S.P. 02/25

St Helena Government

ST HELENA GOVERNMENT

AUDIT SAINT HELENA

PERFORMANCE AUDIT: FIBRE OPTIC CABLE NETWORK PROJECT

LAID UPON THE TABLE 13TH FEBRUARY 2025

AUDIT ST HELENA
External Auditors

Performance Audit:
Fibre Optic Cable Network Project

January 2025

Audit St Helena is the body that carries out financial and performance audits on behalf of the Chief Auditor.

The Chief Auditor is an independent statutory office with responsibilities set out in the Constitution and the Public Finance Ordinance. Section 29(2) of the Ordinance requires the conduct of performance audits on behalf of the Legislative Council to determine whether resources have been used with proper regard to economy, efficiency and effectiveness.

This report has been prepared in accordance with section 29(2) and published by the Chief Auditor, Brendon Hunt. The audit team consisted of David Brown and Omence Murawu, with key contributions from Deputy Chief Auditor Vimbai Chikwenhere.

CONTENTS

ABBREVIATIONS

5G	Fifth generation
ADSL	Asymmetric digital subscriber line
ASN	Alcatel Submarine Networks
BAFO	Best and final offer
CLS	Cable landing station
Connect	Connect St Helena
DBO	Design, build and operate
DBT	Design, build and transfer
EDF	European Development Fund
EDIP	Economic Development Investment Programme
EU	European Union
FCDO	UK Foreign, Commonwealth and Development Office
FTTC	Fibre to the cabinet
FTTP	Fibre to the premises
FY	Financial year
Gbps	Gigabit per second
GIS	Geographic information system
Google	Google Singapore Pte. Ltd.
ISP	Internet service provider
IT	Information technology
Maestro	Maestro Technologies Limited
Mbps	Megabit per second
MoU	Memorandum of understanding
NEC	New Engineering Contract
O&M	Operations and maintenance
PMO	Programme Management Office
RAMS	Risk assessment method statement
SAEx	South Atlantic Express
SEDP	Sustainable Economic Development Plan
SHG	St Helena Government

Sure	Sure South Atlantic
Tbps	Terabit per second
TPB	Telecommunications Programme Board
UHCG	Ultimate holding company guarantee
UK	United Kingdom
VDSL	Very high-speed digital subscriber line
WAN	Wide area network

OUTLINE OF FINDINGS

PART ONE:
THE EQUIANO SUBSEA CABLE PROJECT

The Equiano subsea cable project did not go through a standard procurement process, however it was well-executed for a venture of its magnitude.

Landing the cable at Rupert's was a key dependency that was delivered successfully.

SHG ensured that its strategic, operational and procurement risks were properly managed through a project governance board.

Most of the delays experienced with the Equiano branch were beyond SHG's control.

The Equiano branch presents an opportunity to grow into a satellite ground station hub in the South Atlantic.

PART TWO:
ATTEMPTS TO BUILD A FIBRE NETWORK THROUGHOUT ST HELENA

The design, build and transfer (DBT) project evolved from an earlier tender with a different vision for the on-island fibre network.

Fibre to the premises was SHG's attempt at a future-proof solution to St Helena telecommunications.

The DBT project followed a standard procurement process.

PART THREE:
FACTORS THAT CONTRIBUTED TO THE DBT PROJECT'S FAILURE, ITS CURRENT STATUS AND THE PATH FORWARD

SHG overpromised bidders during the DBT procurement and did not fulfil important obligations.

The threat of procurement-related litigation limited communication with Maestro in the project's early months.

Sure would not allow access to ducts in Jamestown for assessment to inform potential use.

SHG drafted enabling telecommunications policies that were never operationalised.

SHG did not require a pre-tender site visit.

SHG did not have much experience with the form of contract it chose.

The contract required a project manager and supervisor to be assigned but neither role was filled permanently in a timely manner.

SHG did not give Maestro a finalised list of properties requiring fibre connection.

Maestro never produced a final project design.

Maestro struggled to deliver two instruments of assurance required by SHG.

The governance arrangements and practices for the DBT did not provide adequate scope for controlling, directing and monitoring the project effectively.

SHG anticipated and communicated project risks but failed to effectively mitigate them.

