

14/12/05



Consulting

- Civil
- Electrical
- Environmental
- Health & Safety
- Management Services
- Mechanical
- Rail
- Structural
- Town Planning
- Transportation

14 DEC 2005

Licensing Unit,
 Office of Licensing and Guidance,
 Environmental Protection Agency,
 PO Box 3000,
 Johnstown Castle Estate,
 Wexford

13th December 2005

Re : Waste Licence Application – Greenstar Ltd., Gorey, Co. Wexford
 Waste Licence Reference: 220-1

For inspection purposes only.
 Consent of copyright owner required for any other use.

Dear Sir / Madam

Please find enclosed an original and two copies of the response to requests for information under Article 12 & 13 from yourselves dated 22/9/05. There are also 16 copies in electronic pdf format on CD as requested.

I hope this meets with your satisfaction and if you have any queries please let me know.

Yours sincerely,

On behalf of Greenstar Ltd.

Donal Marron

Donal Marron BSc, MSc, PGeo

Regional Director

Apex Business Centre, Blackthorn Road, Sandyford, Dublin 18

Tel: +353 1 293 1200 Fax: +353 1 293 1250 Email: dublin@wyg.com Website: www.wyg.com

**GREENSTAR LTD.
WASTE RECYCLING CENTRE,
RAMSTOWN,
GUREY,
CO. WEXFORD.**

ARTICLE 12 AND 13 COMPLIANCE INFORMATION

REG. NO. 220-1

December 2005

For inspection purposes only.
Consent of copyright owner required for any other use.

1 DEC 2005

Issue		Prepared by	Verified by
V1	Dec 05		
V2			
v3			
V4	-	N. Murphy	Donal Marron
V5		Environmental Scientist	Project Director
<i>File Reference: C004390/Reports</i>			
<i>White Young Green Ireland Limited, Apex Business Centre, Blackthorn Road, Sandyford, Dublin 18 Telephone: 003531 2931200 Facsimile: 003531 2931250 E-Mail: dublin@wyg.com</i>			

GREENSTAR LTD.
WASTE RECYCLING CENTRE,
RAMSTOWN
GOREY,
CO. WEXFORD.

ARTICLE 12 AND 13 COMPLIANCE INFORMATION

REG. NO. 220-1

CONTENTS

Article 12 Compliance Information

D1 Site Infrastructure

D2 Facility operation

E1 Dust

E2 Surface Water

E5 Noise

F1 Air

F4 Sewer Discharge

F5 Groundwater

F6 Noise

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Article 13 Compliance Information

Figures

Revised Figure 1.1.1	-	Site Location Map
Revised Figure 1.1.2	-	Site Plan Map
Revised Figure 2.6.1	-	Site Drainage
Previous Figure 4.3.5.1	-	Noise Monitoring Locations
Figure E.1	-	Dust Monitoring Locations
Figure E3		Noise Monitoring Locations

Tables

Table E.1.1	Dust Monitoring Results
Table E.2.1	Surface Water Results
Table E.3	Daytime Noise Levels (Facility fully operational)
Table F.5.1	Ground Water Results
Table 2.1.1	Annual Average Rainfall Rainfall Data for the Rosslare Station
Table 4.13.1	Impacts and Effects on Interactions between Environmental Media

Appendices

Appendix A	Geographical Representation of Noise Measurement Spectrum
Appendix B	Glossary of Noise Related Terms
Appendix C	Factory Calibration Certificates
Appendix D	Non-Technical Summary EIS

For inspection purposes only.
Consent of copyright owner required for any other use.

ARTICLE 12

D1 Site Infrastructure

1. *Revise Figure No. 2.6.1 (Site Drawing) to show the drainage system from the C&D shredder manhole and on site well located within the existing building of the waste transfer station as well as drainage system for the proposed wheel wash. In addition indicate the quantity of waste water effluent generated by the C&D shredder and the wheel wash.*

Refer to revised Figure 2.6.1 for the proposed drainage scheme

The site well is connected to the canteen and also supplies water to the toilets located in the southwestern corner of the site.

