REPORT N^{O} 70019143/DS/GW

LA COLLETTE WASTE METALS FACILITY

SURFACE WATER CONTAMINATION CONTAINMENT STRATEGY/DRAINAGE STRATEGY

MARCH 2017

WSP | PARSONS BRINCKERHOFF

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States of Jersey Department for Infrastructure

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1 INTRODUCTION

1.1 PURPOSE OF THE REPORT

1.1.1 The States of Jersey Department for Infrastructure proposes to relocate the waste metals recycling operations currently being undertaken at Bellozanne to a new, bespoke facility at La Collette Recycling Park. This report forms Appendix 9.1 of the EIS and sets out the strategy for the management of surface water from the proposed new facility as follows:

1.1.2 **Section 2** of the report provides a background of the proposals and key water quality issues to be considered.

1.1.3 **Section 3** provides an overview of the proposed site layout and operational activities that will impact on water quality.

1.1.4 **Section 4** considers the key contamination risks to the surface water run-off from the site and makes reference to the quality of run-off currently being discharged from the Bellozanne facility.

1.1.5 **Section 5** summarise the options considered for the disposal of surface water and highlights the preferred option

1.1.6 **Section 6** sets out the drainage strategy and infrastructure proposals for the containment of potential surface water contaminants

1.1.7 **Section 7** summarises the Quantified Risk Assessment (Appendix 9.2 of the EIS) undertaken to examine the residual risk of pollution on adjacent marine waters

1.1.8 **Section 8** provides a summary.

2 PROJECT BACKGROUND

2.1 PROPOSALS FOR WASTE METALS RECYCLING AT LA COLLETTE

2.1.1 It is proposed to construct a new, bespoke waste metals recycling facility at La Collette to replace the existing facility at Bellozanne. The new facility will be located in the Recycling Park, adjacent the newly opened Household Reuse and Recycling Centre (Figure 2.1 Location B). Outline planning permission for a waste metals recycling facility was granted in July 2015 (2014/1710):albeit at a different location to that currently proposed (Figure 2.1, Location A)

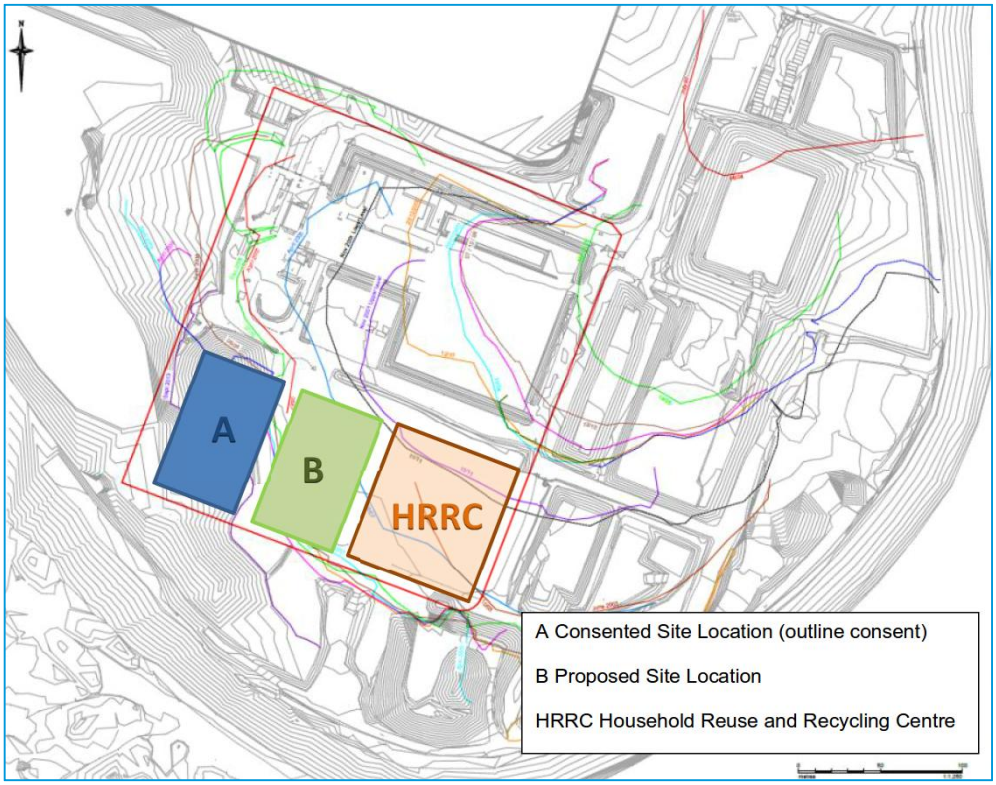

Figure 2.1: Proposed Site Location

2.1.2 The relocation of waste metals recycling to the Recycling Park accords with the Department for Infrastructure's (DFI) policy to consolidate solid waste recycling operations to bespoke facilities at La Collette and follows the recent successful relocation of the public green waste reception and household waste recycling from Bellozanne.

2.1.3 Currently the Island's waste metals recycling operations are undertaken at Bellozanne on a site that has accommodated waste metals processing since the 1980's. Whilst the current operator of the site works to high environmental standard in terms of pollution prevention and control, the existing infrastructure does not meet modern standards and this limits the level of environmental control that can be achieved. In particular, the slab and surface water drainage system have evolved over time on an ad hoc basis and offer only basic facilities in terms of surface and ground water pollution protection. The relocation of the facility to La Colette provides an opportunity for an overall environmental improvement through the provision of modern, 'fit for purpose' infrastructure and well managed operations.

