

The Scottish Salmon Company



Design Statement

North Arran Marine Fish Farm

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1 INTRODUCTION

1.1 Background

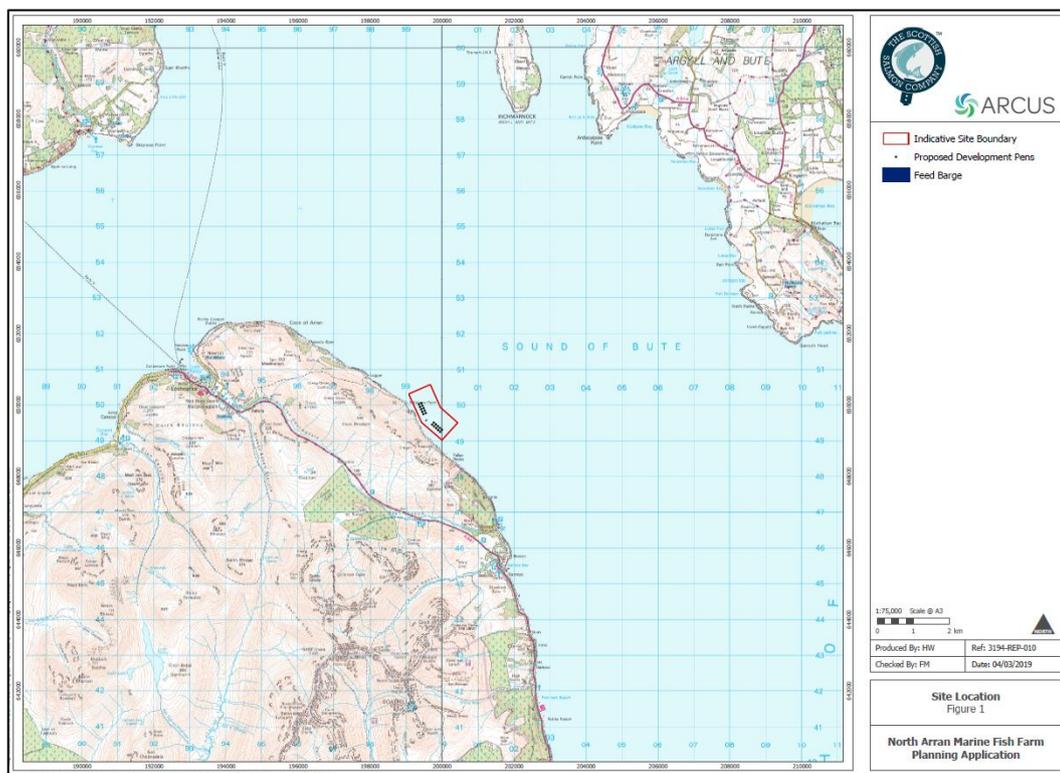
This Design Statement ("the DS") has been prepared by Arcus Consultancy Services Ltd ("Arcus") on behalf of the Scottish Salmon Company ("SSC", "the Applicant") to accompany the planning application submitted to North Ayrshire Council ("the Council") for the installation and operation of an Atlantic salmon fish farm with associated infrastructure ("the Proposed Development") located approximately 200 m off the northeast coastline of the Isle of Arran.

The Proposed Development, which would occupy a surface area of approximately 2.3 hectares ("ha") inclusive of barge moorings, involves the installation and operation of an Atlantic salmon fish farm, comprising two groups of 10 pens of 120 m circumference (19.1 m) radius ("the Site"). The total surface area of the moorings would be (1km²);

The Proposed Development would have a construction period of between 12-16 weeks.

The Site Location is presented as Figure 1.

Figure 1: Site Location Plan



1.2 The Applicant – SSC

SSC is one of the leading Scotland based producers of fresh Scottish Salmon, employing a team of over 650 staff across 60 sites on the West Coast and Hebrides. Seven (7) full time members of staff are employed on Arran and over 230 in Argyll & Bute, SSC sourced over £112m worth of supplies over 650 Scottish suppliers, representing more than 75% of all procurement in 2018. SSC is committed to building long-term partnerships and to sourcing locally where possible.

The Company is dedicated to the health and safety of their staff and their development, running an award-winning Modern Apprentice programme, in 2018 SSC enrolled 14 modern apprentices, bringing the total to 38 across the business

SSC is fully engaged in all stages of the supply chain, from smolt production through freshwater and marine farming to harvesting and processing, as well as sales and marketing, ensuring total supply chain integrity, full traceability and Scottish guaranteed provenance. SSC exports over 60% of production to 26 countries around the world, with a key focus on North America and the Far East.

SSC was the recent recipient of a Scotland Food & Drink Excellence Award for Native Hebridean Salmon and won three Highland & Islands Food & Drink Awards in 2017 for Export, Innovation and Best New Product for Native Hebridean Salmon.

SSC is focused on sustainable business development following international demand for Scottish Salmon, the UK's largest food export. SSC is committed to Scottish Provenance and takes great pride in producing quality Scottish Salmon, whilst being committed to the environmental, cultural and economic growth and sustainability of rural Scotland. SSC is the first salmon producer in the UK to be awarded 2-star Best Aquaculture Practice ("BAP") for ALL marine and processing sites.

1.3 Role and Purpose

This DS has been prepared in accordance with Regulation 13 of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013¹ ("the Regulations"), as modified by Regulation 36 of the Regulations in relation to marine fish farming development, and Planning Circular 3/2013: Development Management Procedures², which set out the detailed requirements of the content of a DS in relation to planning permission. A DS is required in this case as the Proposed Development would constitute a 'major development'.

Due to its components and potential impact, the Proposed Development is required to be assessed through the Environmental Impact Assessment ("EIA") process and as such is an EIA Development. This DAS forms part of the overall planning application submission for the Proposed Development, which also comprises the main EIA Report ("EIAR") with accompanying appendices, planning Statement; planning drawings; planning application form/ownership certificate details; and the requisite planning fee.

The role and purpose of the DAS, in accordance with Regulation 13 of the Regulations is as follows:

- Explains the policy or approach adopted as to design and how any policies relating to design in the development plan have been taken into account;
- Describes the steps taken to appraise the context of the development and demonstrates how the design of the development takes that context into account in relation to its proposed use.
- States what, if any, consultation has been undertaken on issues relating to the design principles and concepts that have been applied to the development; and what account has been taken of the outcome of any such consultation.

This DS has also been prepared in accordance with the guidance outlined in Planning Advice Note 68: Design Statements³ ("PAN 68").

