Appendix E.2

EMISSIONS TO SURFACE WATERS

IPPC Licence Application Westland Horticulture Ltd.

Project Ref: OES1182_01



Emission Point:					
Emission Point Ref. №:	Sedimentation	on Basin 1 (Clonsura)			
Source of Emission:	Surface Wat	er Runoff from Peatlanc	5		
Location :	Clonsura				
Grid Ref. (12 digit, 6E,6N):	241984E 277	137N	ne.		
Name of receiving waters	s: River Inny		14. oy differ t		
Flow rate in receiving wat	ters:	Not available m³.sec			
			n puloses of for and	0.68	m³.sec ⁻¹ 95%ile flow
Available waste assimilati capacity:	ive	11.31 k	XV 201	70 kg/day Suspend	ded Solids, 2.87 Kg/day Ammonia
mission Details:		x ^o	GOL,		
(i) Volume to be em	nitted	College			
Normal/day	190m³	Maximum/day			m³
Maximum rate/hour	8m ³				

Periods of Emission (avg)	60	_min/hr24	_hr/day	365	_day/yr
---------------------------	----	-----------	---------	-----	---------

OES Consulting Page 1 of 24 TABLE E.2(i): (One page for each emission) **EMISSIONS TO SURFACE WATERS Emission Point:** Sedimentation Basin 2 (Clonsura) Emission Point Ref. No: Source of Emission: Surface Water Runoff From Peatlands Location: Clonsura Grid Ref. (12 digit, 6E,6N): 241814E 277180N Name of receiving waters: River Innv Flow rate in receiving waters: m³.sec⁻¹ Dry Weather Flow 0.68 m³.sec⁻¹ 95%ile flow 11.31 kg/day BOD, 3.13 kg/Day PO₄ (P), 690 kg/day Suspended Solids kg/day, 1.59Kg/day Ammonia Available waste assimilative capacity: **Emission Details:** Volume to be emitted Normal/day 190m³ Maximum/day m^3 Maximum rate/hour $8m^3$ Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up /shutdown to be included): (ii) Periods of Emission (avg) <u>60</u> min/hr <u>24</u> hr/day <u>365</u> day/yr

OES Consulting Page 2 of 24

OES Consulting

TABLE E.2(i): E	MISSI	ONS TO S	URFACE WATERS	(One pag	e for eacl	h emis	sion)			
Emission Point:										
Emission Point Ref. №:	5	Sedimentatio	on Basin 3 (Clonsura)							
Source of Emission:	9	Surface Wat	er Runoff From Peatlands							
Location :	(Coole								
Grid Ref. (12 digit, 6E,6N):	: 2	241692E 276	430N	₩.						
Name of receiving water	rs:	River Inny		ow or other t						
Flow rate in receiving wa	ters:	902.186					•	ather Flow 95%ile flow		
Available waste assimilat capacity:	ive		12.97 kg/day BOI	o kg/Day 3.57 PO₄ (P), 791 kg	g/day Susp	pended	Solids	kg/day, 3.	3Kg/day	Ammonia
Emission Details:			, of cold							
(i) Volume to be en	nitted		Consent							
Normal/day		190m³	Maximum/day							m³
Maximum rate/hour		8m ³								
(ii) Period or period:	s during v	which emissi	ons are made, or are to be	made, including daily or sec	asonal vari	ations (s	start-up	o /shutdow	n to be ii	ncluded):
Periods of Emission (avg)					<u>60</u> n	nin/hr	24	_hr/day	365	_day/yr
	•	·				·	·			

