T J Waste Ltd Project 2020

OUR 2020 VISION FOR THE NEXT DECADE

MMXX

Possible trademark or logo

The plan aims to provide a sustainable economic solution to the business of the TJ Group.

LOW FINANCIAL RISK – ECONOMIC GROWTH – ZERO EMISSIONS

Progressing towards:

Over 1 Million tonnes of household waste not going to incineration or landfill.

Full recovery of all reusable plastics back into plastics production.

Full recovery of all other plastics into recoverable fuels and biproducts.

Renewable fuels for our own use and export power generation.

presented by

Biomass Environmental Solutions Ltd

CIWM Affiliated Organisation 2019
Committed to excellence in sustainable resource management

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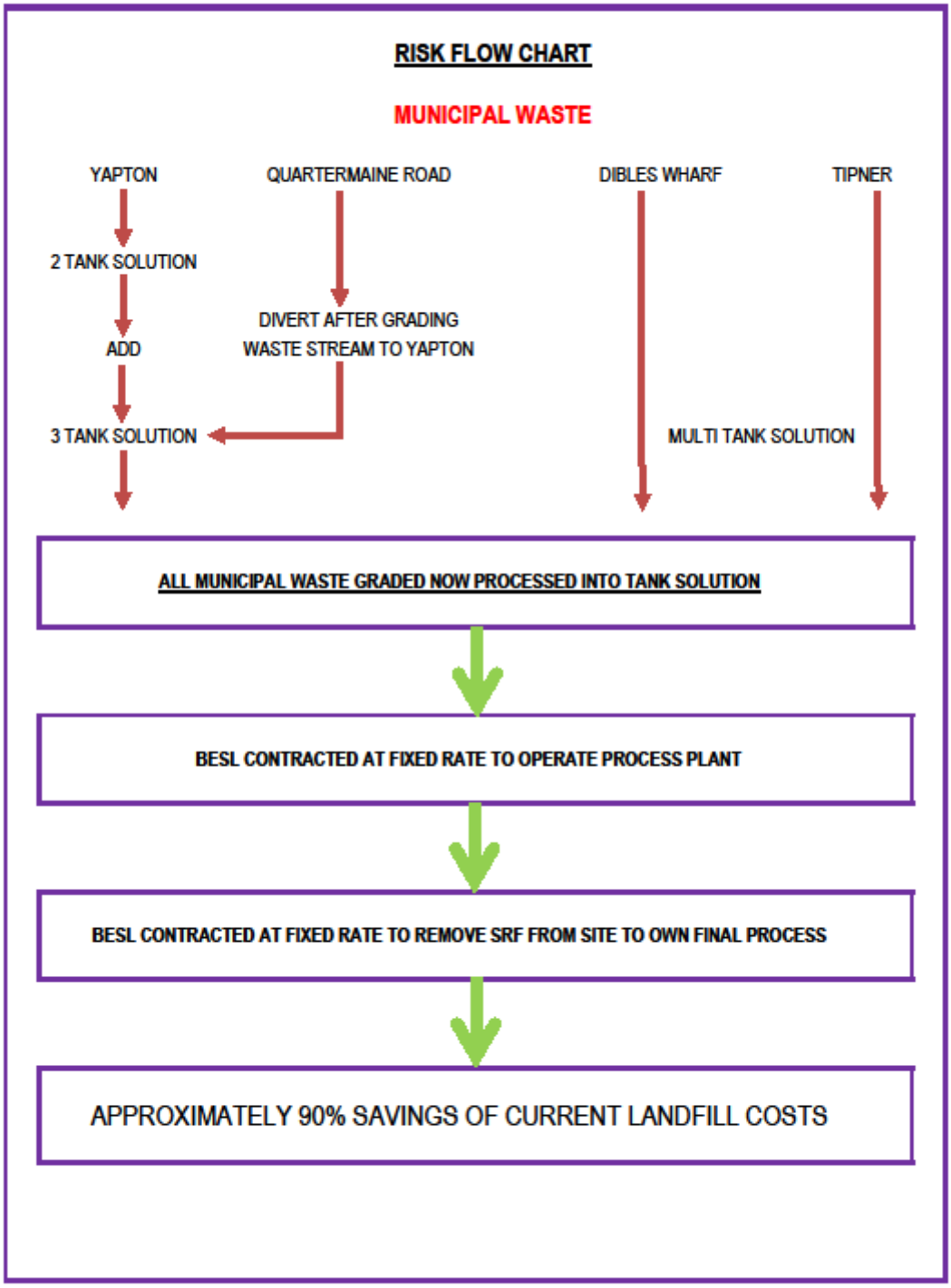
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DIVERT AFTER GRADING
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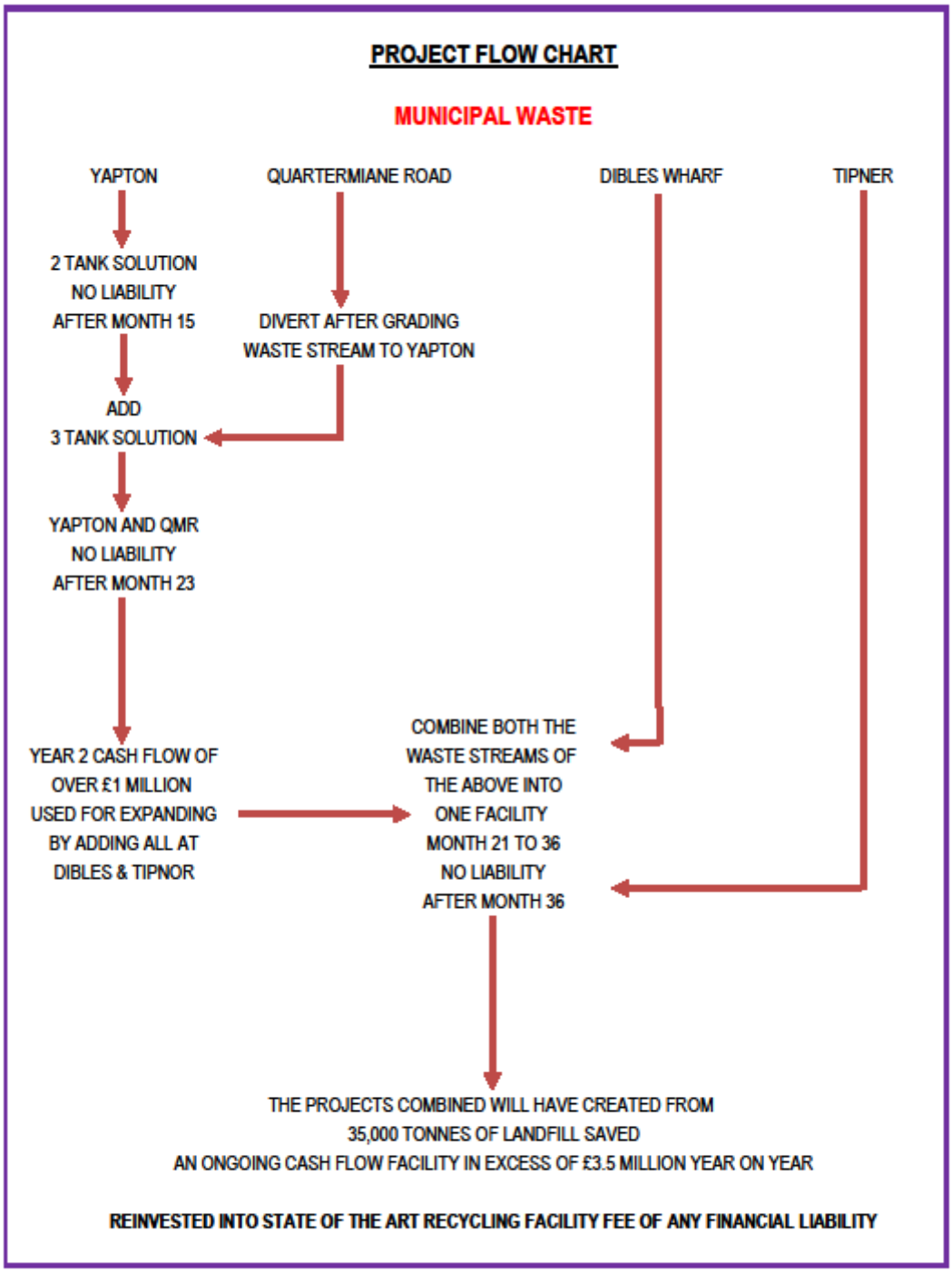
MULTI TANK SOLUTION
ALL MUNICIPAL WASTE GRADED NOW PROCESSED INTO TANK SOLUTION
BESL CONTRACTED AT FIXED RATE TO OPERATE PROCESS PLANT
BESL CONTRACTED AT FIXED RATE TO REMOVE SRF FROM SITE TO OWN FINAL PROCESS
APPROXIMATELY 90% SAVINGS OF CURRENT LANDFILL COSTS