¹ Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (Online) Available at: <http://www.legislation.gov.uk/ssi/2013/155/contents/made> (Accessed 06/08/2019)

² Planning Circular 3/2013: Development Management Procedures (Online) Available at: <https://www.gov.scot/publications/planning-series-circular-3-2013-development-management-procedures/> (Accessed 06/08/2019)

³ Planning Advice Note 68: Design Statements (Online) Available at: <https://www.gov.scot/publications/planning-advice-note-68-design-statements/> (Accessed 06/08/2019)

The DS is structured as follows:

- Section 2 – Sets out the various components of the Proposed Development;
- Section 3 – The Design Statement, which sets out the design principles and rationale, the context, and how the design has taken account of the context;
- Section 4 – Planning Policy Context, which outlines the planning policy context of the Site; and
- Section 5 – Summary and Conclusions.

2 THE PROPOSED DEVELOPMENT

2.1 Development Components

The Applicant seeks planning permission for the installation and operation of the Proposed Development, which is anticipated to include a number of components.

This proposal has innovation at its heart, ensuring robust fish health and welfare and environmental sustainability. SSC, in collaboration with Gael Force Group and its other suppliers, seeks to underpin the Proposed Development with innovation through implementation of the 'SeaQure Farm' concept design provided by Gael Force. The guiding principle has been to deliver sustainable growth through improved stock welfare. The key objectives identified for innovation included:

- Improving fish health and welfare;
- Operating securely in higher energy sites;
- Enhancing the safety of our people and equipment; and
- Ensuring environmental impacts are assessed, mitigated and monitored.

The SeaQure Farm concept is a fully integrated farm which includes a number of benefits whilst building on innovation. The desire is to deliver all this innovation and ensure that the SeaQure farm delivers on a number of fronts.

Table 2.1: Innovative Development Components

Innovation	Description	Environmental Benefit
Passive Net Cleaner	Aeration system to ensure automatic cleaning of nets to allow for a good flow through of water and to reduce algal growth on the netting.	Reduction in manual handling Reduction in Work boats/Staff deployment, improved O ₂ , reduced Carbon footprint. Mitigation of mortalities caused by algae/plankton
Mort recovery (to Pen side)	Fast automatic mort removal from sea. Using sensors on the camera systems already used in pens, the LIFTUP technology will automatically start to carry morts directly to the barge via a network of self-contained pipes. After de-watering, the mortalities will be kept inside a controlled environment where further mort processing can take place in a safe and sealed environment	Reduction in Work boat/Staff deployment, Reduced Carbon footprint
Mort processing	Create a value adding solution to treat mort's to create product with value – Food (pet), Oil extraction, etc	Reduction in Work boat/Staff deployment, protein/value gain from current costly controlled waste, Reduced Carbon footprint
Fish/Mort transfer	Centralised spine to transfer live/dead fish (separately) between Pen side and relevant	Reduction in Work boat/Staff deployment, Reduced Carbon footprint, significant stress reduction on fish

	treatment/process facility (on Barge)	
Barge based fish welfare	Connected to central spine a fish welfare facility mounted in the barge to passively treat fish (Gill, Lice etc) and mort processing	Reduction in Work boat/Staff deployment, reduction on medicinal treatments, Reduced Carbon footprint, significant stress reduction on fish

All the above are the headline engineering innovations of the SeaQure Farm. There are numerous work packages associated with the design of these aspects.

All of these concepts have been tried and tested individually. One of the aims of this project is to combine as many of these aspects as possible in order to drive and deliver improvements.

In addition to these engineering designs, SSC would also incorporate a number of enhanced management measures:

- **Ensuring Good Husbandry:** Daily fish inspections by site staff and biologists, regular monitoring and reporting;
- **Cleaner Fish;** Lumpsuckers and Wrasse are a natural & sustainable alternative in the control of sea lice. Using cleaner fish utilises a natural symbiosis and **90% of SSC cleaner fish are farmed lumpsuckers**, 10% of our cleaner fish are wild caught ballan wrasse from sustainable sources.
- **Hydrolicers:** Hydrolicers use low pressure water to remove sea lice from the salmon. This system reduces the lice burden without medicines (which has environmental benefits). Sea lice are filtered out and destroyed. There is one dedicated hydrolicer for southern operations.
- **Freshwater Treatments:** SSC have invested heavily in freshwater treatments, primarily for AGD/gill health but these can also be used for sea lice. Fish are transferred into a wellboat containing freshwater, where they are held for an allotted time period. For instance, **Ardyne Freshwater Facility** is one of the key investments in freshwater treatment which SSC have recently made. This is an onshore facility which has planning permission for a storage centre capable of storing 5,000m³ of freshwater. The facility would cover Loch Striven, Arran and the lower end of Loch Fyne, providing freshwater which is then pumped into wellboats in order to facilitate the treatment of fish against amoebic gill disease ("AGD") and sea lice.
- **Nutrition:** SSC has a dedicated team of nutritionists working with leading feed suppliers to source the best quality feed. Vitamins and minerals are added to feed to support the fish's immune system and disease resistance is promoted with new generation of functional feeds focussing on skin healing and mucous production.
- **Environmental Management Plan:** The EMP details the measures that would be taken to minimise potential impacts on wild salmonids, in particular through the effects of sea lice and escapes. The plan also outlines monitoring that would take place to assess effectiveness of these measures, including both onsite and offsite monitoring protocols.

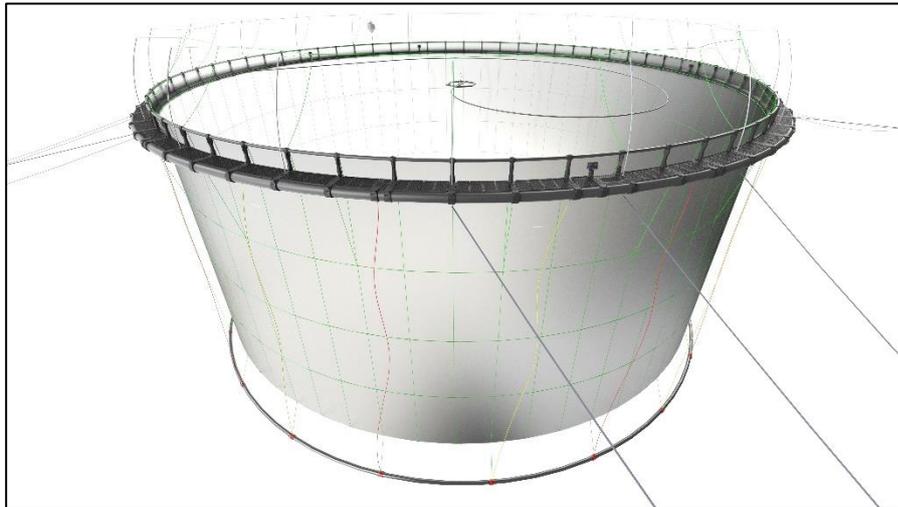
Each component of the SeaQure Development is described in turn:

2.1.1 Pens

The Proposed Development would comprise two groups of 10 pens of 120 m circumference (19.1 m radius), with a surface area of 22,922 m² or approximately 2.3 hectares (ha). The pens would be orientated along the coastline. An example of the type of pen is shown in

Figure 2 below. All pens (feed pipes and the SeaSpine) would be dark grey or black in colour to minimise visual intrusion and impact on the landscape.