Page 3 of 24

TABLE E.2(i):	EMISSI	ONS TO S	URFACE WATERS	(One page	e for each emis	ssion)		
Emission Point:								
Emission Point Ref. №:		Sedimentatio	on Basin 4 (Clonsura)					
Source of Emission:		Surface Wat	er Runoff From Peatlands					
Location :		Clonsura						
Grid Ref. (12 digit, 6E,6N)):	241240E 276	794N					
Name of receiving wate	ers:	River Inny		ner use.				
Flow rate in receiving wo	aters:			difference of the any other use.	0.78		m³.sec	Veather Flow
Available waste assimila capacity:	tive		12.97 kg/day BOD	ckien pitriedri Koj Day 3.57 PO₄ (P), 791 kc	g/day Suspended	d Solids kg/da	y, 3.3Kg/da	ay Ammonia
Emission Details:	·		FO OF					
(i) Volume to be en	mitted		C Offise It C					
Normal/day		190m³	Maximum/day					m ³
Maximum rate/hour		8m ³						
(ii) Period or period	ls during	which emissi	ons are made, or are to be	made, including daily or sea	sonal variations (start-up /shut	down to be	e included):
Periods of Emission (avg)			-	60 min/hr	<u>24</u> hr/de	ау <u>365</u>	day/yr

OES Consulting Page 4 of 24

TABLE E.2(i): E	MISSIO	NS TO S	URFACE WATERS	(One pa	ge for e	ach emiss	sion)			
Emission Point:										
Emission Point Ref. №:	Se	edimentatio	on Basin 5 (Clonsura) (<i>Propo</i>	sed)						
Source of Emission:	Su	urface Wate	er Runoff From Peatlands							
Location :	CI	lonsura								
Grid Ref. (12 digit, 6E,6N):	24	40985E 2771	94N	æc.						
Name of receiving waters	rs: Riv	ver Inny		od od other th						
Flow rate in receiving wat	ters:			ses diot att	_			m³.sec-	Dry We	ather Flow
				ish full distributed for and		0.68		r	m³.sec-1 9	5%ile flow
Available waste assimilati capacity:	ive		11.31 kg/do	P BOD, 3.11kg/Day PO₄ (P	°), 690 kg	/day Suspe	ended S	iolids, 2.87	' Kg/day	Ammonia
Emission Details:	.		A COST							
(i) Volume to be em	nitted		Conserta							
Normal/day		190m³	Maximum/day							m³
Maximum rate/hour		8m³								
(ii) Period or periods	s during wh	hich emissi	ons are made, or are to be	made, including daily or se	easonal v	variations (s	tart-up	/shutdow	n to be ii	ncluded):
Periods of Emission (avg)					_ 60	min/hr _	24	_hr/day	365	_day/yr

OES Consulting Page 5 of 24

TABLE E.2(i): EMISSIONS TO SURFACE WATERS (One page for each emission) **Emission Point:** Sedimentation Basin 1 (Lower Coole) Emission Point Ref. No: Source of Emission: Surface Water Runoff From Peatlands Location: Lower Coole Grid Ref. (12 digit, 6E,6N): 239538E 272733N Name of receiving waters: River Inny Flow rate in receiving waters: m³.sec⁻¹ Dry Weather Flow 0.83 m³.sec⁻¹ 95%ile flow 13.34kg/day BOD, 3.81kg/day PO4 (P), 3.30kg/day Ammonia, 842kg/day Suspended Solids Available waste assimilative capacity: **Emission Details:** Volume to be emitted Normal/day 190m³ Maximum/day m^3 Maximum rate/hour $8m^3$ (ii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up /shutdown to be included): Periods of Emission (avg) <u>24</u> min/hr <u>24</u> hr/day <u>365</u> day/yr

OES Consulting
Page 6 of 24

TABLE E.2(i): EMISSIONS TO SURFACE WATERS

(One page for each emission)

Emission Point:

Emission Point Ref. №:	Sedimentation Pond 2 (Mayne)
Source of Emission:	Surface Water from Peatlands
Location :	Mayne
Grid Ref. (12 digit, 6E,6N):	239232E, 272241N
Name of receiving waters:	River Inny
Flow rate in receiving waters:	m³.sec-1 Dry Weather Flow 0.83 m³.sec-1 95%ile flow
Available waste assimilative capacity:	13.34kg/day BOD , 3.81kg/day PO4 (P) , 3.30kg/day Ammonia, 842kg/day Suspended Solids