PROJECT FLOW CHART
MUNICIPAL WASTE
YAPTON
QUARTERMIANE ROAD
DIBLES WHARF
TIPNER
2 TANK SOLUTION
NO LIABILITY
AFTER MONTH 15
DIVERT AFTER GRADING
WASTE STREAM TO YAPTON
ADD
3 TANK SOLUTION
YAPTON AND QMR
NO LIABILITY
AFTER MONTH 23
YEAR 2 CASH FLOW OF
OVER £1 MILLION
USED FOR EXPANDING
BY ADDING ALL AT
DIBLES & TIPNOR
COMBINE BOTH THE
WASTE STREAMS OF
THE ABOVE INTO
ONE FACILITY
MONTH 21 TO 36
NO LIABILITY
AFTER MONTH 36
THE PROJECTS COMBINED WILL HAVE CREATED FROM
35,000 TONNES OF LANDFILL SAVED
AN ONGOING CASH FLOW FACILITY IN EXCESS OF £3.5 MILLION YEAR ON YEAR
REINVESTED INTO STATE OF THE ART RECYCLING FACILITY FEE OF ANY FINANCIAL LIABILITY

Introduction and review:

The plan introduced has been developed to provide the maximum possible economic growth for both TJW and TJT using current resources for sustainable solutions whilst reducing your landfill obligations.

The opportunities created can be implemented at anytime in sequence to provide multiple solutions on multiple sites.

The end game will be your own Materials Recycling Facility (MRF) in a few years, realised through the gains from investing in the landfill tank farming, securing economic growth.

The information prioritises on the landfill solution, although we have indicated technologies available, these can be revised during the current project, as no doubt the technologies and opportunities will change.

Research and development opportunities: (R&D)

With 130% tax relief on projects for R&D you will certainly be able to make the best of several projects, possibly not all, as the processes will be repeated. Therefore, the initial stages and documentation once in place should suffice the ILR as to your investment in the techniques and technologies along with creating new job roles will certainly tick most of the boxes. Therefore, the design stage will be paramount to the planning of the project(s).

Information provided:

The information has been aimed for you to make your own commercial cashflow forecast, as the models shown do fall in line with multiplication for the number of tanks and locations.
We have taken into consideration the actual existing site facilities, as the availability of both space and power are at a premium, we do agree with your view that possibly the whole operation could be located at Yapton.

BESL Partnership:

Our working relationship with yourselves is not aimed at just providing and installing the plant and equipment, but to work through the design, planning, build, operation and maintenance phases of the project throughout their life cycle. Whilst at the same time creating your own operations team from apprenticeships and training.