Other challenges encountered during the DBT project include incomplete planning information and the nature of St Helena's telecommunications market.

SHG terminated the DBT contract and is now prioritising the legal and regulatory framework over a near-term technological solution.

PART FOUR:
WHAT INFORMS SHG'S ASPIRATIONS FOR THE CABLE NETWORK

SHG did not sufficiently engage stakeholders in the DBT project, missing an opportunity for buy-in and support that would have helped this island-wide project to progress more smoothly.

Some of the Digital Strategy's objectives have been met but it has not been reviewed and updated to reflect the changing needs, developments and opportunities in the digital world.

SUMMARY

For many years the internet connectivity in St Helena was described as among the slowest and most expensive in the world. In September 2017, the St Helena Government (SHG) issued a Digital Strategy aimed at ending this digital exclusion experienced by the people of the island through investment in a subsea fibre optic cable. Subsequently, SHG's 2018 Sustainable Economic Development Plan identified the fibre optic cable project as crucial for economic development given the growing digital economy and increasing prevalence of remote work.

With funding from the European Union, SHG explored various options and eventually chose to partner with Google in December 2019 to bring a fibre cable to the island. The cable is a branch of Google's Equiano subsea system that connects Portugal and South Africa. It was brought ashore in Lower Rupert's Valley in August 2021 and connected to a modular cable landing station, commissioned in June 2023, which interfaces with the island's existing network. Although this phase of the project did not go through a standard procurement process, it was well-executed for a venture of its magnitude.

Some benefits of the fibre cable have already been delivered, such as business and residential broadband customers paying less for greater access at faster speeds relative to last year; significant improvements for SHG, including the hospital, community care centre and the schools; and one satellite ground station under construction with a second being negotiated. But the full realisation of the subsea cable's benefits requires upgrading the island's telecommunications network. As this system currently relies on copper wire, which cannot match the capacity and speed that fibre cable affords, SHG sought to construct a fibre network that would connect to nearly every residential and business address on the island (a 'fibre to the premises' approach in line with a similar initiative underway in the mainland UK). In 2020, SHG began a procurement process that envisioned a contractor who would design, build and operate (DBO) such a network on the island. However, this procurement was ultimately unsuccessful after the preferred bidder dropped out and SHG failed to reach a negotiated agreement with the other bidder. At the direction of Executive Council, SHG moved on to a different vision – one in which the government would own the network via transfer after the contractor first designed and built it. In theory this would give SHG greater control over telecommunications service offerings and their costs to consumers than in its current position with an incumbent provider who owns the existing network and has an exclusive right to operate in St Helena.

SHG completed a procurement process for a contractor to design, build and transfer (DBT) a fibre network with three bidders – two of the bidders on the DBO tender and Maestro Technologies Limited (Maestro). SHG ultimately signed a £3.27 million

contract with a local subsidiary of Maestro in November 2022. SHG's aspirations for its network, as specified in its tender documents, was for at least 95% full fibre coverage, allowing 5% wireless access to cover particularly hard-to-reach locations. SHG was clear that the network should be capable of providing speeds of at least 300 Mbps download and 50 Mbps upload per residential premise, and 500 Mbps download and 100 Mbps upload per business premise.

Network construction encountered trouble from the start. First, 11 days after the contract signing, a bidder raised concerns with SHG about a potential conflict of interest in the DBT tender process. In response, SHG sought legal advice and commissioned an investigation into the alleged conflict of interest and its potential impact. While awaiting the outcome of this procurement challenge, SHG was unable to fully commit to the DBT project. Certain officers were advised not to have conversations with Maestro nor to share information with the public.

Next, in its tender SHG had offered to coordinate with local contractors on the winning bidder's behalf, but when Maestro arrived in St Helena it was told to deal directly with them. Both the tender and contract stipulated that the contractor shall support SHG in obtaining all necessary planning permissions, suggesting a supporting role for Maestro, but once the contractor was on island SHG said this was Maestro's responsibility. Further, the contract's scope of work states that SHG as the employer will take the lead in agreeing access to utility poles for Maestro's cables, but SHG did not convene discussions between Maestro and Connect St Helena (Connect) until after the contract was awarded. Thus Maestro, who had not visited the island prior to bidding on the project, was underprepared for a permission process that required technical documentation of how the contractor would work safely around Connect's high-voltage wires and other hazards. While SHG tried to facilitate this process as Connect's sole shareholder, it had less influence with local telecommunications provider Sure St Helena (Sure) who was unwilling to allow Maestro to string its cables on or through Sure's poles or ducts, respectively, noting that it was under no obligation to share its privately-owned network. Project facilitation across all dimensions limped along as SHG did not settle on a dedicated project manager until several months after the first signs of trouble, while the project-specific governance board began meeting about 5 months into the project's 12-month term and almost a year after the project tender. SHG indicated that the bidder's procurement challenge was a key reason a governance board was unable to be formed during the initial months of the contract.