Figure 2: Example Single Pen graphic



The 'SeaQure Pen' is designed to operate in higher-energy more exposed sites such as the site of the Proposed Development.

The design integrates all the functional equipment through the pen, keeping cables and in-pen furniture fully enclosed and safe. This feature reduces the risk of power and data cable failure, removes trip hazards and maintenance issues, and provides a wide and clear working platform. Uniquely the pen also provides the addition of a clip on safety line, which ensures people are kept safe in higher energy sites.

The pens would be designed to be capable of withstanding the environmental conditions likely to be experienced at the Site (a visual representation of the equipment can be found in Figure 3 below).

Sinker tubes would be used at the Proposed Development. These are rigid circular structures, manufactured of high density plastic and filled with chain or steel wire, which are attached to the pen structure and held level with the base of the nets. The pen nets attach to the sinker tubes at regularly spaced fixing points. This ensures nets are highly tensioned and pen volume and structure is maintained. This allows for improved water flow through the nets, improved net integrity and an improved efficiency of net cleaning operations. An example of a sinker tube is shown in Figure 4 below.

The central spine of the pens (SeaSpine) is designed to allow the farmer to recover fish back to the barge, where the barge has been designed to offer large fish welfare improvement space. Any fish removed in order to be assessed or treated are carefully reacclimatised in seawater before being returned to the pens.

Figure 3: Example of two groups of 10 pens with feed barge at the centre

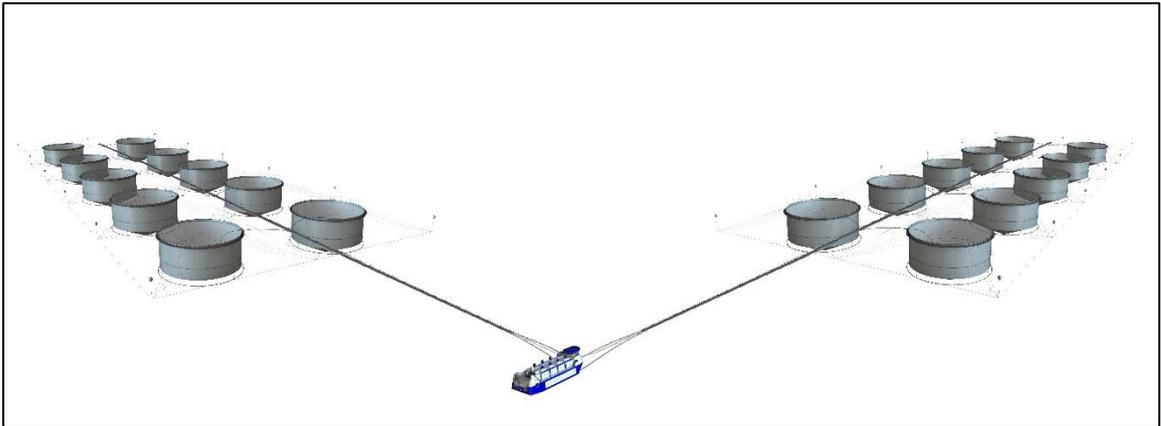
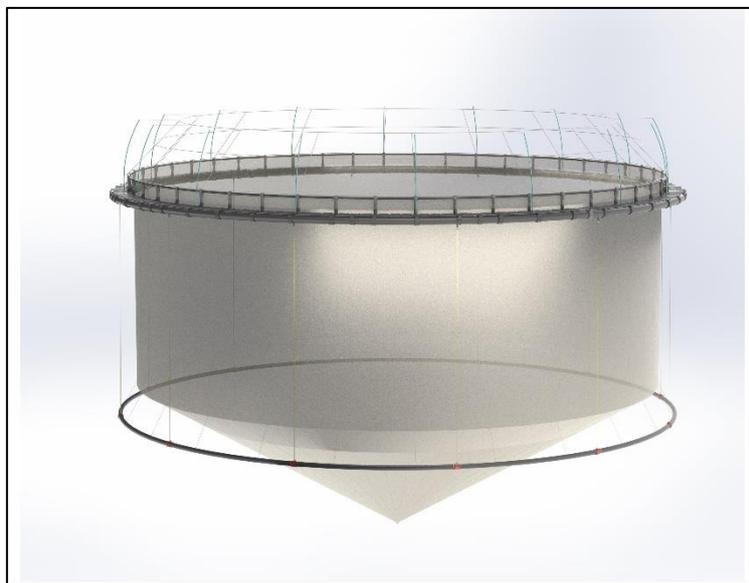


Figure 4: Sinker Tube representation



The innovative design has a lowered environmental impact per tonne of production, with environmental impacts continually assessed, mitigated and monitored. The pens would have several design features to improve fish health and welfare as well as the safety of site staff, specifically:

- Passive net fouling prevention;
- Fish transfer system from pen to barge to allow freshwater treatments;
- The pens would have automatic mort collection and recovery;
- A live fish swim through system for regular fish health treatment;
- An air distribution system which allows for an increased level of movement within the water flow in each pen, reducing the potential effects of harmful plankton species.

All of the above would improve fish health and welfare, helping to achieve a lower per tonne environmental impact.

2.1.2 Pen Nets

The net depth of the Proposed Development would be 10 m. SSC typically employs a net tensioning system across its sites.

Net tensioning systems hold the cage net uniformly taut, so that a “wall” is presented to any underwater predator, with no slack areas for entanglement or purchase on the net through which a seal can grab or bite fish. The use of a net tensioning system removes the need for predator nets and therefore eliminates the risk of entanglement for predators (both seals and diving birds).

Nets would be manufactured by Knox (or other suitable supplier) and would be specifically designed to suit site conditions and husbandry requirements. This site would utilise Seal Pro nets, which are made from a high density polyethylene and strengthened by the addition of polymer core. Hot wax injections are also made during the braiding process to provide enhanced stiffness. The nets are designed to reduce the potential for seal interactions.

Nets are subject to a regular strength testing and maintenance program (this generally takes place in the fallow period) and are generally replaced after 6 years, dependant on strength test results. Nets are fully traceable and a database of net location and service history is hosted by the manufacturer.

Biofouling, where organisms such as algae attach to underwater structures, can occur on pen nets and associated structures. SSC divers regularly inspect each net which, on average, is cleaned every ten days using mechanical net cleaners, Remotely Operated Net Cleaners (“RONCs”) and Flying Net Cleaners (“FNC8s”) which use mechanical arms and concentrated jets of water to dislodge weed and other organisms. SSC intends to trial a passive net washing solution to ensure automatic cleaning of nets to allow for a good flow through of water and to reduce algal growth on the netting.