2.2 WATER QUALITY AT LA COLLETTE

2.2.1 La Collette is an industrial area, reclaimed from the sea through inert waste filling. It is the Island's centre for solid waste management and in addition to the operations listed above in the Recycling Park it is accommodates the energy from waste plant (and associated ash disposal cells) asbestos reception and other industrial operations. The area lies adjacent the South East Coast of Jersey Ramsar site. The Ramsar site is of international importance and is therefore of very high sensitivity in respect to changes in water quality. The site also lies near St. Aubin's Bay which is also sensitive to water quality due to the presence of Eel Grass and Kelp beds which support a diversity of marine species. The ground water beneath the site is saline and not regarded as a useable resource and is much less sensitive that the coastal waters to changes in water quality. It is however in hydraulic connectivity with the adjacent marine environment.

2.2.2 The land filled area of La Collette is subject to water quality monitoring and a conceptual model developed to understand the pathway/receptor mechanisms and potential impacts of development on water quality. Figure 2 provides a simple illustration of the pathway/receptor relationship.

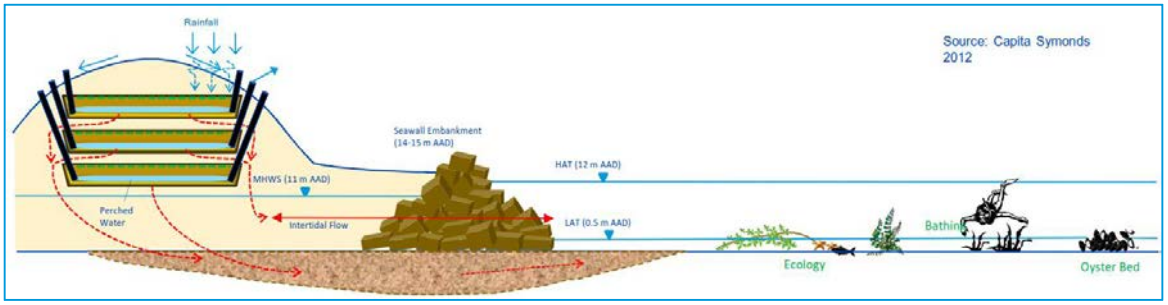

Figure 2.2: La Collette Sources, Pathways and Receptors

2.2.3 Incident rainfall generally falls on the site and infiltrates through the ground either directly from surfaced areas or indirectly via soakaway from surfaced/developed areas.

2.2.4 On-site potential sources of pollution include:

- à inert waste both above and below the high water level
- à leachate from lined ash constructed above the high water level
- à bulky waste storage
- à run-off from the recycling park including that from bio remediated soils, green waste composting, the household waste recycling, aggregate recycling
- à fuel storage tanks and accidental spillages

2.2.5 Off-site potential sources of pollution include discharges to the surface water environment generally; the diffuse influence of St Helier and the Island's sewage treatment works which outfalls into St Aubin's Bay.

2.2.6 Whilst the coastal waters adjacent to La Collette are highly sensitive to changes in water quality, there are a number of different receptors within the marine environment with differing levels of tolerance to changes in environmental factors. Table 2.1 below summarises the principal marine receptors and their sensitivity to environmental change.

Ecological Receptor		Sensitivity to Environmental Change Factor			
		Sediment	Heavy Metals	Hydrocarbons	Nutrients
International Importance	*Zostera marina* (Common eelgrass)	Moderate	Very Low	Very Low	Very High
	Zostera noltii (Dwarf eelgrass)	Low	Very Low	Moderate	Low
	Laminaria digitata (Oarweed)	Low	Low	Low	Low
National Importance	*Ascophyllum nodosum* (Knotted wrack)	Not Sensitive	Low	Low	Low
	Ostrea edulis (Native oyster)	Very Low	High	Very Low	Not Sensitive
	Modiolus modiolus (Horse mussel)	Not Sensitive	Very Low	Very Low	Very Low
	Gobius cobitis (Giant goby)	Low	Moderate	Low	Low

Table 2.1: La Collette Coastal Waters Ecological Receptors and Sensitivity to Environmental Change

2.2.7 The potential impacts to the water environment from the proposed waste metals recycling facility are:

- à Changes in the quantity of surface water draining off the site and the consequential impact on adjacent water resources, for example as a result of the discharge of construction dewatering or changes to the area of hard cover;
- à Changes in the quality of surface water draining from the site and its consequential impact, such as caused by construction activities, waste metals recycling operations or accidental spillages;
- à Changes in the quantity of groundwater beneath the site, such as through construction dewatering or the increased area of hardstanding; and
- à Changes to the quality of groundwater beneath the site, for example as a result of increased leaching, construction activities, waste metals recycling operations or accidental spillages.

2.2.8 Of these potential changes, it is changes the to the ground water quality during operation caused by surface water (with the potential to contain hydrocarbons and metals) discharging to the ground via to soakaway and the possible consequent impact on the adjacent coastal waters, that are of the greatest concern.

3 OPERATIONAL REVIEW

3.1 SITE LAYOUT AND PROPOSED ACTIVITIES

3.1.1 The proposed site location and site layout are shown in detail on the application drawings (Drawings 201604-100-001, 002, 003 and 009). The draft Working Plan submitted in parallel with the application describes the activities to be undertaken within the proposed facility, which may be summarised as follows:

- Receiving of scrap metal, cooling appliances, WEEE and lead acid batteries
- Sorting and grading of metal types
- Cutting, baling and shearing of materials
- Depollution of end of life vehicles
- Sale of car spares
- Loading of non-hazardous and hazardous materials for transportation via road and sea
- Storage of fuel for plant

3.1.2 The activities may be generally classified as those which are to be undertaken under cover (i.e. within the site buildings) and those which are to be carried out in the operations yard (i.e. in the open):

Operations to be carried out under cover

- Depollution of end of life vehicles
- Storage and sales of car parts for re-use
- Receipt and storage of batteries: dry and lead acid

Operations to be carried out in open areas

- Receipt, storage and grading of ferrous and non-ferrous waste metals
- Cutting, baling and shearing of materials
- Receipt and storage of cooling appliances
- Receipt and storage of WEEE, (commercial and large domestic)
- Loading of materials for transport by road and sea for further processing

3.1.3 **Figure 3.1** below shows the proposed site layout zoned into areas of high, medium and low risk of surface water contamination, as determined by the proposed operation listed above. The operations yard is considered to present a **high risk** of surface water contamination as processing and storage activities undertaken in this area will be undertaken in the open and will be exposed to incident rainfall. Fuel will be stored in a twin walled, bunded fuel tank and this together with the refuelling of plant presents a **medium risk** of surface water contamination. Areas of **low risk** of surface water contamination include the access road, weighbridge and building roof areas.

