	36,957	3,776	18	3,795	0.5%	33,180	33	33,214	0.1%	48	37,005	0.1%