2.1.3 Bird Nets

The site would use tensioned 2" mesh nets in conjunction with bird net supports in accordance with RSPB recommendations, to reduce predation and the risk of bird entanglement. These would be positioned over the top of each pen and supported by 16 x 5 m high support poles. Poles would be light grey. The nets would be highly tensioned in order to deter predation from diving birds and small mesh to minimise risk of entanglement.

Top nets are inspected and re-tensioned on a daily basis and maintenance would be conducted as required, minimising the potential risk of accidental entanglement to birds.

2.1.4 Feed Barge

The Proposed Development involves the installation of an automated feed barge, which would be located between the two groups. The feed barge would be fully automated and would have a feed holding capacity of 600 tonnes. The proposed barge would be approximately 9.5 m/7.8 m height above sea level (unloaded/loaded), 35.5 m long and 12.5 m wide and would include an integrated 140 tonne freshwater treatment facility. The barge can be adapted to offer additional space for accommodation, welfare, or storage demands.

An elevated control room offers extensive 360 degree views, and houses the feeding and farm control technology. The barge would also contain welfare facilities and a control room where feeding behaviour can be monitored and feed dosing be controlled appropriately. Example images of this type of barge are shown in Figures 5 and 6 below.

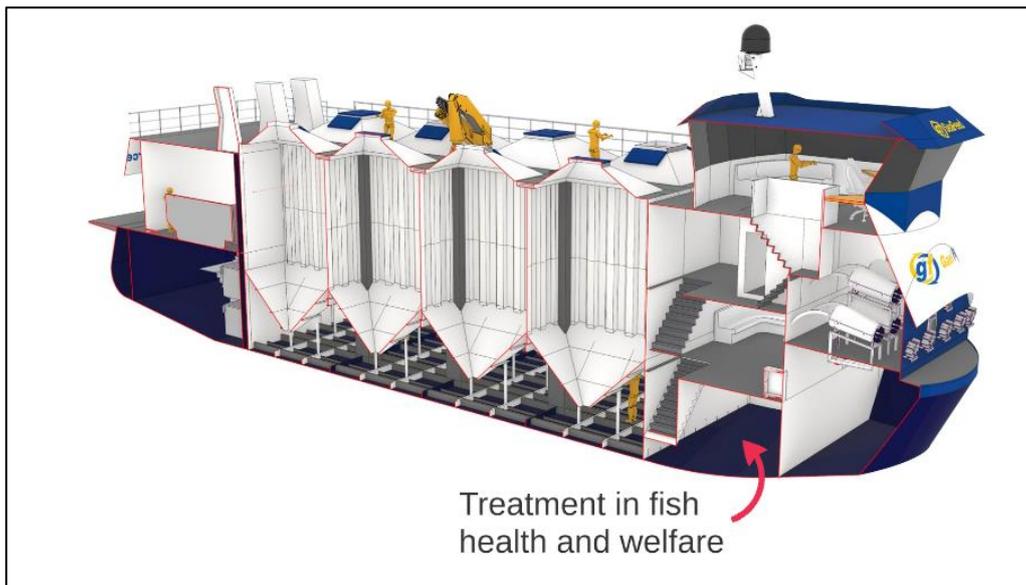
The proposed barge would have a number of new design functions in order to facilitate enhanced fish health and welfare and green energy management. Rain water collection would be integrated into the barge to supplement fresh water fish welfare treatments.

The barge would have the ability to treat fish in the installed freshwater facility of 140 tonnes, the overall benefit of this innovation is the reduction of medicinal bath treatments. This method of freshwater treatment would be facilitated through a swim through system.

Figure 5: Rear View image of SeaFeed Barge



Figure 6 Internal view of SeaFeed Barge

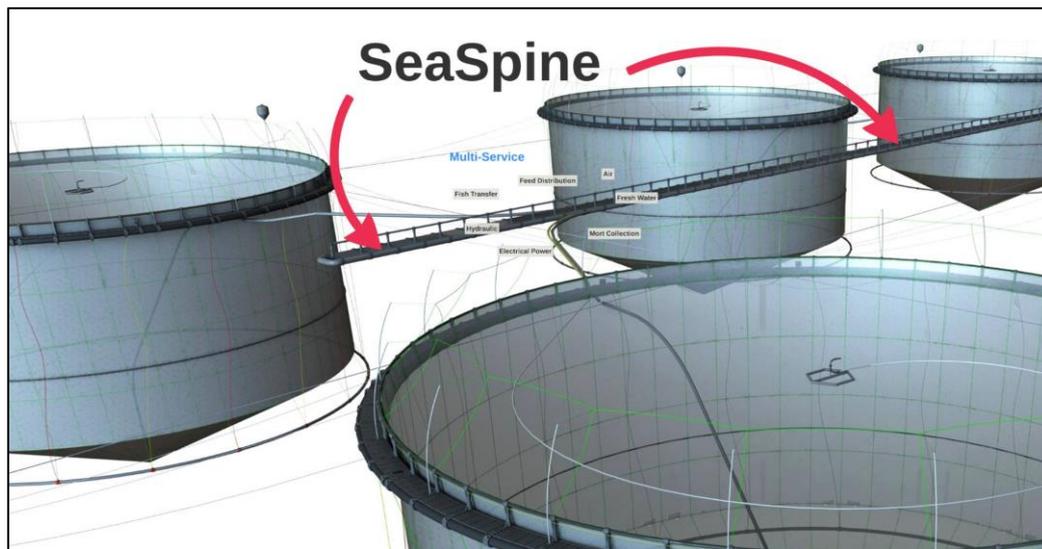


2.1.5 SeaSpine

A central spine ("SeaSpine") would run between pens and the feed barge, returning the fish to the barge and back to the pens. There would also be additional pipes in the spine, which would allow mort recovery.

The central spine and pipes are made of high density polyethylene ("HDPE") which is a proven, reliable and robust product. This, combined with the addition of sensor technology within the system, would minimise any risk of fish being pumped out of the sealed system. The system would be fully valved to ensure only the open lines are operating. Figure 7 illustrates the position of the SeaSpine in relation to the pens.

Figure 7 SeaSpine Position and Features



2.1.6 Moorings

The pens would be secured within a rope and chain grid matrix. Moorings would be specifically designed to meet the meteorological, hydrological and topographical conditions predicted at the site. The moorings system would be checked as part of the daily containment checks on site, a full inspection of component parts is also undertaken by trained staff at the end of every production cycle. Mooring checks methodologies are outlined in a Standard Operating Procedure for the site and the program for checks is outlined in the Escapes Prevention and Contingency Plan for the site.

2.1.7 Pen Lighting

Navigational lighting requirements for the pens would be agreed with the Northern Lighthouse Board ("NLB"). As part of the production cycle it might be necessary during periods of reduced daylight hours to use underwater lighting for the pens. Typically underwater lights at farm sites are used during the first winter of the marine production cycle but may also be used at other times.