Emission Details:

(i) Volume to be er	mitted	asent of	
Normal/day	190m ³	Maximum/day	m ³
Maximum rate/hour	8m ³		

(ii) Period or periods during which emissions are made, or are to be made, including daily or seasonal variations (start-up /shutdown to be included):

Periods of Emission (avg)	60_min/hr24_hr/day	<u>365</u> day/yr
---------------------------	--------------------	-------------------

OES Consulting Page 7 of 24

TABLE E.2(i):	MISSI	ONS TO S	URFACE WATERS	(One page for each emission)					
Emission Point:									
Emission Point Ref. Nº:		Sedimentatio	on Basin 3 (Mayne)						
Source of Emission:		Surface Rund	off from Peatland						
Location :		Mayne							
Grid Ref. (12 digit, 6E,6N)	:	239239E 2718	313N	_م ي.					
Name of receiving wate	rs:	River Inny		L. Aditer J					
Flow rate in receiving wo	iters:		m³.sec-1 Dry Weather Flow m3.sec-1 95%ile flow						
Available waste assimilated capacity:	live		ing.	gyBGD, 4.28kg/day PO4 (P) , 3.7kg/day Ammonia, 944.75kg/day Suspended Solids					
Emission Details:			, di con						
(i) Volume to be er	mitted		Catsets						
Normal/day		190m³	Maximum/day	m ³					
Maximum rate/hour		8m³							
(ii) Period or period	s during	which emissi	ons are made, or are to be	made, including daily or seasonal variations (start-up /shutdown to be included):					
Periods of Emission (avg)			<u>60</u> min/hr <u>24</u> hr/day <u>365</u> day/yr					

TABLE E.2(i):	MISSI	ONS TO S	URFACE WATERS	(One page	e for each emission)	
Emission Point:						
Emission Point Ref. №:		Sedimentatio	on Pond 4 (Mayne)			
Source of Emission:		Surface Wate	er Runoff from Peatlands			
Location :		Mayne				
Grid Ref. (12 digit, 6E,6N)	:	239439E, 271	438N			
Name of receiving water	rs:	River Inny		zerit ^e .		
Flow rate in receiving wa	iters:	m³.sec				
Available waste assimilat capacity:	tive	15.48kg/day B@D, 4.28kg/day PO4 (P), 3.7kg/day Ammonia, 944.75kg/day				
Emission Details:			Fold in	ig.		
(i) Volume to be en	mitted		asent of			
Normal/day		190m³	Maximum/day			m³
Maximum rate/hour		8m ³				
(ii) Period or period:	s during	which emissi	ons are made, or are to be I	made, including daily or seas	sonal variations (start-up /shut	tdown to be included):
Periods of Emission (avg)	Periods of Emission (avg)					

OES Consulting Page 9 of 24

TABLE E.2(i):	MISS	ions to s	URFACE WATERS	(One page for each emission)				
Emission Point:								
Emission Point Ref. №:		Sedimentation	on Pond 5 (Ballinealoe)					
Source of Emission:		Surface Wat	er Runoff from Peatlands					
Location :		Ballinaloe						
Grid Ref. (12 digit, 6E,6N)	:	239251E 2712	289N	ي. د				
Name of receiving water	rs:	River Inny		of other its				
Flow rate in receiving wa	iters:			m³.sec-1 Dry Weather Flow 0.931 m³.sec-1 95%ile flow				
Available waste assimilat capacity:	live		, or i	law (P) , 4.28kg/day PO ₄ (P) , 3.7kg/day Ammonia, 944.75kg/day Suspended Solids				
Emission Details:			of coff					
(i) Volume to be er	mitted		Consen					
Normal/day		190m³	Maximum/day	m ³				
Maximum rate/hour		8m³						
(ii) Period or period	s during	which emissi	ons are made, or are to be	e made, including daily or seasonal variations (start-up /shutdown to be included):				
Periods of Emission (avg)								

