

APPENDIX F - CALCULATION OF 'FIRST PRINCIPLES' TRAFFIC DEMAND

TRAFFIC FLOW CALCULATIONS SLEAFORD RENEWABLE ENERGY PLANT

ASSUMPTIONS

Operating regime

Operating hours	h/d	24	
Operating days	d/week	7	
Operating weeks	week/y	50	Annual shutdown for 2 weeks during summer
Delivery days	d/week	5.5	
Availability, excluding a	%hours	94%	

Material inputs

Straw	t/h	30.21
Lime reagent	t/h	0.20

Material exports

Total ash	%mass	5.80%	
Of which: bottom ash	%total ash	75%	Remainder of ash goes to fly ash
Char with bottom ash	%mass	10%	In addition to basic mass of ash
Char with fly ash	%mass	5%	In addition to basic mass of ash
Moisture in botttom ash	%mass	50%	

Vehicle carrying capacities

Straw lorry	tonnes	20	Typically 3 layers of 12 bales; each 0.55 tonnes
Bottom ash lorry	tonnes	26	
Fly ash lorry	tonnes	13	Lower capacity assumed - may be volume limited due to low density
Lime reagent	tonnes	30	Lower capacity assumed - may be volume limited due to low density

Staff levels

Day staff	#	10	
Shift workers/shift	#	4	12h shifts; 5 shift system

CALCULATIONS

		annual (t)	weekly (t)	del day (t)	non del day (t)							
Performance												
Straw input	tonnes	238,538	4,771	867	0							
Lime input	tonnes	1,579	32	6	0							
Bottom ash export	tonnes	21,790	436	79	0							
Fly ash export	tonnes	3,632	73	13	0							

		annual	weekly	del day	non del day	Delivery Hours Per Day						
HGVs (one way)												
Straw	trips	11927	239	44	0	<table border="1"> <tr> <td>Trips per hour</td> </tr> <tr> <td>3.62</td> </tr> <tr> <td>0.03</td> </tr> <tr> <td>0.26</td> </tr> <tr> <td>0.09</td> </tr> <tr> <td>66</td> </tr> </table>	Trips per hour	3.62	0.03	0.26	0.09	66
Trips per hour												
3.62												
0.03												
0.26												
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66												
Lime Input	trips	53	2	0.2	0							
Bottom ash	trips	839	17	4	0							
Fly ash	trips	280	6	2	0							
Totals												
HGVs (one way)	trips	13099	264	50	0	HGV's						
Cars (one way)	trips			18	18							