It is proposed that low energy, long life 240W LED lights (1000 W halogen lights equivalent) would be used in each pen. This lighting is installed at a depth of 6 m within all pens stocked with fish and is directed downwards into the pens and not 'off-site'. The potential effect from these lights would be a slight underwater illumination, seen as a green glow, and has minimal visibility from the surface.

In consultation with the NLB, no unnecessary surface lighting would be used on the Proposed Development. For instance any surface lighting not associated with navigation. Additionally, any pen lighting would be specified by the Marine Mooring and Navigation Licence.

2.1.8 Production Cycle

It is planned that the Proposed Development would operate for 22 months out of every 24 months, ensuring that a two-month fallow period takes place prior to the introduction of the next input of smolts. A proposed production cycle for the 2500 Tonnes (T) maximum biomass for each part of the Site is expected, with the total being 5000T

A SEPA Controlled Activity Regulation Licence ("CAR") has been drafted for the Proposed Development for a Maximum Standing Biomass of 2500T x 2, and this is being finalised at the time of planning application submission.

Over the fallow period essential maintenance and any repairs would be carried out at the Site to prepare for the introduction of the next cycle of fish. Following the end of each cycle, all of the nets would be removed from the pens and sent to the manufacturer for testing, cleaning, disinfection, inspection, repair and antifouling. Following inspection and repairs as necessary, nets that achieve specific quality standards would be cleaned and disinfected before being returned to the Site. The mooring legs and pen mooring grid components would be inspected and any necessary maintenance, repair or replacement work would be carried out by a competent professional.

2.1.9 Stocking

At the start of the production cycle, a wellboat would be used to stock the Site with smolts. It is estimated that wellboat deliveries would be required to stock the Site and the deliveries would take place over a period of 1-2 months.

2.1.10 Food and Feeding

Feed supply rate is determined by the time of year and time of day, stage in fish growth cycle and feed guides. The proposed automated feeding system is computer controlled and supported by underwater monitoring cameras. However this system can be appropriately adjusted manually, in response to poor or unexpected feeding behaviour. Consumption varies in reaction to health or environmental variables, and feed rates can be altered based on visual observation by trained husbandry staff.

This feeding system allows a greater control of feed input and results in reduced feed wastage. Feeding may also be supplemented with hand feeding of the stock by farm staff for a short period each day where possible, in order to check on fish appetite and feeding response.

Feed would be delivered directly to the barge by boat from the manufacturer's plant and would be stored on board the barge in silos.

The proposed feeding mechanism would be fully automated; the feeding system would have an inbuilt detection system to ensure minimum waste. This would be supported by state of the art underwater cameras to monitor feeding and general fish health and welfare.

2.1.11 Grading

Grading occurs at all SSC sites at key points within the production cycle in order to separate out different sizes of fish. This is to ensure a smooth and even growth profile across the entire stock production, and to reduce the risk of aggression developing within the stocked population. Standard grading operation procedures and associated risk assessments are currently undertaken at all SSC sites and these would also be used at the Site.

Fish are first crowded within the pen net, before being pumped into a wellboat. They pass over a de-watering table, then a grading table where size selectors enable different sizes of fish to be separated out. The different size groups are then returned to separate pens, before being counted on exit.

Fish are graded approximately 2-3 times during the production cycle. Fish health is checked prior to grading operations by SSC Biology staff. While fish are graded they would be continuously monitored to ensure they are not experiencing unacceptable levels of stress or welfare issues. The manager would determine if mitigation measures need to be taken to maintain good welfare during grading, such as increasing the volume of space available to the fish.

2.1.12 Harvesting

Harvesting would usually take place over six months in the second year of production. During these harvesting months the harvest boat activity would be around 10 trips a month,

and no activity at all other times. Boat activities during harvesting would have a low impact on the maritime traffic in the vicinity of the Proposed Development and have been scoped out of further assessment as part of the EIA process. .

To maintain a high level of welfare, the maximum length of time that fish can be crowded in the net for is limited. Once on board the well boat, fish would be transported live to the SSC harvest station located at Ardyne. Conditions within the wells are monitored by camera and oxygen levels and temperature are controlled. During transport, fish are chilled in order to reduce stress levels on arrival at the harvest station. At the harvest station, fish are pumped ashore and killed by unrecoverable stunning. They would then be transported onto the Cairndow (Argyll) processing plant for primary processing and filleting.

3 THE DESIGN STATEMENT

3.1 Site Selection

The location of the Proposed Development has been influenced by and represents a balancing of a number of factors:

- SSC's objectives for sustainable growth;
- Regulation and Guidance within the Aquaculture industry;
- Environmental Considerations.

3.1.1 SSC Sustainable Growth

The Applicant is looking at sites to support its sustainable growth across the west coast of Scotland and the Outer Hebrides. Particularly, SSC is looking to balance its production both geographically and by generation in order to utilise existing infrastructure and to offer a consistent supply of fish to customers. The term 'generation' refers to the production levels on site and the total biomass of fish able to be harvested, in order to ensure a steady supply chain. The Proposed Development off the north east coast of Arran contributes to the balancing in SSC's portfolio for the following reasons:

- The site is in southern Scotland where there is a large market for supply and also capacity at existing processing facilities at Ardyne and Cairndow;
- The site is able to be operated independently, inasmuch as the stock generation can be balanced across the year to maintain supply to customers and processing facilities; And
- The site is close to SSC's existing harvesting site at Ardyne, reducing wellboat steaming time (fuel usage).

At many of the other locations any new sites or expansion of existing facilities is tied to a specific generation.

Throughout the site selection process SSC examined the prospect of setting up new sites or expanding existing facilities. However many of these sites are tied to a specific generation capacity which was not in line with the requirements of SSC's sustainable development strategy, or were in locations which did not serve to address the north/south balance required.

3.1.2 Regulation and Guidance for the Aquaculture Industry

The Rural Economy and Connectivity Committee (RECC) Salmon Farming in Scotland Report 2018⁴, recommends that work to examine the scope for siting salmon farms in

⁴ Scottish Parliament (2018) Salmon Farming in Scotland (Online) Available at: <https://sp-bpr-en-prod-cdnp.azureedge.net/published/REC/2018/11/27/Salmon-farming-in-Scotland/REC-S5-18-09.pdf> (Accessed 06/07/2019)

suitable offshore and other locations should focus on higher energy water flows as a priority. The benefits associated with operating in the higher energy environments include:

- Improving overall fish health;
- Reducing the environmental impact of waste; and
- Providing scope for the industry to develop higher capacity sites.

SSC has collected current meter data in this area, which is indicative of a moderately flushed site.

The dominant current direction in the observed data was towards the south-east with relatively modest contribution towards the north-west. A notable feature of the North Arran site is the steep sloping seabed; water depths increasing from less than 10 m to more than 100 m depth across just a few hundred metres.

This approach of siting salmon farms in higher energy water flows is supported by SEPA in the Finfish Aquaculture Sector Plan⁵ which contains a combination of proposals which SEPA has stated it anticipated would lead to fewer fish farms in shallower, slow-flowing waters and more fish farms in deeper and faster-flowing waters.