Financial security requirements within the contract also stalled Maestro's progress. The type of construction contract SHG chose for the work – one which seemed familiar to neither SHG nor Maestro – is known to be fairly rigid and prescriptive in practice. Because Maestro (after consulting with SHG) formed a locally registered company to execute the project after contract award, it was required by the contract to provide an ultimate holding company guarantee that would hold the parent

company liable if its subsidiary failed to perform. An even bigger obstacle was the performance bond, which is an insurance policy wherein a third party agrees to compensate the employer a percentage of the contract price if the contractor fails to perform. In this case the chosen performance bond was 30% of the contract price and would not decline as the project progressed, which gave SHG extra assurance given its history of troubled capital projects but also put financial pressure on its contractor. Despite the clear requirement in the contract for both the holding company guarantee and the performance bond (with the latter to be provided within 4 weeks of the 17 November 2022 contract signing), neither had been delivered to SHG by the middle of 2023. From Maestro's perspective, it was being asked to provide a bond against non-performance while also not being allowed to perform (i.e. to begin construction). Ultimately SHG cited the lack of a performance bond as the reason for its October 2023 notice of termination to Maestro. At present SHG is deciding on its way forward and prioritising the development of a more robust legal and regulatory framework for telecommunications with no further procurement underway. Meanwhile, Sure's licence has been extended until December 2025 subject to a 6-month notice period for further extensions or other changes.

At the end of 2022, SHG had a clear vision for a fibre optic cable network, a contractor that was eager to build it and sufficient grant funding for a contract worth more than 3 million pounds. Less than 1 year later the contract was terminated, and as we are now 2 years past contract signing the funding to procure a replacement is uncertain. While the public has seen faster speeds and more access to data at lower prices because of the subsea cable, it is enjoying only a fraction of the cable's potential benefits.

As island leadership charts a new course, SHG must carefully weigh the costs and benefits of owning a network versus again contracting with an owner-operator. A DBO network that is vendor-owned and operated but may have to be purchased from the vendor at the end of the operation period is not necessarily superior to SHG's present position. Conversely, a network that SHG buys 'up front' through a DBT contract does not guarantee future-proofing if technology makes, e.g. a full-fibre network obsolete over the long term of construction and operation. In addition to the question of ownership, what mix of fibre and wireless allows SHG to balance cost with equality of access for residents in different parts of the island, if that is a priority? And how much can be achieved through regulation before (or in lieu of) procuring a new contractor?

Once SHG selects its preferred approach, it must do everything possible to ensure the success of this 'strategic' project – that is, one with an ambitious purpose and sizable benefits but also significant risks. This means choosing a realistic delivery timeframe and assigning staff who are responsible for managing the project from before contract signing. These staff should help to facilitate all aspects of the contract requirements, from planning permission to infrastructure sharing to

coordination with local subcontractors, regardless of who is assigned to lead. The appropriate governance structure must be in place from the start, like what SHG's Programme Management Office designed for the DBT but only after it was belatedly given this responsibility. SHG must engage all key stakeholders during the planning stage, and the type of contract must be appropriate for the experience and expertise of those who will be responsible for implementing it. Finally, SHG must commit to wielding its significant powers to clear obstacles in a manner befitting a national government engaged in building critical infrastructure.

Given our evaluative findings, we are making the following recommendations to SHG:

1. To revive the momentum of the cable network project and further enhance St Helena's connectivity, SHG should:

    a. Publish in the FY 2025 edition of the Economic Development Portfolio's Strategy and Delivery Plan specific targets and a timeframe for (1) the new telecommunications regulatory framework, including necessary ordinances and the appointment of a regulator, and (2) a decision on any technological solution.
    b. Ensure that the next telecommunications licence (or extension) is issued under the new regulatory framework.
    c. Update its 2017 Digital Strategy to reflect new ambitions, opportunities and technologies.