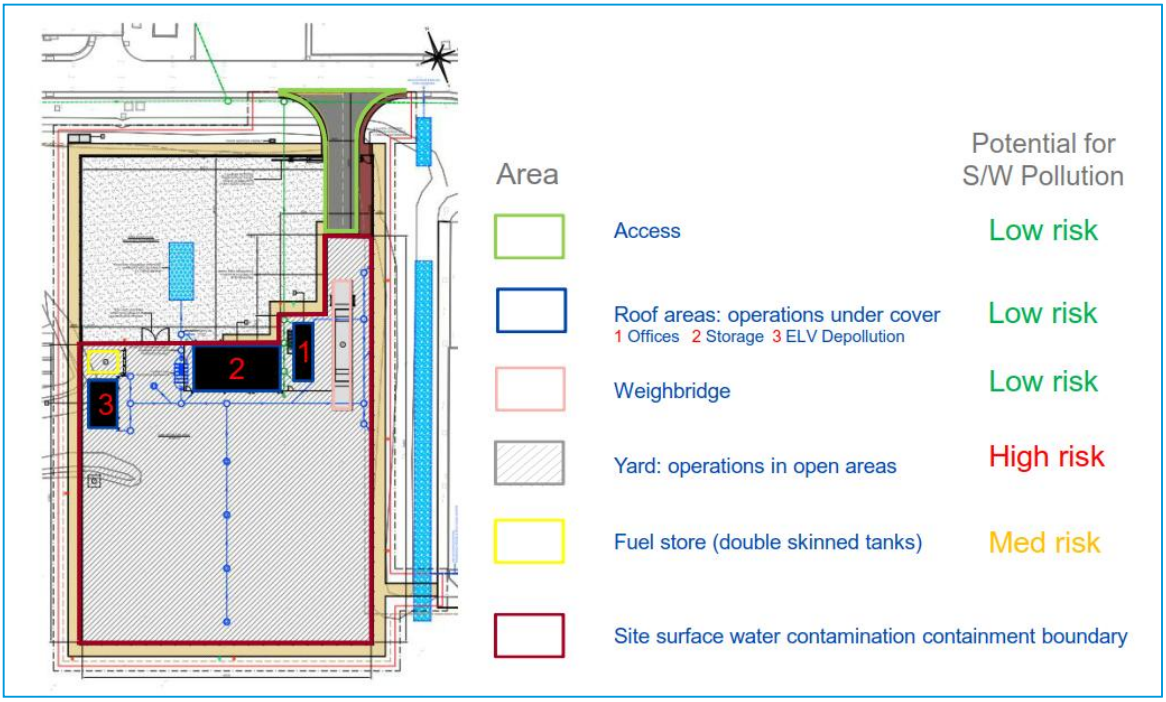

Figure 3.1 Site Layout and Zoning of Activities that Present a Surface water Contamination Risk

3.2 WORKING PLAN, INFRASTRUCTURE AND POLLUTION PREVENTION

3.2.1 Site management, permitting and regulatory control will be primary defence against pollution arising from surface water discharge during operation. The control of materials permitted to be received; the procedures for processing materials, conditions for storage and export of processed goods and procedures for the response to accidental spillages will all be contained within a framework of regulatory control. These key controls include:

- à The Waste Management Licence
- à The agreed Working Plan, including incident response procedures
- à The surface water drainage discharge consent and associated water quality monitoring regime
- à Environmental Risk Assessment and measures to mitigate against key risks
- à Environmental Protection Policies

3.2.2 The Working Plan will be a key part of primary of pollution prevention. General Working Plan procedures will include:

- à Site management and operative training, to ensure all staff and operatives are suitably experienced and trained
- à Waste Acceptance Criteria (WAC) to control the nature of materials received and processed
- à Inspection, checking and recording of loads to ensure compliance with WAC: procedures for rejection of non-compliant materials containment and removal
- à Limitations on storage volumes, to minimise risk from processed materials
- à Plant maintenance to minimise risk of leaking oils and fluids
- à Twin walled fuel storage tanks with 110% capacity to control storage of fuel in accordance with Regulations
- à Infrastructure /drainage system inspection and maintenance to ensure operation as designed

3.2.3 Specific Working Plan procedures for primary pollution prevention will include:

- à Non-acceptance of liquid waste other than that contained in end of life vehicles
- à Controlled end of life vehicles depollution, carried out undercover with bespoke equipment
- à Receipt and storage of batteries
- à Waste electrical and electronic equipment (WEEE) acceptance criteria limit processing to large domestic appliances only (Category A, B and E)

3.2.4 Specific Working Plan procedures for the containment of contamination will include:

- à Emergency procedures for spillages
- à Procedures for recording incidents for monitoring and continuous improvement through feeding lessons learned back into operational procedures
- à Procedures for quarantining non-conforming materials should they be received
- à Surface water monitoring and reporting against permitted consent

3.2.5 Whilst the Working Plan and regulatory controls will be the primary defence against pollution caused by contaminated surface water from the site, the design of the facility and associated infrastructure will support the pollution prevention and containment strategy. Key infrastructure controls proposed include:

- à Provision of an impermeable, concrete slab to prevent uncontrolled infiltration of contaminated surface water run-off to the ground
- à Provision of a perimeter impermeable concrete bund, to prevent uncontrolled run-off of contaminated surface water to the surrounding environment
- à Provision of a bespoke, positive drainage system, designed with measures to address the specific risks of the proposed site operations and contain the key contaminants of concern.