The RECC also recommends that the siting of farms in the vicinity of known migratory routes for wild salmon must be avoided. The Proposed Development is not located in any known migratory routes (further detail in EIAR Chapter 10: Interaction with Wild Salmonids).

3.1.3 Environmental Considerations

Through its innovative design and approach to development, the Proposed Development has demonstrated minimisation of environmental impacts on receptors including land, water, air, populations and infrastructure.

Within the context of the discussion above, SSC has considered a number of alternative locations for deploying or expanding marine fish farming facilities. Several of these locations have been discounted from further consideration due to a range of environmental constraints which are considered not to be applicable to the Proposed Development. These include:

Table 3.1: Alternative Sites Considered

Site name	Location	Planning Progress	Reasons for not progressing
Cock of Arran	2 – 3 km NW of proposed site (towards Lochranza)	Scoping response received	Landscape and visual (the site location was much closer to Laggan Cottage)
Skipness	9 – 10 km NW of proposed site (mainland, by Claonaig ferry)	Scoping response received	Visual, potential linking of DMAs (Loch Fyne and potential new site at Cock of Arran)
Straad	13 km NNE of proposed site (N of Inchmarnock, W of Bute)	Screening Scoping request prepared, but not submitted	Primarily visual concerns (Ettrick Bay popular with tourists)
Skelmorlie	24 km NE of proposed site (N of Largs)	Initial surveying undertaken	Water current speed too slow
Lamlash Extension	19 km SE of proposed site (Lamlash Bay)	Initial surveying/ exploration	Site extension could not produce required production growth for area

⁵ SEPA (2018) Finfish Aquaculture Sector Plan (Online) Available at: https://consultation.sepa.org.uk/sector-plan/finfishaquaculture/supporting_documents/Finfish%20Aquaculture%20Sector%20Plan%20Single%20Pages.pdf (Accessed 05/08/2019)

Generally, it was identified that sites located further north would potentially result in overlapping DMAs with sites in Loch Fyne, while any location south of the existing site at Lamlash would be within the Marine Protection Area (MPA). There are limited areas within the MPA where a site of this size could be located and not overlap with known recorded locations of protected features. The waters to the south of Arran would also be much more exposed than the chosen location.

3.2 Design Principles and Evolution

The identification of environmental effects is an iterative process, running in tandem with the design process.

Specific environmental factors considered in the final design parameters of the Proposed Development have been set out in the technical assessments that accompany the planning application and within the EIAR, with their influence on the design discussed. This is achieved through detailed assessments of the environmental effects, consideration of the identified spatial constraints, combined with consideration of the appearance of the Proposed Development from sensitive viewpoints to take account of landscape and visual considerations and heritage considerations. Some of the key factors assessed throughout the design process are listed below.

3.2.1 Access and communications

The Proposed Development would be routinely serviced from the existing SSC Lamlash shore base, where staff and work boats would depart to site. There is also the opportunity for vessels to depart from Brodick, however no additional facilities would be required. Staff access to a shore base would be by vehicle and then by boat to the Proposed Development. It is anticipated that the staff vehicle usage would be ~ 5 return journeys each day (based on two people sharing) between normal working hours (0800 – 1700). It is normal practice for staff to share transport where possible. Boat journeys are anticipated to include a return journey for one workboat and one smaller rigid-hull Inflatable boat (RIB) per day.

SSC has experience of operating in exposed sites and dealing with the particular challenges of weather and sea conditions. SSC's Gometra site off the west coast of Mull has been in operation since 2012 and remote monitoring technology is used to ensure the safe operation for staff conducting routine husbandry operations, equipment checks and sea lice counts and also other visitors like divers and regulators. It is also used to ensure that the health and containment of fish on site is not compromised by conditions experienced at the location. As an example, the Gometra site was inaccessible due to inclement weather on five days (not consecutive) in the last production cycle. These five days were over Winter/Spring (between the 1st November and 1st April). Despite this, staff were able to carry out routine feeding and monitoring duties on these days, using remote technology.

Cameras below the surface are used to remotely monitor fish behaviour, feeding and health. Cameras above the surface are used to monitor sea conditions and feed operations as well as inspecting the condition of the overall environment. This information would be available via remote connectivity and fed back to the shore base. This enables remote feeding by viewing the cameras. SSC are also investigating systems to remotely manage the hatches and other functionality on the barge to allow timely unmanned feed delivery (if required) to the barge alongside a full monitoring system for that process.

For robust communications SSC would use a relay station to establish line of sight with a relay station bouncing the signal to the shore base. From the shore base SSC would upgrade the telephony and data communications line in line with the site requirements. Alternatively 4G and satellite communications would be a fall-back position.

3.2.2 Impacts on Species or Habitats of Conservation Importance

The Proposed Development has the potential to impact species and habitats of conservation priority. The assessment presented in the EIAR focuses on marine mammals and potential impact on other species and habitats. Several marine mammals were recorded in close proximity to the Proposed Development, and included basking shark, bottle-nosed dolphin, common dolphin, harbour porpoise, and minke whale. All of the species are European Protected Species.

Potential impacts from the Proposed Development include: accidental net entanglement; contaminants; underwater noise; and collision with marine vessels. The above marine species are considered likely to be present only seasonally or occasionally. As a result, the magnitude of potential impacts to these protected species is considered to be low. It was therefore determined that no significant impacts on species or habitats of conservation importance assessed would result from the Proposed Development.

3.2.3 Natural Heritage and Landscape Designations

A desk-based study was undertaken as part of the EIAR in order to identify statutory landscape and natural heritage designations with the potential for impact from the Proposed Development. A search area of 50 km was applied surrounding the Proposed Development, to account for the mobile and sensitive nature of marine species with potential for impact. The following designated sites were searched for:

- SAC;
- cSAC;
- Special Protection Areas (SPA);
- Sites of Special Scientific Interest (SSSI);
- Nature Conservation Marine Protected Areas (NCMPA);
- Designated Seal Haul Out Sites (SHO);
- Wild Land Areas (WLAs)
- National Scenic Areas (NSAs); and
- Biosphere Reserves

Results of the study can be found within Chapter 6 Summary of Designations of the EIAR. In line with the above, where pertinent, Habitats Regulation Appraisal ("HRA") Screening was carried out within the EIA process, this included assessment of the potential effects on the integrity of the following designated sites: Arran Moors Special Protected Area (SPA), Knapdale Lochs SPA, South-East Islay Skerries Special Area of Conservation (SAC), and Endrick Water SAC. The potential for effects were considered unlikely for all sites. As a result, these designated sites were scoped out of further assessment. Further detail on the HRA can be found in Chapter 12 Habitats Regulations Appraisal (HRA) and information needed to support HRA of the EIAR.