BESL Investment:

There will be a need for additional processes and equipment required for the complete ‘cycle’ of the Municipal waste streams processed as SRF from your point of distribution. To facilitate the secondary processes, BESL will invest in the production facilities off site for an agreed period in line with the completion of the MRF in 4-5 years.

Our investment will not become redundant at that time, as our current growing program of biomass wood streams will have in this period our own sustainable solution for biomass fuels, our own investment will work hand in hand.

The Upham facility we are currently considering at is around 22,000 sq. ft, with HGV access and storage.

With also your current notification of a 10,000 sq ft facility possibly available located on one of your sites will certainly be of interest to us. We can discuss this later.

Overview of waste streams available and operational requirements:

1 Reduction of Municipal waste streams from landfill:

Where the proposed Tank Farm solution has been indicated, this implementation will require a small change to the current grading operations, to ensure the removal of: Glass, Ceramics, Ferrous and Non-Ferrous Metals, of which all do have additional residual values or savings to TJW.

2 Processing requirements:

The main requirement for processing will be available power, as the shredder requirements will be approx. 80KW, of which on most sites this is not available. This is available out of hours without the need for either power upgrade, or power generation.

Considerations for the shredding will be:

2.1 To automate the plant for out of hours operations, such that the fill process can be done during normal hours,

2.2 To provide power generation from stand alone plant, costs shown on models,

3 Tank Solutions:

The tank solution is not new within the Anaerobic Digestion industry however, the technique is different that the production of energy is not the requirement, the requirement will be to maximise the savings from waste not going to landfill being the key point.

To achieve this after grading the waste will be transferred to a combined delivery and weighing transfer section then transferred by Augers into the onsite tanks (where available, or re distributed to sites where tanks can be installed), where over a period of 60 – 90 days will be treated using Heat, Air circulation, controlled from the automated and monitored operating system.

The volume of each tank will be replenished at least four times per annum, each 500,000-litre tank will process 2,000,000-litres of product, or 2,000 tonnes as an average for all calculation purposes.

The SRF will be collected by BESL for further processing off site. We will discuss with TJT the logistics required, such that we can offer a separate contract with them for the daily logistics to our site(s).

BESL would undertake to oversee the processing, site operations and processing into secondary fuels, for approx. 10% of the gross input value, giving a waste solution savings of approximately 90% gross product (excluding all other TJW and TJT operational savings and costs).

Financials and risks:

The biggest risk to any business is financial failure, investing in technologies and techniques is not to be taken lightly especially under recommendation from others.

The program for investment and expansion comes from a sensible approach utilising your immediate expenditure of landfill costs. By introducing the following strategy for the investment in Technologies' and Technique's will allow you to realise the benefit from immediate results, allowing further investment at your own pace, or have a higher level of investment towards the final game plan of your own state of the art MRF.

In addition to the financial risk, we need to consider the operating risk and strategy as with your waste transfer operations the processes are relatively simple, with the introduction of shredding and tanks, again simple operations and low risk, however with power and processing these require a multiple regime for design, installation and operation.

Phased inclusion of self-power processing and grid connection will be dependent upon technology selected and time scale in delivery of the project.

Providing the return of investment meets with your program, where the sustainable solutions for recovering costs from no landfill expense prove consistent, then the next stages can be procured.

Operating and training

No doubt there will be concerns over operating of plant and equipment. BESL will undertake to work with you to operate the technologies where stated, but to provide training and monitoring throughout.

Apprenticeships would be readily available with support from the government, where we can specifically train any number of people to become part of your organisation.

This will also include academic entry level persons at the management level required for compliance and other business operations for the waste projects.

Planning and permit requirements:

There will be a need to consider planning requirements for the larger aspects of the projects, with also permit changes for processing alongside current operations.
Speaking with the Environmental Agency, who would be the last point of call from local authorities, they would have no objections to the range of the project, as they can appreciate the green credentials.