4 SURFACE WATER CONTAMINATION RISK

4.1 ENVIRONMENTAL RISK ASSESSMENT

4.1.1 A draft Environmental Risk Assessment has been undertaken by the proposed site operator to accompany the Working Plan. The assessment identifies a variety of sources of environmental hazard associated with the site operation and the receptor those hazards have the potential to affect. The assessment includes the proposed control measures to be implemented to mitigate the hazard and assesses the residual risk remaining. Tables 4.1 to 45 below provides a summary of the environmental hazards with the potential to affect surface and ground water and highlights the residual risk for each hazard. The risk assessment assumes the infrastructure set out in this drainage strategy/contamination strategy is implemented in full.

Activity	Receipt of non-permitted waste			
Source	**Hazard**	**Receptor**	**Control Measure in WP**	**Residual Risk**
Hazardous Solids	Radioactive Source	Ground/Surface Water	ü	Low
Hazardous Liquids	Paints and solvents	Ground/Surface Water	ü	Low
Hazardous Liquids	PCBs	Ground/Surface Water	ü	Low
Hazardous Liquids	Oils and fuels	Ground/Surface Water	ü	Low

Table 4.1 Environmental Risks Associated with the Receipt of Non-permitted Waste

Activity	Acceptance of permitted waste			
Source	**Hazard**	**Receptor**	**Control Measure in WP**	**Residual Risk**
ELVs	Oils, fuels and liquids	Ground/Surface Water	ü	Low
Fridges	Compressor Oil	Ground/Surface Water	ü	Low
Batteries (wet)	Sulphuric Acid	Ground/Surface Water	ü	Low

Table 4.2 Environmental Risks to Water Quality Associated with the Acceptance of Permitted Waste

Activity	Storage prior to depollution			
Source	**Hazard**	**Receptor**	**Control Measure in WP**	**Residual Risk**
ELVs	Oils, fuels and liquids	Ground/Surface Water	ü	Low
Cooling Appliances	Compressor Oil	Ground/Surface Water	ü	Low
Batteries (wet)	Sulphuric Acid	Ground/Surface Water	ü	Low

Table 4.3 Environmental Risks to Water Quality Associated with the Storage Prior to Depollution

Activity	Storage prior to processing			
Source	**Hazard**	**Receptor**	**Control Measure in WP**	**Residual Risk**
Scrap metal	General pollution risk from possible contamination and heavy metals	Ground/Surface Water	ü	Low

Table 4.4 Environmental Risks to Water Quality Associated with the Storage Prior to Processing

Activity	Processes on site			
Source	**Hazard**	**Receptor**	**Control Measure in WP**	**Residual Risk**
ELV Depollution	Oils, fuels and liquids	Ground/Surface Water	ü	Low
ELV Batteries	Sulphuric Acid	Ground/Surface Water	ü	Low
ELV Liquid waste storage	Oils, fuels and liquids	Ground/Surface Water	ü	Low
Shearing and baling of metal	Oils, metals	Ground/Surface Water	ü	Low
Leaking plant	Oils	Ground/Surface Water	ü	Low

Table 4.5 Environmental Risks to Water Quality Associated with Processes on Site

4.2 WATER QUALITY MONITORING AT BELLOZANNE

4.2.1 Key to the assessment of pollution risk at La Collette is the confirmation of the water quality associated with run-off from waste metals reception and processing operations and to identify the contaminants of concern. To help this gain this understanding, water quality testing has been undertaken on run-off from the existing metals recycling facility at Bellozanne. The operations proposed at the new facility at La Collette will be essentially the same as those being undertaken at Bellozanne, albeit with a higher degree of environmental control that the planned new, bespoke infrastructure will afford. The water quality monitoring results from Bellozanne provide a proxy for likely run-off water quality from the proposed La Collette facility on which to base a mitigation strategy. Further information on the results of the water quality monitoring undertaken at Bellozanne in included in Appendix 9.2 of the EIS.

4.2.2 Testing and monitoring the quality of surface water run-off requires care and consideration as both the quantity and quality of the run-off will vary with storm intensity, duration and frequency. For example the potential for run-off to become contaminated from pollutants which have accumulated on the surface of the slab is greater during the 'first flush' of a storm which occurs following an extended dry period, compared with that which occurs following an extended wet period. At Bellozanne, samples have been taken from the final outlet chamber of the existing petrol interceptor, taking care to ensure the samples from as close to the outlet siphon as possible.

4.2.3 The results confirm that the key contaminants of concern likely to be present in the run-off from the waste metals processing operations proposed are hydrocarbons (oils) and metals.

5 SURFACE WATER DISPOSAL OPTIONS

5.1 INTRODUCTION

5.1.1 Four potential options have been considered for the management the contamination risk from surface water from the proposed waste metals site at La Collette:

- Option 1: Disposal of surface water to the foul drainage system
- Option 2: Provision of whole site cover, to exclude rainfall from the site entirely
- Option 3: Direct disposal to adjacent marine waters
- Option 4: Disposal to ground via local soakaway

5.2 OPTION 1: DISPOSAL TO THE FOUL DRAINAGE SYSTEM

5.2.1 There are two key reasons why the disposal of surface water to the public foul drainage system cannot be pursued as a viable option for the disposal of surface water from the proposed waste metals site at La Collette:

- Disposal of surface water run-off to the foul drainage system does not accord with DfI Drainage Department Policy and will not be permitted. (DfI does not have the capacity at the Sewage Treatment Works for surface water. It is also detrimental to the treatment process and presents a pollution risk from surcharged sewers)
- There is insufficient capacity within the sewerage network at La Collette and downstream to accept the flows that would be generated from the site

5.2.2 Recent discussions with the DfI Drainage Department have reconfirmed the unacceptability of direct discharge of surface water to the foul drainage network. This accords with the general policy held by all public drainage authorities and originates from the following key reasons:

- Combined drainage systems are no longer acceptable drainage solutions for new developments. Foul drainage capacity needs to be reserved for foul water: there is an on-going programme to replace combined systems with separate systems to release capacity within the network
- The introduction of surface water into the sewage treatment works impacts on the efficiency and costs of treatment operations
- The introduction of surface water into the foul sewer network increases significantly the risk of sewer surcharging during storm conditions with consequent risk of flooding and uncontrolled discharge into the environment of raw sewage.