3.2.4 Landscape Character and Visual Impact

The Site is in an extremely isolated, rural location, with very limited surrounding land use. In regards to nearby Core Paths and Public Rights of Way ("PRoW"), four core paths have been identified as having potential views of the Proposed Development, three of which form part of the Arran Coastal Way. Given the popularity of the area with walkers for recreational activities, and the full views of the pens and feed barge, the effects are predicted to be adverse and of moderate to major significance depending on how close walkers are to the feed barge and pens. The views from the water are generally lower than

land based effects as people would view the Proposed Development against the foreshore. Although, again this is dependent on how close boat users are to the feed barge and pens.

Boat users travelling close to the foreshore would experience the greatest change in view and of an adverse nature due to the introduction of man-made maritime features here.

However, it has been assessed that whilst such effects occur the nature of the Proposed Development is characteristic of a coastal location and the receiving landscape is of such a scale that it has the capacity to absorb a development of this nature. Further detail on Landscape and Visual Impacts of the Proposed Development can be found in Chapter 14 Seascape and Landscape Visual Impact Assessment of the EIAR.

3.2.5 Residential Amenity

The closest residential property is located at Darven Cottage B&B at Sannox, approximately 4.5 km to the southeast of the Proposed Development. Additionally, Laggan cottage is found approximately 1.65 km southeast from the Proposed Development, however this is uninhabited and appears to be used as a bothy shelter. Given the intervening distance between the Proposed Development and residential receptors, impacts to residential amenity are therefore considered to be unlikely, and the Proposed Development would not result in any visual outlook from residential properties.

3.2.6 Recreational Marine Activity

The location of the Proposed Development is not a general boating area and on average one to two recreational vessel per day passed through the study area. There was very low activity within the mooring site (about one vessel every 6 days) (based on estimated split of 50:50 fishing/recreation vessels).

A number of these did pass where the pens would be located, but the Proposed Development does not present an obstacle to recreational vessels moving around the coast. In relation to the activity in the wider area, particularly within the general boating areas to the north this is a low magnitude of effect and is not significant in relation the EIA Regulations.

3.2.7 Navigation, Anchorage, Commercial Fisheries, Other Non-Recreational Maritime Uses

A shipping assessment was carried out for 12 months in the study area. On average, one vessel passed within the proposed mooring area per day with some entering the vicinity of the proposed locations of fish farm pens. The majority of these vessels were recreational, with a number of fishing vessels also passing. The volume of recreational traffic is significantly higher during the summer months of April to September associated with favourable weather conditions. Commercial fishing activity in the area is in the form of very occasional static gear fishing activity in the vicinity of the Proposed Development.

Mooring lines would be kept to the minimum appropriate length and SSC would follow the Northern Lighthouse Board's recommendations on site marking to aid navigation. Given the overall size of the Sound of Bute and the limited scale of the Proposed Development, the effects on navigation, commercial fishing and recreational maritime uses are considered to be not significant.

3.3 Rationale for the Proposed Development

The use of the Proposed Development is intended to support the Atlantic salmon farming industry in Scotland. Farming of salmon is an important industry for Scotland directly supporting over 2,400 jobs, representing nearly 13% of Scotland's food and drink workforce. Salmon is the UK's largest food export with overseas sales of £600 million in 2017.

Salmon producers contribute £390 million in expenditure to the local supply chain helping to sustain economic growth in rural and coastal communities, particularly in the north and west of Scotland. The Scottish Government is committed to supporting sustainable economic growth in Scotland and recognises that supporting aquaculture is a vital role for Marine Scotland.

3.3.1 Summary of Design Innovation

As suggested in the Strategic Plan for Farming Scotland's Seas, Scotland has the opportunity to be a world leading player in an industry that is vital for future food security and has one of the lowest carbon footprints in animal protein production.

SSC, in collaboration with Gael Force and its suppliers, would seek to underpin the Proposed Development with market-leading innovation.

The Proposed Development has innovation at its heart, ensuring robust fish health and welfare and environmental sustainability. SSC in collaboration with Gael Force Group and its other suppliers would seek to underpin the Proposed Development with innovation through implementation of the 'SeaQure Farm' concept design provided by Gael Force. The guiding principle has been to deliver sustainable growth through improved stock welfare. The key objectives identified for innovation included:

- Improving fish health and welfare;
- Operating securely in higher energy sites;
- Enhancing the safety of our people and equipment; and
- Ensuring environmental impacts are assessed, mitigated and monitored.

The SeaQure Farm concept facilitates the integration of fish welfare improvement space. The guiding principle in the innovative design of the SeaQureFarm has been to deliver sustainable growth through improved stock welfare.

This space enables fish to be treated for lice and gill disease, in a controlled environment, using multiple inline and proven non-medicinal solutions.

This involves swimming the fish to and from the health treatment facility on the barge in a contained system. This allows a more passive and reduced impact on fish whilst handling, as the fish are at all times at sea level reducing the needs for stress-inducing high energy pumping and heating systems associated with other processes.

The SeaQure Farm concept also features an integrated mort recovery system, through an integrated central spine (the SeaSpine) that connects all pens to the barge to allow the swift removal and containment of mortalities. The mort recovery would happen immediately and this would reduce the risk of predator attacks, particularly from seals, to a minimum.

The barge would have space to allow the morts to be processed in such a way that value can be gained, e.g. through oil extraction to run the power requirements, but in any event reducing the environmental and commercial impact of processing regular natural fish mortalities.

The SeaQure Farm concept also incorporates a fish transfer system from pen to barge to allow for freshwater treatments. This would utilise a rain water collection system on the nearby feed barge to supplement freshwater treatments, which would take place in an installed freshwater facility of 140 tonnes within the barge itself. This method of freshwater treatment would be facilitated through a swim through system and would reduce the need for medicinal bath treatments. Having the freshwater contained within a controlled environment ensures that treatments are not only effective, but also any water used in the

treatment is captured and neutralised before releasing to the environment. The process of treatment of fish is well practised today in other infrastructures and is well proven.

With the above designs being integrated and automated, and the inclusion of monitoring systems for farm and environment, the 'SeaQure Farm' would deliver safe, integrated and value adding innovation. With this system deployed, the Proposed Development would be leading innovation in Scotland and would offer significant opportunity to become an exemplar of lowering environmental impact per tonne of production.

3.4 How the Design has taken account of the Context

3.4.1 Layout

The layout has been informed by a number of factors through the site selection and iterative design process, including seabed conditions, currents and operational constraints. SSC operate a similar site in Skye with 20 x 120 circumference circles with the barge split between the two groups, this has been demonstrated to be an effective and efficient way of managing sites.

For instance, splitting the pens into two separate groups allows for separate footprints to be established and in turn allows for two separate CAR to be applied for. Currently, SEPA regulations prevent licences greater than 2500 tonnes, which would mitigate the size of the Proposed Development, were it to be applied for as one singular grouping. Additionally, the Site has been split into two separate groups in order to help optimise water flow conditions within the chosen area and around the Site. This would in turn help to reduce any potential benthic and water column impact, thereby improving fish health and welfare.