UNTHA Shredder or Alternative Note where the motors are SDS started, the local SSE requirements may require Inverters fitted for starting, There will be an operational benefit to having monitored inverters fitted, prolongs life of the equipment and reduces running costs	Austrian manufactured supported in the UK by UNTHA, 2 Tonne hours, 4 bladed drop feed loaded 2 X 40 Kw Motors UK Option with Inverter Drives Fitted and supplied by BESL
Purpose	Used for shredding to G50 pre-processing: Municipal Waste Wood
Installation Requirements: Note for the cash flow forecast we have included for the non-stock cheaper options.	Footprint 3.0 mtr by 3.0 mtrs by 2.0 mtrs Power and safety interlocks Hood and feed system bespoke Can be containerised, with feed and acoustic shell
Financial Sequence	Stock items ready for delivery 90% On order Balance on commissioning. Non-stock alternative 50% Deposit, 40% Delivery, Balance on commissioning.
Warranty	1 Year manufacturers, with extended warranty, however BESL can look after all servicing and maintenance requirements
Delivery and installation period	Stock item within 1 week, subject to site specific power requirements If containerised allow an additional week on site, possibly using own containers
Operating costs	Power requirements: £14/hr running costs, site dependant, therefore could be mobile within container and shared. Labour: Will need operator for the daily use, local rates to apply by TJW. Maintenance allowances. Quotes from blades suppliers available, with an indication per 1000 hours, cost being £2 per hour
Cap Ex Cost All direct purchase to recommended suppliers, no commission to BESL. Option only if required by SSE Nonstock option alternative supplier, made in Bratislava, demo models available through JJ Smith Woodworking Ltd, Liverpool Model uses for cash flow forecast.	Ex Stock option: UK Standard without Inverters £ 85,000 Option to fit inverters £ 9,000 Sub Total £ 94,000 Delivered UK £ 59,000 With Inverter option Installation budget M&E £ 10,000
Return of Investment	To be considered within overall savings, as it will compliment 16,000 tonnes annually over several sites.

Tank package Option for UK Steel manufactured versions or TORO Industries, GRP version. Note GRP versions will be 50% more expensive and longer delivery times. Load weigh box solution with direct automated feed to tank(s) Agitator package, UK manufactured with inverter driven motor Ventilation system, with temperature and active carbon filter control and monitoring. Media extract Auger, UK manufactured. Control panel with remote monitoring and operation support. Note No Leachate or Emissions from these tanks or operating systems.	500,000 litre capacity Covered tanks, with automated feed system. Fixed installation on bespoke BESL designed base 8.3 to 10Mtrs Diameter, up to 7.5 mtrs high overall. Steel construction will be double skinned and optional colours GRP option construction finished in Green or Black Power 12.5Kw 415V 50Hz
Purpose	Processing of Municipal waste to concentrated paste.
Installation Requirements Note final base concrete depth subject to land survey sample test, standard will be 1 .5 Mtrs deep	Footprint 10 mtrs by 15 mtrs concrete base. Power and safety interlocks Local access and walkway, included in price, but locally constructed, included within the project costs. Vehicle Access for loading and off loading
Financial Sequence	30% with order, 30% on delivery, 230% on installation with the balance of 10% on completion of commissioning.
Warranty	5 Year manufacturers, with extended warranty, however BESL can look after all servicing and maintenance requirements
Delivery and installation period	8 – 10 weeks
Daily tank operating costs:	Power requirements @ £24 day average.
Cap Ex Cost, for two tanks, shredder, site civils etc	Estimated project depending to be around £400K per pair of tanks for the first project Estimated to be around £600K for the second phase
Return of Investment.	The return of investments depends upon the starting of the projects, singular or multiple, cash flow and investment, generally most options give a return of overall investment within 34 months. 20 tanks providing a solution for over 35000 tonnes per annum.