5.2.3 In addition to the above, there is in any case insufficient capacity available within the local foul sewerage network at la Collette to accept the surface water flows from this site. The network capacity is severely restricted by the pumping station at La Collette which is already operating at capacity. Discussions with DfI have confirmed that a maximum discharge rate of a nominal 1 l/s is all that could be allowed from each of the sites within the proposed recycling park. This is sufficient to accommodate the domestic foul flows expected from office and welfare facilities only.

5.2.4 The proposed waste metals site operations yard would have an impermeable surface area of 3500m2 approximately. This would result in approximately 3000 m3 (3 million litres) of surface water runoff each year with a maximum outfall flow rate of 49 litres per second based on a 50mm per hour maximum storm intensity. At 49 l/s this flow is almost 5000% more than maximum capacity discharge rate that could technically be accommodated by the foul drainage system. Attenuating the run-off to 1 l/s would require the provision of approximately of approximately 265 m3 of storage for a 1 in 30 year storm with a 30% allowance for climate change. However, it would not be practically possibly to reliably attenuate to such a low flow rate. Normal practice would be to incorporate either an orifice or hydrobrake type flow control device and the lowest practical outflow limit of such devices is 5 l/s. There is a very significant risk therefore that such an arrangement would either the result in the site flooding due to the outflow device becoming blocked, or the system would overflow and surcharge the receiving sewer and pump station with consequent environmental implications from the discharge of raw sewage.

5.2.5 For all of the above reasons, the discharge of surface water from the proposed site to the foul drainage system is not a viable option.

5.3 OPTION 2: WHOLE SITE COVER

5.3.1 Covering of the whole of the operations yard would eliminate the risk of surface water run-off contamination but would be a costly and impractical solution. The cover could not be provided by a clear span structure and so would introduce intermediate columns which would restrict movements within the yard and could hamper operations. As a result the efficiency of operations could be severely affected and could result in a larger area being required to accommodate the necessary plant and equipment movements and stockpile capacity, whilst maintaining the necessary safety zones required. There are also ventilation and fire risks to be considered as the provision of such a covered facility would be unprecedented for the processing of normal waste metals. Fire fighting would be a key consideration as the roof cover would restrict access and this may result in a sprinkler system being required by the Fire Officer. There is also the concern that the restrictions imposed by the provision of site cover and the fact that it is an untried method of operation, may have implications for the successful appointment of a commercial operator in the future.

5.3.2 Although cost should not be an overriding consideration for seeking to mitigate environmental risk, the provision of a 3500 m2 roof of the site would be a very significant cost commitment. A sprinkler system, should it be required, would add further to the substantial capital outlay required. The total cost therefore would be of a magnitude that is likely to render the relocation of the waste metals facility to La Collette unaffordable under current budget restrictions and may delay the implementation of the project, with current operations at Bellozanne having to be extended for the interim period. This would have a dis-benefit of increased environmental risk as the existing site does not offer modern standards of environmental protection.

5.3.3 For the reasons above, the option of providing whole site cover is not considered viable due to the high risk it presents to the safe and efficient commercial operation of the facility.

5.4 OPTION 3: DIRECT OUTFALL OF SURFACE WATER TO THE ADJACENT MARINE WATERS

5.4.1 Direct, un-attenuated outfall of the surface water to the adjacent coastal waters run-off is possibly the easiest and least expensive option for the site. This option would be relatively straight forward to construct and inexpensive to maintain whilst also presenting least risk of flooding of the facility. It would however rely on the coastal waters for the dilution of any dissolved contaminants that might be present in the run-off and would consequently represent a risk of pollution impact on the Ramsar. This option is therefore considered not viable due to the unacceptable environmental risk to the adjacent Ramsar site.

5.5 OPTION 4: DISPOSAL TO GROUND THROUGH INFILTRATION VIA A LOCAL SOAKAWAY

5.5.1 The disposal of surface water run-off to ground through infiltration via a local soakaway is the preferred option and has the following key benefits:

- à It is easily implementable, affordable and deliverable
- à It does not require new strategic drainage infrastructure
- à It does not require DfI Drainage Department to depart from its policy regarding the prohibition of surface water discharge to the foul drainage network (and therefore sets no precedent for similar future developments)
- à There is no direct discharge to marine waters and this option therefore has significantly lower risk of pollution to the Ramsar compared to Option 3
- à It maximises the filtration, attenuation, dilution and bioremediation benefits of the existing ground and does not compromise contamination control or pollution prevention

5.5.2 This option is dependent upon confirming the permeability of the ground and therefore suitability of the soakaway, but soakaways have been used successfully for the adjacent Household Reuse and Recycling Centre and the La Collette Roads and Services infrastructure. The option relies on infiltrating the surface water run-off into the ground and therefore discharging to the ground water. Although the ground water at La Collette is in hydraulic connectivity with the coastal waters and therefore the nearby Ramsar, this option maximises the natural filtration and attenuation provided by the ground between the point of discharge and the marine environment. This will serve to 'polish' the outflow and remove any fine residual suspended particles and also provide an opportunity for the bioremediation of any dissolved hydrocarbons not removed by the upstream treatment processes prior to it reaching the marine environment. In addition, discharge to the local ground water will also result in the substantial dilution of any other dissolved residual contaminants before they reach the coastal waters, minimising the risk to the Ramsar

5.5.3 For the reasons set out above, this option for the discharge of surface water from the proposed waste metals processing site is considered to be the best and most viable surface water control and discharge option for the site.