2. To avoid the need for additional assurance, such as an ultimate holding company guarantee, SHG should adopt a policy of signing contracts only with the entity that submitted the winning bid and received all relevant internal approvals unless the Procurement Board gives its express permission to do otherwise.

3. To ensure consistency and quality across strategic projects, and to leverage the skills and experience incumbent in its staff, SHG should begin each strategic project with the assumption that the Programme Management Office will lead on planning, governance and project management unless the Chief Secretary documents a written rationale why it would not be appropriate for that project.

4. To ensure the streamlined execution of strategic projects, SHG should develop a comprehensive and realistic project plan with clear objectives, deliverables, timelines and key milestones. The planning stage should be a cross-governmental enterprise, with each relevant portfolio, department or section availing its expertise, whether regulatory or procedural.

5. To align expectations, raise public awareness and reduce resistance in the implementation phase, SHG should engage critical stakeholders such as utilities, affected companies, major landowners, relevant portfolios and the general public as early as practicable when planning island-wide strategic projects.

6. To facilitate telecommunications projects and avoid inefficient duplication, SHG should adopt a UK-style policy equivalent to the Electronic Communications Code that makes it mandatory to share physical infrastructure like poles, ducts and transmission towers, assuming compliance with established standards. Such an approach may also be desirable for other utilities, such as electricity and water.

INTRODUCTION

Telecommunications services including internet connectivity in St Helena was for many years described as among the slowest and most expensive in the world. In September 2017, SHG issued a Digital Strategy aimed at ending this digital exclusion experienced by the people of St Helena through investment in a subsea fibre cable. With funding support from the European Union, SHG explored various options and eventually chose to partner with Google to bring a fibre cable to the island. The cable landed at Rupert's Bay in August 2021, 3 years after funding was secured.

Landing the cable was a significant step towards the achievement of the aspirations of the Digital Strategy. However, while businesses and the public are now paying less for greater access at higher speeds, they are not yet enjoying the full benefits of the subsea cable, which must be connected to technologically suitable on-island telecommunications infrastructure accessible to properties throughout the island. This involves laying fibre optic cable from an exchange to a point accessible to a subscriber's premises. It can then be connected to the home or business through another fibre optic cable for ultrafast internet or a copper line for slower speeds of up to 80 megabits per second (Mbps).

Guided by the key lines of inquiry below, this report explores the progress of the cable project from activities prior to cable landing, current status and next steps required to unlock the benefits of the fibre optic cable.

- How has SHG planned, managed and governed the cable network project thus far?
- How effective is SHG in ensuring that the cable network project's strategic, operational, procurement and contract risks are properly understood, scrutinised and mitigated?
- Are SHG's cable network operational arrangements sufficiently supportive of islanders' economic well-being?
- Is SHG effectively engaging with partners, businesses and stakeholders in its management of the cable network project?