The manhole in the middle of the 'new extension' area of the existing building has been filled in with concrete and is no longer functional. All drainage from the 'new extension' area and from the shredder area is directed to the sump in the loading pit located at the southeastern part of the site. Liquid from here is and will be pumped directly to the contained underground storage tanks.

Drainage from the proposed wheel wash will be discharged to the underground storage tanks

The existing yard drainage is directed through the two 3-chamber interceptors and discharged from here to the percolation area to the west of the site. When the site is redeveloped and fully roofed this drainage will comprise floor drainage and will be directed through the two interceptors and from there to the underground storage tanks.

The quantity of waste water effluent estimated to be generated by the C&D shredder and the wheel wash is estimated at 4m³/per month.

2. *Revise Figure 2.6.1 to show the location of Surface Water Emission points*

Refer to revised Figure 2.6.1

The main Surface Water Emission point is located by the front entrance of the site as shown on Figure 2.6.1. The surface water emission comprises run-off from the roofed area only. Internal yard drainage is collected by a system of pipes and passed through two 3-chamber interceptors prior to discharge to the percolation area located to the west of the site. Future plans to roof over

the entire yard will use the same emission point at the site entrance for surface water drainage from the roofed area only. Internal drainage will be collected and stored in the underground storage tanks.

3. Section 3.2.12 of the EIS "Sewage and surface water drainage infrastructure" states effluent is generated at the rate of 60L/hd/day. What is the volume inclusive of?

The volume of 60L/hd/day generated by effluent is inclusive of water from the washrooms, toilets, canteen area, and wash water generated by site staff.

02 Facility Operation

Section 3.5.4 of the EIS stated that unacceptable waste will be stored in the waste quarantine area. Show the location of the proposed bunded waste quarantine area in Figure 1.1.2 Site Plan. In addition, provide details of the waste quarantine bunding design, in particular the drainage arrangements and specify how any spillages/leakages will be dealt with.

Refer to revised Figure 1.1.2

At present a covered and contained skip is being used as the quarantine waste storage area for any unacceptable waste on site. The quarantine area shown on Figure 1.1.2 is located to the north-western side of the site. It is proposed that the skip be maintained for use as a quarantine facility at the redeveloped site. This has the advantage that it can be readily loaded for export off site if required and simply be replaced by an alternative contained skip. Any liquid wastes contained in the skip can be pumped out to a road tanker if required. Spillages and leakages on site will drain to the contained underground storage tanks.

E1 Dust

Provide repeat monitoring results for dust deposition and a full interpretation of these results for dust monitoring locations D1 and D2 and a further dust monitoring location on the western boundary wall.

Dust samples were taken from D1 and D2 locations as well as a third location D4 as shown in Figure E.1 attached. The samples were sent to GeoTesting Ltd which is an accredited laboratory

located in Kilcullen, Co. Kildare. All three results were below the standard EPA recommended Dust deposition per day level of 350 mg/m².d as shown in Table E.1.1

From	To	Number of Days	D1 mg/m ² .d	D2 mg/m ² .d	D4 mg/m ² .d
19/10/2005	19/11/2005	31/01/1900	140.0	166.0	228.2

E2 Surface Water

Provide surface water monitoring results and a full interpretation of these results at the surface water discharge point at the site entrance.

A Surface Water sample from the water discharge point located at the front entrance of the site was taken and sent to ALControl Laboratories. Attached is Table E.2.1. Surface Water Results. The results indicated contaminated water in the surface drain with elevated levels of conductivity, ammonia, potassium, chloride, sulphate, chloride, alkalinity, TOC, phenols, ortho-phosphate, iron and manganese among others. It is unlikely that there is any impact on the drain from the recycling facility as only roof drainage (i.e. clean rainfall) enters the drain from the facility.

For inspection purposes only
Consent of copyright owner required for any other use.