The chosen Site is orientated along the coastline of north Arran, with this helping to offer protection from the elements, in addition to helping minimise any potential Landscape and Visual impacts due to its more secluded location.

Due to having a maximum siting distance, the SeaFeed barge has been positioned in a specific location for operational reasons in order to allow it to effectively feed all pens within the Site. This siting distance is due to the barge requiring a significant amount of power to blow feed along the maximum length of the pipe. As such, it needs to be located within the middle of the two groups of pens in order to operate effectively and to be within optimum distance of all pens. Its location at the centre would also:

- Protect the vessel from the often harsh weather elements;
- Reduce any potential interactions with nearby marine traffic; and
- Reduce any potential Landscape and Visual impacts

3.4.2 Scale

The scale of the Proposed Development is governed by the equipment necessary to facilitate the functions of an Atlantic salmon fish farm at the Site.

Any equipment on the Site would be at a height less than a single storey, ensuring that they are not overly disruptive to the landscape of the area, with the majority of the infrastructure lying below the surface.

3.4.3 Appearance

Only the frame of the pens would be visible on the surface of the water. As noted within Section 2.1.1, the pens [the feed pipes and the SeaSpine] would be painted dark grey or black in colour to limit the visual impact of the Proposed Development. As such, the pens

and their associated infrastructure would not be a prominent feature due to their colour and low lying position in the water.

3.4.4 Consultation

Throughout the duration of the consultation process associated with the Proposed Development, SSC regularly committed to clear and transparent engagement with consultees and interested parties and continues to do so following the completion of the Pre-Application Consultation ("PAC") process. This consultation has involved a number of meetings and in depth discussions with statutory consultees such as Scottish Natural Heritage ("SNH) and the Scottish Environmental Protection Agency ("SEPA"), with two public exhibitions also having been held in Lochranza and Brodick, both of which provided an opportunity for members of the local community on the Isle of Arran to gain a greater insight into the Development components.

Design has been a key consideration throughout the consultation process, with every meeting or exhibition with statutory consultees and interested parties having provided the opportunity for SSC to describe and illustrate the innovative technology involved within the Proposed Development, while also providing attendees to consult on any potential issues they may have with the design proposed.

SSC are an experienced and long established organisation within the Atlantic salmon farming industry and as such, are expertly aware of current industry standards. This has in turn informed the decision to implement the innovative SeaQure Farm technology within this Proposed Development, with this being a modern and fit for purpose design. Further information relating to the consultation process can be found within the PAC report appended to this Application.

4 PLANNING POLICY CONTEXT

4.1 Policy Description

4.1.1 Proposed North Ayrshire Council Local Development Plan (2019)

The North Ayrshire LDP is set to be superseded imminently by the Proposed North Ayrshire Council LDP 2 ("LDP 2"), with the Proposed Development due to be decided according to LDP 2. As such, this document will form a key consideration in the determination of the application.

Relevant proposed LDP 2 policies in relation to the design of the Proposed Development include:

- **Policy 9 – Preserving and Enhancing our Conservations Areas:** This policy states that development within or adjacent to a Conservation Area that preserves or enhances its character and appearance, and is consistent with any relevant Conservation Area Appraisal or Management Plan, will be supported providing it can be demonstrated that it retains appropriate scale, proportion, siting, massing, design and use of materials whilst not inhibiting high quality innovative design.
- **Policy 15 – Landscape and Seascape:** This policies states that the Council will support development that protects and/or enhances the landscape/seascape character, avoiding unacceptable adverse impacts on our designated and non-designated landscape areas and features.
- **Policy 24 – Alignment with Marine Planning:** This policy states that all marine proposals should identify environmental impacts and mitigate against these to ensure there are not any unacceptable adverse impacts.

- **Policy 25 – Supporting Aquaculture:** This policy states that the Council will in principle support aquaculture development where it accords with Marine Scotland’s locational guidelines for aquaculture and would result in economic and social benefits for local communities and the ongoing sustainable development of the aquaculture industry where no unacceptable adverse impacts arise in relation to a number of areas.

A full policy assessment and analysis of how the Proposed Development meets the requirements of LDP 2 is provided within the Planning Statement which will accompany the Application.

4.1.2 North Ayrshire Council Local Development Plan (2014)

The North Ayrshire Council Local Development Plan⁶ (“the LDP”) was adopted in May 2014. This document is set to be replaced imminently by LDP 2 which will supersede the policies outlined in the LDP and will become the primary planning policy document for determination of planning applications in North Ayrshire.

Relevant LDP policies in relation to the design of the Proposed Development include:

- **General Policy:** This policy provides guidance relating to the siting, design and external appearance of developments, as well as additional guidance regarding amenity and landscape character;
- **Policy HE 1:** This policy relates to development within and adjacent to conservation areas, with particular attention paid to development which may adversely affect the visual amenity or historical/architectural character of a conservation area;
- **Policy ENV 7:** This policy provides guidance on development within Special Landscape Areas such as North and Central Arran, particularly on how development will safeguard or enhance the character or appearance of the landscape, limit impacts to the visual amenity of the area, and is appropriate in design and scale to its surroundings;
- **Policy ENV 11:** This policy relates specifically to aquaculture and includes recommendations to avoid any unacceptable impacts on a number of areas including landscape character, scenic quality and visual amenity.

A full policy assessment and analysis of how the Proposed Development meets the requirements of the LDP is provided within the Planning Statement which will accompany the Application.

5 CONCLUSION

This DS has been prepared in accordance with the requirements of Regulation 13 of the Regulations, as qualified by Regulation 36, Planning Circular 3/2013: Development Management Procedures, and guidance set out in PAN 68: Design Statements.

The DS has established:

- The design principles and rationale that have been applied to the Proposed Development, including the various relevant environmental and technical criteria;
- The steps taken to appraise the context of the Proposed Development, and how the design of the various relevant environmental and technical criteria and each design component take that context into account ;

⁶ North Ayrshire Council (2014) Local Development Plan [Online] Available at: <https://www.north-ayrshire.gov.uk/Documents/CorporateServices/LegalProtective/LocalDevelopmentPlan/post-examination/adopted-LDP-policy.pdf> (Accessed 28/02/2019)

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- The relevant development plan policies in respect of design, and how these policies have been taken into account and are addressed by reference to the Planning Statement which will accompany the Application;
 - That all relevant issues which might affect the design of the Proposed Development have been addressed; and
 - That throughout the consultation process associated with the Proposed Development, design has been a key consideration, with statutory consultees and interested parties having been given the opportunity to discuss the innovative design of the Proposed Development at various points, whether it be through meetings or during attendance at the public exhibitions and Q&A session.

The DS has thus established that the Applicant can ably demonstrate an integrated approach throughout the design process that would deliver inclusive, fit for purpose and innovative design.