

## **Annex C**

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## Annex C – Alternative Modes

### Background

There are a number of waste trip types that are expected to be associated with the EfW CHP facility, as presented within the TA. These include inbound delivery waste trips (MSW and C&I) and outbound residue trips (IBA and APC waste) in the main.

The TA has considered information provided by MVV and the SWDWP relating to the future operation of the EfW CHP facility and it is therefore noted that the delivery and removal of waste, materials and residues will be undertaken using road based transportation, usually in the form of HGVs.

It is recognised however that using alternative forms of transport to deliver waste and associated by products could be considered beneficial in terms of sustainability and are supported and encouraged by local and national policy guidance as a method of reducing the need for road transport, although in many instances they may not be feasible.

The use of alternative forms of transport such as water and rail to serve the EfW CHP was therefore considered, prior to the TA being prepared. As such, a summary is provided below:

### Location of Facilities

The location of the EfW CHP site at Devonport Dockyards, North Yard means that a number of quays are located in the vicinity.

Waste and / or materials could potentially therefore be delivered to the EfW CHP by water transport. It is noted however that none of the available quays are located close to the site and the onward transportation to / from the site would require handling and an additional transportation method, probably by HGV. Furthermore, MoD approval would be required to ensure that the waste movements do not conflict with military uses in the area.

The Waste Transfer Stations located across the South West Devon area from which waste would be transported to the site are not close to water transport links. Waste from the Transfer Station sites would therefore have to be bulked up and taken by road to water transport facilities in Teignmouth and then transported to the EfW CHP plant itself by HGV, at the end of the journey.

Similarly, the IBA waste would have to be transported through the Dockyard by vehicle to be loaded onto vessels to be transported to its destination, most likely Teignmouth, and then transported by road to Whitecleaves Quarry.

In light of the above, it was identified that any water based transportation of waste and / or residues to / from the EfW CHP would be likely to require additional transportation and handling at at least one end if not both ends of the journey. This would increase the transit time, as well as the cost of the operation.

Rail transport is similar in that although the site at the EfW CHP is close to an existing rail line, none of the origins of the waste or the destinations of the delivery of the IBA benefit from the same location, close to a rail line. This would again result therefore in the double handling of the materials being transported, with a proportion of each journey still needing to be undertaken on road.

The additional time and cost associated with the movement of waste and associated materials has been considered as not providing a viable alternative.

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## **Type of Commodity being Transported**

It was also noted that it will not be desirable to handle some of the materials which will be processed on site, and furthermore some of the ones that will be removed from site, any more than is absolutely necessary. For example, APCR (Air Pollution Control Residues) which will need to be removed from site must be transported using sealed containers and it is therefore preferred to remove this from the site as part of a single journey between the origin and destination.

APCR cannot be bulked on site and furthermore, would not be produced in suitable quantities to make its transportation by either rail or water viable.

## **Environmental Considerations**

Emissions arising from rail and water based transport can be less than those associated with road based transport, providing that the respective trips comprise sufficient loads.

However, the creation of suitable infrastructure to facilitate these movements can have environmental impacts in excess of relative emissions savings.

The EfW CHP site is located adjacent to the former railway siding which spurred off the main line for trains moving to / from the east. The bed of the track remains in place but the permanent way and the associated turnout are no longer present.

In addition to their re-provision, the rail line would also need to be fenced on both sides, thereby dividing the area either side into two parcels, inhibiting access.

It is noted that the rail line is also close to a number of properties, meaning that the introduction of rail movements along this route would create associated noise and potential disruption.

## **Costs**

The infrastructure costs associated with either the re-provision of permanent way and turnout for the rail line or a quay / dock facility for water based transport were considered as being in considerable excess of those associated with providing a vehicle access to / from the site, which would be required in any case, and associated off site highway improvements, should these be required.

## **Bulking on site**

Assuming that rail or water based transportation was employed for the delivery or removal of some products to / from the EfW CHP it was recognised that the associated quantities would need to be greater than those associated with HGV movements.

To reflect this and to ensure that the use of rail or water based transport would be economically viable, it was considered that a bulking or storage facility would need to be provided at the EfW CHP such that sufficient quantities could be stored for daily / weekly transportation, as appropriate.

It was considered that it would not be desirable for materials to be stored on site longer than was necessary however, and that the required space would be to the detriment of the layout and design of the facility.

## **Rail Operator**

In addition to the above, movements utilising the rail network will be subject to Network Rail and the relevant rail / freight operator(s) regulations. This could affect the reliability and flexibility of the

transportation of waste and associated products to and from the site, thereby potentially compromising the operation of the EfW CHP.

Furthermore, it may dictate that movements need to occur either earlier in the morning and / or later in the evening, thus creating additional impacts on the local area in terms of environmental impact, including aspects such as noise and quality of life.

### **Summary**

A summary of the key advantages and disadvantages of transportation to and from the EfW CHP by water, rail and road is provided in the table below.

Base of Transport Mode	Advantages	Disadvantages
Water	Suitable for transporting heavy and / bulky items  Suitable for transporting products with long lead times	Long lead / delivery times  Potential to be affected / disrupted by weather conditions  Difficult to monitor movement of products once in transit  Customs and excise restrictions  Need to store and / bulk goods on site (at origin) to ensure suitable load  Location of facilities not close to port facilities  Cost of delivering the required supporting infrastructure  Flexibility of movements  Transportation to / from port facility likely to require 'double handling'
Rail	Efficient movement (time)  Capacity (per trip)  Reliable transit times	Reliance on rail freight operators timetable  Requires access to the rail network, which will be provided in pre-defined time slots  Need to store and / bulk goods on site (at origin) to ensure suitable load  Noise of movement  Cost of delivering the required supporting infrastructure  Transportation to / from station facility likely to require 'double handling'
Road	Cost effective  Time effective  Suitable for short distance movements  Possible to monitor the movement of vehicles  Minimum handling of loads being transported (single vehicle involved)  Reduced requirement to provide on site storage / bulking facilities	Subject to traffic delays  Reliability of vehicle fleet

In concept, rail and water based transport modes are considered feasible where large volumes of non-perishable materials are able to be transported to existing or close to existing transport infrastructure. This indicates that there is a requirement for centralised points of access to the transport system.

Hence, it is considered that for an alternative form of transport to be feasible for the EFW CHP facility, the Waste Transfer Stations would be required to be located adjacent to the bulk transport infrastructure. If the

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Waste Transfer Stations are not located adjacent to this infrastructure, additional modes of transport, most likely by road, will be required to transport the material from the Waste Transfer Station to the delivery points of the alternative transport, and hence require 'double handling' which is not desirable.

The proposed EfW CHP facility is to receive combustible waste from Municipal Solid Waste (MSW) and Commercial and Industrial (C&I) sources. Due to the relatively close proximity to the site, the Plymouth City Council MSW, as well as MSW from parts of South Hams and the surrounding area, is expected to be delivered directly from on street collections, hence it is considered that road transport is the most appropriate option.

The remaining MSW is expected to be transported via existing (or in the case of Teignbridge, proposed) Waste Transfer Stations, which potentially create suitable conditions for the use of alternative forms of transport. As discussed herein however, due to a combination of factors, it is considered that road based transportation provides the most suitable option, to serve the site at North Yard.

It is expected that the C&I waste will originate from a large variety of locations, hence it is expected that road transport is the most appropriate option.

The IBA produced by the EfW CHP facility is expected to be sent to Whitecleaves Quarry in Buckfastleigh. This site is well served by the A38 trunk road but not by rail or water.

The potential to bring in construction materials and / or remove construction waste from the site by barge will be explored by the construction contractor.