Table E.2.1 Surface Water Quality Results

Greenstar Ltd Gorey	Date Sampled	19/10/2005
		SW1
Parameters	Units	
pH		7.28
Conductivity	mS/cm	2.41
Dissolved Oxygen	mg/l	3.10
Ammoniacal Nitrogen (N)	mg/l	30.10
Total Cyanide	mg/l	<0.05
Potassium	mg/l	35.00
Sodium	mg/l	240.00
Sulphate	mg/l	332.00
Nitrite as NO2	mg/l	0.05
Nitrate as NO3	mg/l	<0.3
Fluoride	mg/l	0.60
Chloride	mg/l	416.00
Total Oxidised Nitrogen	mg/l	<0.3
Total Alkalinity as CaCO3	mg/l	400.00
Total Organic Carbon	mg/l	50.00
Total Solids	mg/l	1626.00
Total Phenols	mg/l	0.16
Ortho Phosphate as PO4	mg/l	4.32
Dissolved Zinc	mg/l	0.047
Dissolved Silver	mg/l	<2
Dissolved Selenium	mg/l	0.030
Dissolved Phosphorus	mg/l	1.235
Dissolved Nickel	mg/l	0.010
Dissolved Manganese	mg/l	1.542
Dissolved Magnesium	mg/l	20.550
Dissolved Lead	mg/l	14.000
Dissolved Iron	mg/l	1.219
Dissolved Copper	mg/l	0.006
Dissolved Chromium	mg/l	0.011
Dissolved Calcium	mg/l	221.800
Dissolved Cadmium	mg/l	<1
Dissolved Boron	mg/l	0.170
Dissolved Barium	mg/l	0.051
Dissolved Arsenic	mg/l	0.011
Dissolved mercury	mg/l	<0.05
Total Coliforms	cfu/100ml	~
Faecal Coliforms	cfu/100ml	~

E5 Noise**1. Provide a new survey of daytime noise levels, to be carried out at:**

- The north-western, western and southern boundaries of the site; and at
- 4 A further location outside the eastern site boundary; and,
- At all noise sensitive locations identified within a 250 metre radius of site

The survey should be carried out while the plant at the facility are operational

Table E. 3 Daytime Noise Levels (Facility fully operational)

Noise Monitoring Location	Survey Date and Time Interval	L _{Aeq} 30min dB	L _{A90} 30min dB	L _{A10} 30min dB	Predominant Noise Sources
N 101 (North Western Boundary)	19/10/05 10:24-10:56	75	51	75	Truck engine idling nearby. Front shovel loader in waste transfer station. Forklift.
N 102 (western Boundary)	19/10/05 11:25-11:55	75	59	76	Forklift. Front shovel loader, Vacuum tanker emptying waste water UST.
N 103 (Southern Boundary)	19/10/05 12:05-12:35	75	69	83	Skip lorries entering/ leaving. Grab and front shovel loader.
NSL 101 (South of site)	19/10/05 12:42-13:13	58	47	60	Waste transport truck emptying load including glass. Engine noise from facility. 2 unrelated cars passing by. Reversing alarms from unrelated lorries within the industrial estate.
NSL 102 (North east of site)	02/11/05 10:30-11:00	66	47	68	Unrelated traffic noise. No noise from facility noted. Unrelated lorry turning in entrance.
NSL 103 (North east of site)	02/11/05 11:23-12:53	70	44	71	Unrelated traffic noise. Unrelated low loader turning in the entrance to the housing estate. Machinery noise from timber yard. Birdsong. No noise audible from facility.
NSL 104 (Outside eastern site boundary)	19/10/05 12:10-12:40	53	43	60	Background traffic noise. Unrelated traffic in industrial estate. Machinery noise from Ramstown development. Intermittent impact noise from facility. Scraper from facility.

Weather conditions were mild and dry with a light breeze of 1-2 meters noted. The sound pressure level graphs for the above results are presented as Appendix A. A full glossary of noise terms is attached as Appendix B and the calibration certificates for the monitoring equipment are attached as Appendix C.

2. Provide a map clearly showing

- The noise monitoring locations,
- The location of all residential buildings and
- Any other Noise Sensitive Locations (NSL's), within 250 meter radius of site

See Figure E.3 attached which shows the locations of the monitoring points. Previous monitoring points including NSL N1 are presented on Figure 4.3.5.1 attached.