6 PROPOSED CONTAMINATION CONTAINMENT STRATEGY

6.1 POLLUTION PREVENTION AND CONTAMINATION CONTAINMENT STRATEGY

6.1.1 The proposed strategy for preventing pollution and the containment of any contaminants likely to be present in surface water from the site has been developed to address the risk set out in preceding chapters and particularly the risk. The strategy is based on a hierarchical approach and introduction of a 'surface water management train' to ensure progressive treatment of run-off prior to discharge into the environment. As follow:

Step 1 : Contamination Prevention: by regulatory control, through the Waste Management Licence, Working Plan, Environmental Protection Policies, Risk Assessment and Control Measures

Step 2: Collection and Containment: by the provision of bespoke infrastructure comprising *an* impermeable bunded yard slab and positive drainage system

Step 3: Run-off Treatment Primary: treatment of the collected surface water run-off comprising:

- à Sedimentation and Settlement of gross debris and suspended solids through provision of trapped gullies and surface water catchpits
- à Interception of hydrocarbons and oils through the provision of a Class 1 forecourt petrol interceptor certified to reduce hydrocarbon levels to 5mg/l
- à Interception enhancement using oleophillic sponge/filter designed to remove 95% of residual hydrocarbons

Step 4: Primary Filtration; discharge to the ground through a soakaway enhanced with sand filtration and oleophillic filter membrane to remove fine particles, including metals and residual hydrocarbons

Step 5: Tertiary Treatment: fine polishing of discharged run-off to La Collette Compliance Standards by further filtration through the ground to remove any remaining fine particles, bio degradation of any remaining hydrocarbons and dilution through the incident groundwater of any dissolved contaminants, including dissolved metals.

6.1.2 In addition to the above it is intended that a penstock valve would also be placed within the drainage system to allow the operations yard to be 'sealed off' from the soakaway in emergencies, should a catastrophic spillage occur on site. The closure of the penstock on the surface water drainage would provide approximately 35 to 40 cubic metres (35,000 to 40,000 litres) of storage within the piped below ground drainage system and manholes, subject to the finalisation of the detailed drainage design.

6.1.3 **Figure 6.1** below illustrates the proposed containment strategy.

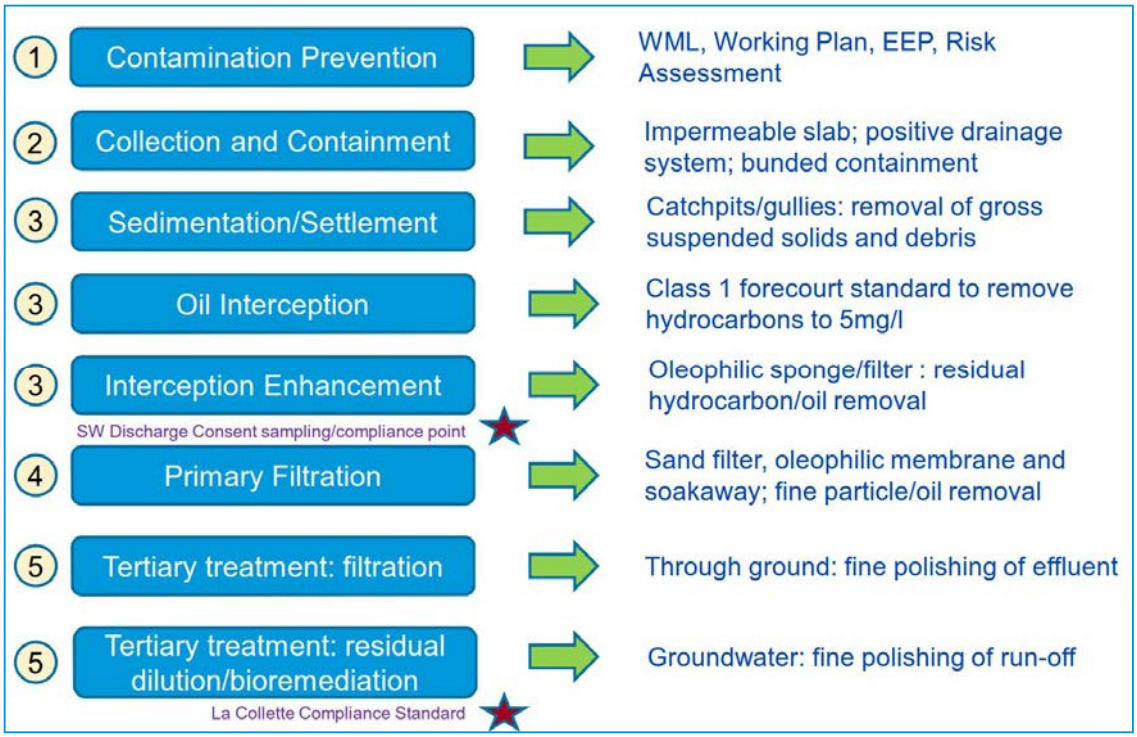

Figure 6.1 Proposed Contamination Containment Strategy

6.1.4 The above strategy is based on addressing the key risks of surface water contamination and treatment of the contaminants of concern. **Figure 6.2** illustrates the proposed surface water management train to deliver this strategy.