Yapton: Outline solution for Municipal waste processing:

Project reference	**Yapton, West Sussex**
Target Municipal Waste per Annum/Month	4000 tonnes annually / 333 tonnes per month
Considerations	Room for expansion for incorporating other sites where tank solutions are not viable due to space.
Number of Tanks Proposed Stand-alone option	2 Tanks required for initial operations.
Capacity from target and tank volumes	2 Tanks will process 4000 tonnes per annum.
Extra Capacity	Nil
Capital expenditure Suggested program for cash flow will be after installation of the first tank to order the second tank, allowing for manufacture, delivery and installation. The shredder does have options, therefore shown as site specific, Slab costs excluded above, which will be subject to site survey and surveyors design. Cost of survey within our project price.	Tank 1 Complete £186,000 Tank 2 Complete £186.000 Shredder package £ 69,000 Note delivery times may change and will be notified at time of order, due to availability. Budget costs for this option BUDGET £20k
Operational costs On site direct pre-grading and shredding by TJW Delivery by automatic process after grading into weighing and final auger delivery system to the tanks. BESL will attend all sites for processing, maintenance, warranty, monitoring and SRF removal from site to our own facility. Note the monitoring and data package will be included in the build cost and all monitoring will be within our operation costs. The contract term will be agreed, but expected to be 4-5 years until full MRF has been established and operating	TJW grading changes and daily fill strategy with current labour and current machinery. The product will go into a fill day tank serving two operations, one being additional grading of large particles, the second being to record and weigh the gross product entering the tank. Operational costs fixed for the term of our contract for this site @ £12.90 per gross tonne, as weighed in through the weighing process. A minimum requirement of 2000 tonnes per annum, to be revised annually subject to disposal fee price rises in line with inflation.

Cash flow forecast for YAPTON West Sussex. (Ex 15 months ROI @ 330t/month)

Week references shown as 1 2 3 4	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Months 7 – 15
Tank 1 Ordering process	-55800 (1)						
Tank 1 Site services and base		-10000 (1 2)					
System 1 Shredder order	-59000 (1)						
System 1 Shredder installation		-10000 (2 3)					
Tank 1 Installation and commissioning		-55800 (2 3 4)	-55800 (1 2 3 4)	-18600 (1 2)			
Tank 1 To start shred and filling			(3 4)				
Tank 1 Operating costs TJW Start week			(3 4)				
Tanks 1 and 2 Operating cost BESL start week						-4250	-38250
Tank 2 Ordering process			-55800 (1)				
Tank 2 Site services and Base continuity		-10000 (2 3)					
Tank 2 Installation and commissioning				-55800 (2 3 4)	-55800 (1 2 3 4)	-18600 (1 2)	
Tank 2 To start shred, and filling					(3 4)		
Calc A Overall outgoing cash flow carried to below	-114800	-85800	-111600	-74400	-55800	-22850	-38250
Calc B Savings to landfill based upon 330 tonnes per month carried below			+37950	+39750	+39750	+39750	+357750
Accumulate cash flow forecast throughout the year process, note last column is calculated as 6 months of operation A + B = ACF	-114800	-200600	-274250	-308900	-324950	-308050	+11450

Quartermaine Rd: Outline:

The problem associated with QMR, is the actual site availability for shredding and storage, therefore we have proposed the following solution.

Option 1:

Direct disposal of graded Municipal waste, transferred to Yapton, where the current shredding facility can be shared, but with the addition of three additional tanks for covering the additional load.
Note where for Yapton 2 tanks will be required, there will be the need for 3 additional tanks on the site, making a total of 5 in No Tanks.

Planning the whole process could add onto the build process sequence to allow the follow on of these tanks in sequence.