3. The noise results and frequency spectra provided in Appendix 2.3.1 show a tonal noise element at several frequencies at location N1 and N2. Please provide a frequency spectrum of noise measurements taken at boundary locations (NW, W and S boundary wall) and a separate frequency spectrum of noise measurements taken at NSL's in order to eliminate the Water Transfer Facility as the source of the tonal element in the noise character. Please

Boundary Location	Tonal Frequency Detected	Noise Sensitive Locations	Tonal Frequency Detected
N 101 (Northwest)	80 Hz, 200 Hz	NSL 101	40 Hz
N 102 (West)	3.15 kHz, 12.5 kHz	NSL 102	250 Hz, 500 Hz, 800 Hz, 4 kHz, 10 kHz
N 103 (Southern)	6.3 kHz	NSL 103	40 Hz, 100 Hz, 500 Hz, 1 kHz, 2.5 kHz
		NSL 104	No tones detected

At the boundary locations tones were detected at 80 Hz and 200 Hz at N1, at 3.15 kHz and 12.5 kHz at N2 and at 6.3 kHz at N3. These tones may be attributable to on site machinery noise. These tones were not detected at the noise sensitive locations. See Appendix A for the 1/3 octave frequency analysis bar graphs for each location.

4. Please indicate why all Noise Sensitive Locations monitored are regarded as being noise sensitive

A noise sensitive receptor is defined as "any dwelling, house, hotel or hostel, health building, educational establishment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

Representative monitoring was undertaken at the nearest residential properties. Monitoring was also undertaken at nearby office environments within the industrial estate. While not considered as sensitive as residential properties elevated noise levels may cause disturbance. NSL 101 was measured outside the office of a nearby furniture store approximately 100m south of the facility. NSL 102 was measured at the entrance to the Paddocks housing estate approximately 250m north of the facility. NSL 103 was measured at the entrance to a private residence approximately 150m north east of the facility. NSL 104 was located within the industrial estate close to the eastern boundary of the waste transfer station. The location was close to the offices of businesses adjoining the eastern boundary of the waste transfer station.

5. Section 2.3.4.1 "Short term noise measurement" refers to the provision of a summation of a summation of noise monitoring results for noise monitoring location N1 – N4 in Table 2.3.1 as well as the provisions of representative noise level graphs on Figures Reference is also made in Figures 2.3.2 – 2.3.5. However Appendix 2.3.1 does not contain corresponding references and Table 2.3.7 has not been provided. Provide Table 2.3.1 and identify graphs accordingly.

Previously Figures 2.3.2 – 2.3.5 referred to the sound pressure level graphs in Appendix 2.3.1 and are labelled N1, N2, N3 and N4 respectively.

F1 Air

Specify the mitigation measures that will be employed in the event of rising dust levels as referred to in Section 3.10.3.

Mitigation measures that will be employed in the event of rising dust are discussed in Section 3.6.3 of the EIS as follows;

Greenstar proposes to construct a new building, to cover the yard area to the west of the existing Recycling Building, consequently roofing in the entire site. This will ensure that the tipping and handling of all C&D material takes place indoors thereby significantly reducing dust levels on site. Once constructed, the new building will house all site operations. A dust suppression sprinkler system similar to those operating in other waste facilities will be installed in this area. It is proposed to install a wheelwash near the site entrance. These measures will ensure that there will be no significant dust emissions from the facility.

F4 Sewer Discharge

Supply an estimate of the volume to be discharged from the facility, to the foul water holding tanks, per day, including minimum and maximum figures.

An estimate of the volume to be discharged from the facility to the underground foul water holding tanks, per day, including minimum and maximum figures are as follows;

Daily average 225L/day

Minimum figure 0L/day

Maximum figure 250L/day

F5 Groundwater

Section 3.2.11 of the EIS states "Water is supplied by a private well on site" Please provide a sample analysis of the water from the on site well to include all the parameters shown on Table 1.4 Groundwater Quality of the application form.

Please refer to Table F.5.1 Ground Water Results attached.