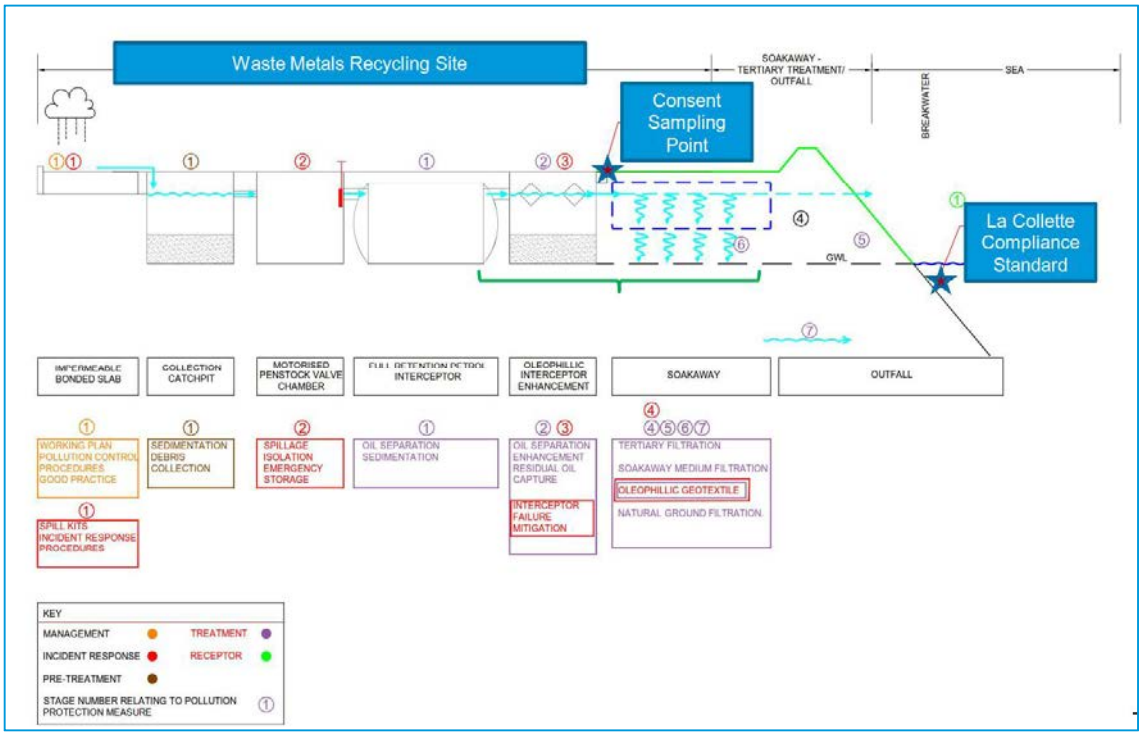

Figure 6.2 Proposed Surface Water Management Train

6.2 INFRASTRUCTURE PROPOSED TO DELIVER THE STRATEGY

6.2.1 The application drawings include details of the drainage and surface water management infrastructure to be provided. Figure 6.3 below includes shows the key infrastructure elements proposed to deliver the above contamination containment strategy and surface water management train.