OES Consulting Page 10 of 24

TABLE E.2(i): E	MISS	IONS TO S	URFACE WATERS	(One page	e for each emission)							
Emission Point Ref. Nº:		Sedimentation	on Basin 6 (Ballinealoe)									
Source of Emission:		Surface Wat	er Runoff from Peatlands									
Location :		Ballinealoe	nealoe									
Grid Ref. (12 digit, 6E,6N)	:	239819E 271	239819E 271194N									
Name of receiving water	rs:	River Inny		ef 115e.								
Flow rate in receiving wo	aters:	m³.sec-1 Dry We m³.sec-1 0 m³.sec-1 0 m³.sec-1 0										
Available waste assimilat capacity:	tive		15.48kg/da	y B@D, 4.28kg/day PO4 (P),	3.7kg/day Ammonia, 944.75kg/day Suspended Solids							
Emission Details:			For the	30								
(i) Volume to be er	mitted		osen of									
Normal/day		190m³	Maximum/day		m ³							
Maximum rate/hour		8m ³										
(ii) Period or period	s during	which emissi	ons are made, or are to be	made, including daily or sea	sonal variations (start-up /shutdown to be included):							
Periods of Emission (avg))				60min/hr24 _hr/day _ <u>365 _</u> day/yr							

OES Consulting Page 11 of 24

TABLE E.2(i):	MISSI	ions to s	URFACE WATERS	(One page	for each emission)							
Emission Point:												
Emission Point Ref. №:		Sedimentation	on Basin 7 (Ballinealoe)									
Source of Emission:		Surface Wat	ace Water Runoff from Peatlands									
Location :		Ballinealoe	nealoe									
Grid Ref. (12 digit, 6E,6N)	:	240350E 2707										
Name of receiving water	rs:	River Inny		of Use.								
Flow rate in receiving wo	iters:		m³.sec-1 Dry Weather I m9.sec-1 95%ile									
Available waste assimilat capacity:	tive		15.48kg/da	y B@D, 4.28kg/day PO4 (P), 3	3.7kg/day Ammonia, 944.75kg/day Suspended Solids							
Emission Details:			tot h	Š.								
(i) Volume to be er	mitted		asent of s									
Normal/day		190m³	Maximum/day		m ³							
Maximum rate/hour		8m ³										
(ii) Period or period	s during	which emissi	ons are made, or are to be r	made, including daily or seas	sonal variations (start-up /shutdown to be included):							
Periods of Emission (avg))				60_min/hr24_hr/day _365_day/yr							

OES Consulting Page 12 of 24

Emission point reference number :Sedimentation Basin 1 (Clonsura)

Parameter		Prior to tr	eatment			As discharged			% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ర	Red of copyright	Durgoses outh, and on	<u>35</u>	6.65		

OES Consulting Page 13 of 24

Emission point reference number : Sedimentation Basin 2 (Clonsura)

Parameter		Prior to tr	reatment		As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ن	For his gedi	buttoge of the aut.	<u>35</u>	6.65		

OES Consulting Page 14 of 24

Emission point reference number : Sedimentation Basin 3 (Clonsura)

Parameter		Prior to tr	reatment		As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ర	For its gecti For its gett	dulde dine de la sur,	<u>35</u>	6.65		

OES Consulting Page 15 of 24

Emission point reference number : <u>Sedimentation Basin 4(Clonsura)</u>

Parameter		Prior to tr	eatment		As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ర	For its edit	Butgoses offst, and on	<u>35</u>	6.65		

OES Consulting Page 16 of 24

Emission point reference number : <u>Sedimentation Basin 5 (Clonsura-Proposed)</u>

Parameter		Prior to tr	eatment		As discharged				% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ర	For its edit	Butgoses offst, and on	<u>35</u>	6.65		