Table F.5.1 Groundwater Quality Results from the the Site Well

Greenstar Ltd Gorey	Date Sampled	19/10/2005
Parameters	Units	GW
pH		5.90
Conductivity	mS/cm	4.84
Dissolved Oxygen	mg/l	5.60
Ammoniacal Nitrogen (N)	mg/l	<0.2
Total Cyanide	mg/l	<0.05
Potassium	mg/l	4.80
Sodium	mg/l	920.00
Sulphate	mg/l	254.00
Nitrite as NO ₂	mg/l	<0.05
Nitrate as NO ₃	mg/l	17.40
Fluoride	mg/l	<0.1
Chloride	mg/l	1405.00
Total Oxidised Nitrogen	mg/l	4.00
Total Alkalinity as CaCO ₃	mg/l	80.00
Total Organic Carbon	mg/l	6.00
Total Solids	mg/l	2746.00
Total Phenols	mg/l	<0.01
Ortho Phosphate as PO ₄	mg/l	<0.03
Dissolved Zinc	mg/l	0.069
Dissolved Silver	mg/l	<2
Dissolved Selenium	mg/l	0.040
Dissolved Phosphorous	mg/l	0.133
Dissolved Nickel	mg/l	0.005
Dissolved Manganese	mg/l	0.942
Dissolved Magnesium	mg/l	32.790
Dissolved Lead	mg/l	
Dissolved Iron	mg/l	0.005
Dissolved Copper	mg/l	<1
Dissolved Chromium	mg/l	0.004
Dissolved Calcium	mg/l	78.380
Dissolved Cadmium	mg/l	<1
Dissolved Boron	mg/l	0.061
Dissolved Barium	mg/l	0.023
Dissolved Arsenic	mg/l	0.001
Dissolved mercury	mg/l	<0.05
Total Coliforms	cfu/100ml	<1
Faecal Coliforms	cfu/100ml	<1

F6 Noise

Section 4.3.5 of the EIS states that proposed noise monitoring locations are outlined in figure 4.3.5.1 however figure 4.3.5.1 has not been provided.

Figure 4.3.5.1 is attached along with an updated version of Noise Monitoring Locations (Figure E.3)

For inspection purposes only.
Consent of copyright owner required for any other use.

ARTICLE 13

1. Section 2.1.1 of the EIS states 'The annual average rainfall data for the Rosslare station is presented in Table 2.1.1'. Table 2.1.1 provides details of wind direction at Rosslare as opposed to average rainfall data. Provide Table 2.1.1 containing data for annual rainfall at Rosslare station.

The annual average rainfall data for the Rosslare station is presented in Table 2.1.1 below.

Table 2.1.1 Annual Average Rainfall Data for the Rosslare Station

Rainfall Station	Period Covered	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
Rosslare	1961 to 1990	94.8	69.9	67.8	55.7	55.8	50.6	50.7	68.7	73.3	94.9	97.1	97.8	877.1
Wind Direction at Rosslare														
Wind Direction (from)		N	NE	E	SE	S	SW	W	NW					
Frequency (%)		8.6	10.1	7.1	6.4	15.9	22.4	16.0	10.5					

2. Section 2.2.4 of the EIS states 'The odours emitted from non-hazardous solid waste are considered a nuisance to the public rather than an environmental hazard and controls of this potential nuisance are presented in Section 3.4.6'. Section 3.4.6 deals with 'Ferrous and non-ferrous metals' Provide details of the controls that will be put in place to keep odours from putrescible waste to a minimum.

Controls for dealing with odours from putrescible waste are located in section 3.6.5 and 3.7.1 of the EIS and as follows;

All commercial and domestic wastes are handled within buildings and all vehicles carrying these wastes are fully covered. These wastes arrive, are handled and leave the site in a very short time-frame (several hours). The C&D waste stream contains practically zero biodegradable material therefore odours are not an issue with these wastes.

It is proposed to install a deodorising system in conjunction with the proposed misting (dust control) system. This system will be capable of dispersing a perfumed aerosol spray throughout the buildings and help mask any odour that may be present.

The existing site handles low volumes of putrescible waste, therefore odour and decomposition gas emissions from the site are low. As the retention time of the putrescible waste on site is, and will be, short (*less* than 24 hours), emissions of odours and gases are expected *to* be low. The putrescible waste in the proposed facility will be handled under aerobic conditions and minor amounts of carbon dioxide may be produced, however, no methane production is expected. Any emissions of carbon dioxide will be rapidly dispersed within the building, which will be well vented, and further dispersed outside the building. Decomposition gases are generally undetectable outside a facility of this nature.

The proposed dust control sprinkler system will be designed with the facility to incorporate odour reducing agents should it be required.