Quartermaine: Outline solution for Municipal waste processing:

Project reference	**Quartermaine Rd Portsmouth**
Target Municipal Waste per Annum/Month	6300 tonnes annually / 525 tonnes per month
Considerations	Space is a premium at this site.
	3 Tanks required for initial operations. Relocated to Yapton.
Capacity from target and tank volumes	3 Tanks will process 6000 tonnes per annum.
Extra Capacity	Nil
Capital expenditure Phase 1 will be the direct option after grading to be transported to Yapton. Phase 2 will be the tank installation at Yapton, but with sharing the same shredding facility, Yapton Facility. This will require the 3 tanks installed. Slab costs excluded above, which will be subject to site survey and surveyors design. Cost of survey within our project price. Yapton Generation of power: Due consideration must be given to the power requirements at Yapton.	Options will have to be taken into consideration from existing landfill logistics, therefore not impacting project by a large margin. Tank 1 Complete £186,000 Tank 2 Complete £186.000 Tank 3 Complete £186,000 Budget costs for this option BUDGET £30k Yapton additional generation project will be with two options, to either rent or procure a small generator, of which over the year the ROI for the generator set would have been recovered. Budget sum for purchase and installed. £12,000 Operating costs £1000 per month max on fuels.
Operational costs On site direct pre grading only by TJW as previously described for Yapton, but with slight changes to allow waste interface to weighing and delivery sections. BESL will attend all sites for processing, maintenance, warranty, monitoring and SRF removal from site to our own facility. Note the monitoring and data package will be included in the build cost and all monitoring will be within our operation costs. The contract term will be agreed, but expected to be 4-5 years until full MRF has been established and operating	TJW grading changes and daily fill strategy with current labour and current machinery. The product will go into the shared fill day tank serving two operations, one being additional grading of large particles, the second being to record and weigh the gross product entering the tank. Changes and omissions will roughly be the same for the project changes on site. Operational costs fixed for the term of our contract for this site @ £12.90 per gross tonne, as weighed in through the weighing process. A minimum requirement of 4000 tonnes per annum, to be revised annually subject to disposal fee price rises in line with inflation.

Cash flow forecast for QUARTERMAINE RD Portsmouth. (Ex 8 months ROI @ 533t/month)

Week references shown as 1 – 2 – 3 - 4	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	Month 22 - 23
Tank 1 Ordering process	-55800 1						
Tanks 1 2 3 Site services and bases		-30000 1 - 4					
Generation provision		-12000 1					
Tank 1 Installation and commissioning		-55800 2 - 3	-55800 1 - 4	-18600 1 - 2			
Tank 1 To start shred and filling			3 - 4				
Tank 2 Ordering process		-55800 1					
Tank 2 Installation and commissioning			-55800 2 - 4	-55800 1 - 4	-18600 1 - 2		
Tank 2 To start shred and filling				3 - 4			
Tank 3 Ordering process			-55800 1				
Tank 3 Installation and commissioning				-55800 2 - 4	-55800 1 - 4	-18600 1 - 2	
Tank 3 To start shred and filling with power generation costs of £1500 per month at level 3			-500	-1000	-1500 3 - 4	-1500	-3000
BESL Operating costs on completion of all three additional tanks					-6875	-6875	-13750
Calc A Overall outgoing cash flow carried to below	-55800	-153600	-167400	-131200	-82775	-26975	-16750
Calc B Savings to landfill based upon 330 tonnes per month carried below			+61295	+61295	+61295	+61295	+122590
Calc C Accumulate cash flow from Yapton tank phase as previous, starting balance +11400 Monthly +35500	+46900	+35500	+35500	+35500	+35500	+35500	+71000
Calc A + B + C = ACF	-8900	-127000	-197605	-232010	-217990	-148170	+ 28670

Overview of Dibles Wharf and Tipner:

As you can see from the projections above the tank solution will almost pay for itself in the first year, based upon our figures of landfill at £115 per tonne.