OES Consulting Page 17 of 24

Emission point reference number : <u>Sedimentation Basin 1 (Lower Coole)</u>

Parameter		Prior to tr	eatment			As discharged			% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			Ç	For Habit	purposes official	<u>35</u>	6.65		

OES Consulting Page 18 of 24

Emission point reference number : <u>Sedimentation Basin 2 (Mayne)</u>

Parameter		Prior to tr	reatment			As discharged				
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year		
Suspended Solids			Ç	toringed to the second of the	Purposes of for air.	<u>35</u>	6.65			

OES Consulting Page 19 of 24

Emission point reference number : <u>Sedimentation Basin 3 (Mayne)</u>

Parameter		Prior to tr	reatment			As discharged			% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
			Ç	for its ects	n Purposes only any other				

OES Consulting Page 20 of 24

Emission point reference number : Sedimentation Basin 4 (Mayne)

Parameter		Prior to tr	reatment			As discharged			% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ర	For its ledit to the form of t	Quiposested to	<u>35</u>	6.65		

OES Consulting Page 21 of 24

Emission point reference number : <u>Sedimentation Basin 5 (Ballinealoe)</u>

Parameter		Prior to tr	reatment			As discharged			% Efficiency
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ర	For its ledit to the form of t	Quiposested to	<u>35</u>	6.65		

OES Consulting Page 22 of 24

Emission point reference number : <u>Sedimentation Basin 6 (Ballinealoe)</u>

Parameter	Prior to treatment			As discharged			% Efficiency		
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			ర	For its edit	Autogited to	<u>35</u>	6.65		

OES Consulting Page 23 of 24

Emission point reference number : <u>Sedimentation Basin 7 (Ballinealoe)</u>

Parameter	Prior to treatment			As discharged			% Efficiency		
	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	Max. hourly average (mg/l)	Max. daily average (mg/l)	kg/day	kg/year	
Suspended Solids			Ç	for its ecit for its ecit	purposes office at.	<u>35</u>	6.65		

OES Consulting Page 24 of 24

Assimilative Capacity Calculations

Upstream Sedimentation Basins of Clonsura Harvesting Site	Available @ 50%ile (Kg/Day)	Available @ 95%ile (Kg/Day)	Required (Kg/Day)
BOD	74.67768	11.3098	8.5536
Orthophosphate	20.560608	3.1139	0.2851
Ammonia	19.008864	2.8788	1.7107
Suspended Solids	4556.30832	690.0422	19.9584

Downstream of Sedimentation Basins 1,2 & 5 @ Clonsura	Available @ 50%ile (Kg/Day)		Required (Kg/Day)
BOD	81.275832	4.4194	5.7024
Orthophosphate	24.4471392	3.2867	0.1901
Ammonia	21.1549536	1.5915	1.1405
Suspended Solids	5460.803568	771.5606	13.3056

Upstream Sedimentation of Coole Harvesting Site	Available @ 50%ile (Kg/Day)		Required (Kg/Day)
BOD	94.187016	13.80456	5.7024
Orthophosphate	26.0543304	3.818664	0.1901
Ammonia	22.5070272	3.298752	1.1405
Suspended Solids	5746.631184	842.25744	13.3056

Downstream of Sedimentation	Available @ 50%ile	V. 1. 10	
Basins 1&2 @ Coole	(Kg/Day)	√Kg/Day)	Required (Kg/Day)
BOD	101.0916720	9.781992	14.2560
Orthophosphate	29.3516588	4.0932648	0.4752
Ammonia	24.3791424	2.5596864	2.8512
Suspended Solids	6502.519728	931.443408	33.2640

^{1.} Emission Limit Values used for the parameters Suspended Solids BOD, Orthophosphate and Ammonia were 35, 15, 0.5 and 3 respectively.

^{2.} All calculations have taken account of assimilitive capcity used by upstream discharges.