Neither liquid waste ~~not~~ sludges are currently accepted at the facility, nor will they be in the future. Therefore no aerosol emissions are expected either now or in the future.

A complaints register will be maintained on site. Any complaints received from *the* local community will be recorded and investigated immediately. Remedial measures such as removal of odorous waste will be effected if required. The complaints file will be included in the AER to the EPA on an annual basis.

For inspection purposes only.
Consent of copyright owner required for any other use.

3. Under Section 4.13 of the EIS, reference is made to table 4.13.1, however this table is not produced. Provide table 4.13.1 highlighting impacts and effects on interactions between environmental media and identifying the sections of the EIS where the interactions are addressed.

Table 4.13.1: Impacts and Effects on interactions between Environmental Media

	Human Beings	Flora	Fauna	Soil	Water			Landscape
Human Beings								
Flora	none							
Fauna	none	none						
	none	none						
Water	Sections 4.5 & 4.6	Sections 4.6 & 4.7	Sections 4.6 & 4.7	Section 4.4				
Air	Sections 4.2 & 4.3	none	none	none	none			
Climate	none	none	none	none	none	none		
The Landscape	Section 4.10	none	none	none	none	none	none	

For inspection purposes only. Consent of copyright owner required for any other use.

Note: This table identifies the section of the EIA where in

Any interactions which will not be impacted upon or affected by the facility are not described in the EIS.

4. *Reproduce Figure No. 1.1.1 "Site Location Map" showing the location of Coolnaveagh Bridge in relation to the location of the Waste Transfer Station.*

Refer to Figure No. 1.1 1

5. *Provide a description detailing the inter-relationship between human beings, flora, fauna, soil, water, air, climate, landscape, material assets, in relation to data required to identify and assess the main effects, which the proposed development is likely to have on the environment.*

The interactions identified as part of the Environmental Impact Statement for the proposed development are detailed below. It should be noted that in certain cases there are obvious interactions between environmental media, e.g. climate and flora, however, if the proposed waste recycling facility does not have the potential to impact or affect the interaction, then that interaction is not highlighted

Human Beings / Water

Contamination of surface water at the site has the potential to impact on the water quality in the Banoge River. This impact could potentially affect the amenity value of the river which would affect human beings. Contamination of groundwater beneath the site would restrict any future use of the underlying strata for water supplies and would also have the potential to impact on the water quality in the Banoge River. Mitigation measures to ameliorate these potential impacts are proposed in Sections 4.5 and 4.6 of the EIS, after which the effects are expected to be insignificant.

Human Beings / Air

Dust emissions, noise emissions and odours from the facility have the potential to impact on human beings in the vicinity of the site. Impacts from dust and odours are considered low and mitigation measures are not considered necessary due to the reasons given in Sections 4.2 of the EIS. Measures are proposed in Section 4.3 of the EIS to mitigate against future noise emissions.

Water / Flora and Fauna

Contamination of surface water or shallow groundwater at the site has the potential to impact on the water quality in the streams and river downgradient of the site. This impact could potentially affect the aquatic life in these water courses. Mitigation measures to ameliorate this potential impact are proposed in Section 4.6 and Section 4.7 of the EIS, after which the effects are expected to be insignificant.

Water / Soil

Soil beneath the site can act as a pathway for contaminants reaching both the groundwater and the surface water. Contamination of the soil can therefore lead to contamination of the water environment. Mitigation measures to ameliorate this potential impact are proposed in Section 4.4 of the EIS, after which the effects are expected to be insignificant.

Human Beings / The Landscape

The visual impact of the facility has the potential to affect human beings. Mitigation measures are proposed in Section 4.10 of the EIS

6. *Provide details on the estimated type and quantity of expected residues and emissions resulting from operation of proposed development affecting vibration.*

There will be no vibration impacts resulting from the operation of the proposed waste recycling facility. The construction phase will be carried out in accordance with 855228 Noise and vibration Control on Construction and Open Site, in order to mitigate against any potential vibration impacts associated with construction.

Provide an updated EIS non-technical summary of all information supplied, including that supplied in response to this notice.

Refer to Appendix D for a copy of the updated EIS Non-technical summary.