Overall general requirements for the above sites:

Location	Tonnage and tanks required	Overall investment	Estimated return of Investment
Dibles Wharf	9600 over 5 tanks required	@ £ 900,000	If programmed after the completion of Yapton and QMR, this project would start Month 23 to be completed Month 29
Tipner	15000 over 8 tanks	@ £1,500,000	If programmed directly after the completion of Dibles Wharf this project would start Month 29 and be completed Month 36, with no liability.

Overview of single facility:

The idea of a single facility would be ideally located at Yapton, of which there would be required a minimum of 20 tanks based upon the current demands. An area of 3000 sq mtrs would be required, excluding centralised buildings which would have power and welfare facilities.

With time and by the time the project has fulfilled the current obligation this could be 50% more.

With an estimated total sum value of Municipal waste in excess of 35,000 tonnes, the project would fall for the tank solutions excluding buildings and power infrastructure of around £3.5M

Building and power requirements:

Building structure would not have to be anything special, in fact with the tanks being already suitable for external locations, we would propose to upgrade the tanks to GRP, costs around 20% more, to be hidden behind a suitably designed outline walled structure, with a footprint building to contain power, operations and welfare etc.

This would open the possibility of placing a WID compliant boiler on site, operating from the waste wood stream, but would generate an export potential of £1.4M of income from connected energy to the grid.

As below the WID option would be 2 – 2 1/2 years for completion from planning and build, but with a joint venture with the provider would certainly be costs neutral after 5 years allowing for the build process as well.

Further details can be provided on request, but the thought process is for maximum return form waste streams and energy.

Introducing other technologies:

The following technologies have previously been indicated in the previous submissions, if you do need previous documentation re-issued please do not hesitate to contact us.

Re Kurata:

As per our previous issues of technologies and processes, it is a fair ask to consider the £19.5 - £21M investment of the Kurata Technology, when the build time will be 3 - 4 years, with possibly another year for planning and land purchase.

However, it is possible to consider during the tank projects the investment opportunity for the MRF Kurata solution, where the only outlay would be the planning documents and the process of the planning application which could be absorbed within the second year.

We have spoken with the Spanish Kurata owners who have agreed they can provide:

- Fixed price installation, using ourselves as turnkey Mechanical, Electrical and Controls installer.
- Civils and steel works will be by a tender process, within the UK, but direct to Kurata Systems Spain.
- Full documentation of the current Cordoba footprint in English for your planning process, this will be included in the initial fee figure.
- Operation of the plant for 5 years, leading to handover to BESL and TJW, with eventual handover fully to TJW within 2 years.
- Finance package over 7 years.

The example here is that we have taken the design, development and build risks away from TJW.
Additionally, there will be no capital borrowing and having to wait 5 years for any return, the required repayments would already be secured from the primary investment in the smaller technologies, providing sustainable income.

There is always the what if scenario, for example if the Technology providers go broke however, in this case they are privately owned, back up by considerable wealth and experience, the risk is clearly with them.

The plan will allow TJW and TJT to acquire over £30M of technology in 7 years, with less than 5% capital outlay in the first with no extended debt, providing a substantial high revenue value and options moving forward.

Green Technology additional benefits:

From the Biofabrik product range, for the plastic recovery and distillation processes, it is likely that within the next few months PRN's will be available for the recovered plastics going back into plastic production, but not into energy. These will equate to approx. the same value shown as the income stream from the resale value back to QMRE, for the wax-oil, which we would have primary use. These are not currently indicated within the revenue.

WID Compliant boilers:

We would consider the next step from the tank solution to this type of boiler, as it would use all the tree surgery, Grades A B C some D waste wood to create heat and power, the return of investment would be after the second year of operation as your current waste stream would generate 1.2 MWe annually, estimated contracted income with SSE around £1.5M per annum. Further details available on request.

If you need any further information, please do not hesitate to contact us.

Regards *Alan P Conduit*

Director Direct Tel 0789 1255435 Dated 30-01-2020