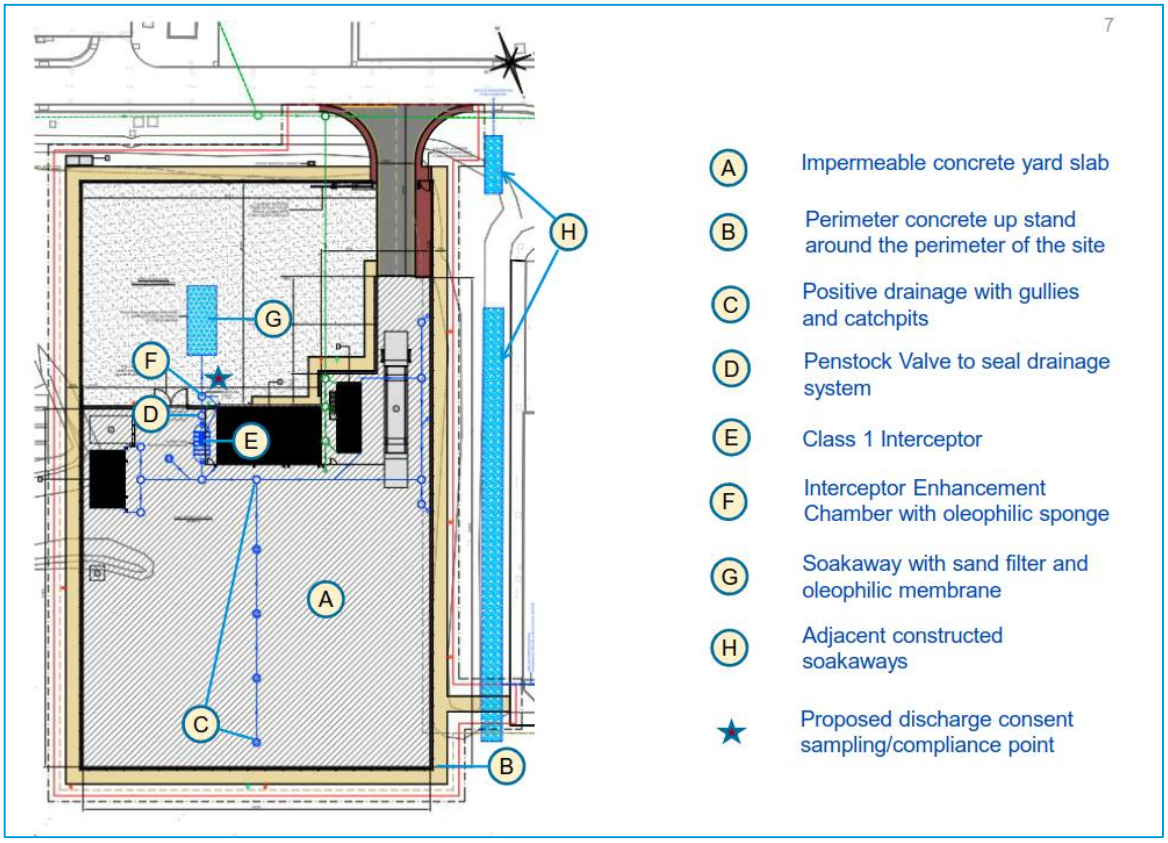

Figure 6.3 Infrastructure Proposed to Deliver the Containment Strategy

7 QUANTIFIED RISK ASSESSMENT

7.1 QUANTIFIED RISK ASSESSMENT SUMMARY

7.1.1 Following analysis of the run off from the Bellozanne site and reference to other UK sites, it has been identified that metals and hydrocarbons in both free and dissolved phases are likely to be the principal contaminants of concern (CoC) associated with the runoff from the waste metals site. A Quantified Risk Assessment has been undertaken to examine the residual impact of these CoC's on the adjacent Southeast Coast of Jersey Ramsar Site. (Appendix 9.2 of the EIS)

7.1.2 A Quantified Risk Assessment (QRA) sets out to examine the attenuation mechanisms by which the CoC are reduced in their passage between the source and receptor, in this case the source being the point of exit from the soakaway and the receptor being the coastal waters and the likely residual concentrations at the point of entry. Two attenuation mechanisms that the QRA include are:

- à The effect of dilution between source and receptor (particularly for dissolved metals); and,
- à the effect of natural degradation (particularly for residual hydrocarbons)

7.1.3 The QRA calculations demonstrate that the dilution caused by tidal oscillation within the reclaimed ground beneath the footprint of the site is able to attenuate concentrations of the likely contaminants of concern present in the discharge to below the local compliance standards before the discharged water enters the sensitive marine waters outside of la Collette. This is necessary because the proximity and sensitivity of Ramsar means that the effectiveness of other sub-surface mechanisms should not (and probably cannot) be relied upon in formulating a robust technical argument.

7.1.4 The strategy for managing hydrocarbons is clearly set out in the paragraphs above and includes a Class 1 Petrol Interceptor with further interceptor enhancement. The Class 1 interceptor is certified to reduce oil content to 5mg/l (5000µg/l) under normal operating circumstances. It is proposed than an interceptor enhancement chamber will also be included downstream of the interceptor and upstream of the soakaway. This chamber will contain a proprietary oleophillic filter material certified to remove 95% of residual hydrocarbons.

7.1.5 For metals the strategy comprises removal in suspension through settlement and filtration, leaving only dissolved metals likely to pass beyond the soakaway. Although there may be some level of degradation in the pathway between source and receptor, the principal method proposed for reaching compliance levels is through dilution. The QRA includes dilution calculations, undertaken to confirm the magnitude of dilution available and to demonstrate that the meeting of compliance levels is easily achievable.

7.1.6 The QRA demonstrates that the dilution caused by tidal oscillation within the reclaimed ground beneath the footprint of the site is able to attenuate concentrations of the likely contaminants of concern present in the discharge to below the local compliance standards before the discharged water enters the sensitive marine waters outside of la Collette.

8 SUMMARY

8.1 SUMMARY

8.1.1 The proposal to relocate waste metal recycling operations from the existing historical site at Bellozanne to a new bespoke facility affords the opportunity to for an overall improvement in environmental impact through the provision of modern, 'fit for purpose' infrastructure and well managed operations. The coastal waters adjacent La Collette are however, highly sensitive to changes in water quality and a strategy would be required to manage surface water discharge from the site and ensure the adequate containment of potential contaminants.

8.1.2 Operations on site would be regulated under a Waste Management Licence and would be undertaken in accordance with an agreed Working Plan. The Working Plan would be a key part of the strategy to prevent pollution from the site. It would include general and specific procedures for both the day to day operation of the facility and responses to potentially polluting incidents (spillages). The site infrastructure, including the surface water drainage system, would facilitate the agreed operations and would be an integral part of the management of contamination risk.

8.1.3 Water quality monitoring has been undertaken at the existing facility at Bellozannne to help understand the likely quality of run-off that can be expected to be generated by the operations proposed at La Collette. The results confirm the principal risk to water quality form the run off would be from hydrocarbons and metals, particularly copper, iron, nickel and zinc, in both dissolved and suspended state.

8.1.4 An Environmental Risk Assessment has been undertaken to accompany the draft Working Plan in which control measures are identified to militate against the risk of pollution. Key infrastructure controls proposed to support theses control measures include:

- à Provision of an impermeable, concrete slab to prevent uncontrolled infiltration of contaminated surface water run-off to the ground
- à Provision of a perimeter impermeable concrete bund, to prevent uncontrolled run-off of contaminated surface water to the surrounding environment
- à Provision of a bespoke, positive (sealed) drainage system, designed with measures to address the specific risks of the proposed site operations and contain the key contaminants of concern.

8.1.5 A number of options for the disposal of surface water run-off from the site have been considered and discharge to a local soakaway is considered to be the best and most viable control and discharge option. Drainage infrastructure has been proposed that would provide a surface water management train designed to address the residual risk of contamination identified for the site. The management train would provide sequential treatment of the run-off through:

- à Collection and containment or all surface water subject to contamination risk
- à Sedimentation and settlement to remove coarse suspended particles
- à Oil interception to Class 1 standards (5mg/l)
- à Oleophillic Interceptor enhancement to remove 95% of residual hydrocarbons
- à Primary filtration to remove fine suspended particle
- à Tertiary filtration and dilution to provide fine polishing of run-off to coastal waters compliance standards.

8.1.6 A quantified risk assessment has been undertaken and reported separately. The assessment confirms the dilution caused by tidal oscillation within the reclaimed ground beneath the footprint of the site is able to attenuate concentrations of the likely contaminants of concern present in the discharge to below the local compliance standards before the discharged water enters the sensitive marine waters outside of la Collette.