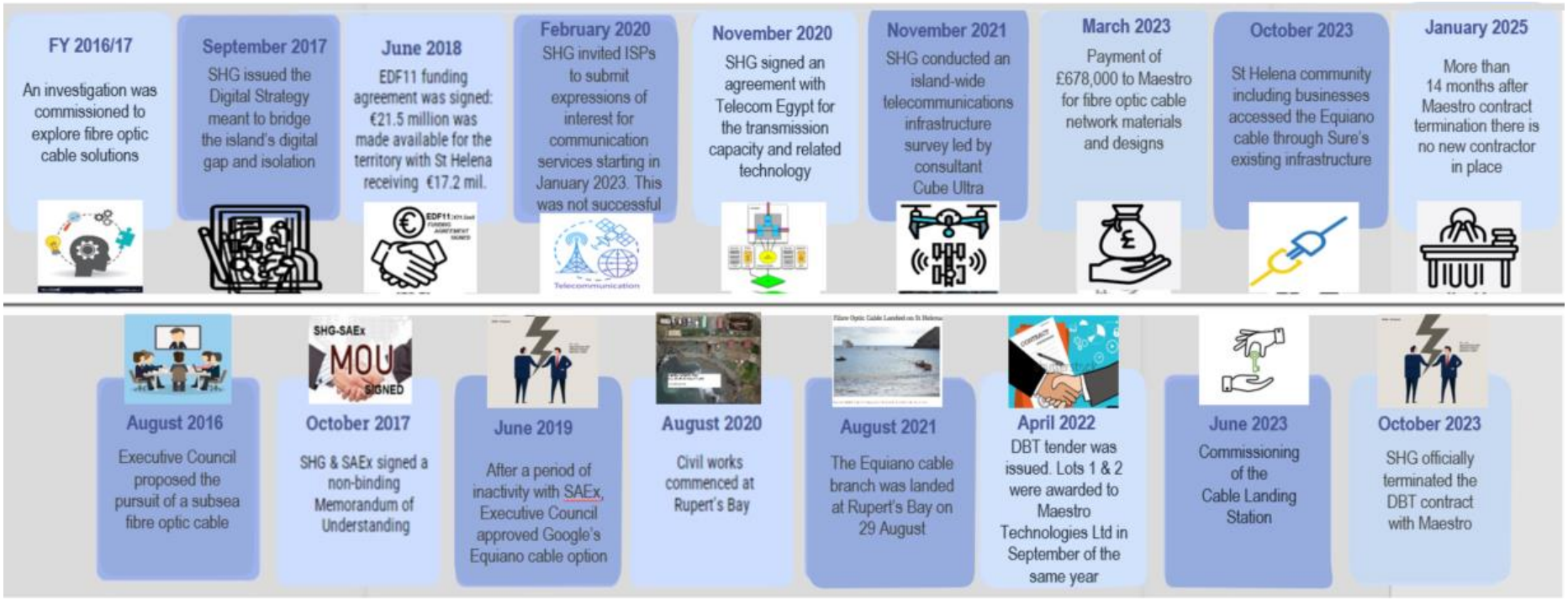
The European Commission's agreed performance indicators for its grant were based on a holistic view of the project.[1] This involves connecting the island to a subsea cable, building an on-island fibre network and granting the public and businesses access to the faster internet. In examining this project we acknowledge this approach but, for ease of discussion, we treat the wider project as two independent sub-projects, namely (1) the subsea cable including cable landing station and (2) fibre

[1] The European Commission is the European Union's politically independent executive arm.

optic network construction. The subsea cable project involved building a branch to St Helena from Google's Equiano subsea system that connects Portugal to South Africa. The fibre project entails building an on-island network that connects homes and businesses to high-speed internet. This report follows that sequence:

- First, we discuss the Equiano subsea branch and the cable landing station where we focus on how SHG planned, managed and governed this project.
- Then we turn to the attempts to build a fibre network throughout St Helena, from procurement to contract signing, followed by
- A discussion of the factors that caused the project's failure.
- Finally, we take a closer look at what informs SHG's aspirations for its cable network as it prepares for the next version of this critical capital project.

FIGURE 1: FIBRE OPTIC CABLE PROJECT TIMELINE



Source: Audit St Helena analysis

DETAILED FINDINGS

PART ONE
THE EQUIANO SUBSEA CABLE PROJECT

The Equiano subsea cable project did not go through a standard procurement process, however it was well-executed for a venture of its magnitude.

Planning and funding

SHG's September 2017 Digital Strategy emphasises that any investment in broadband infrastructure must improve connection speed, increase download capacity and reduce cost to the customer on the island via increased revenue streams such as satellite ground stations. In this way, the initial benefits will be spread across the island. Beyond that a better internet connection would:

- Increase the performance of the local economy.
- Encourage economic diversification.
- Improve job opportunities for local people.
- Provide a first-class education service, supporting the development of skills, creativity and life-long learning.
- Improve health delivery by harnessing more cost-effective telemedicine options.
- Promote improved, more productive and sustainable public services.

Apart from SHG's Digital Strategy, other strategic documents like the 2018 Sustainable Economic Development Plan (SEDP) identified the fibre optic cable project as crucial for economic development given the growing global digital economy and increasing prevalence of remote work.

On 1 December 2017 the European Commission gave SHG its approval to proceed with its bid for funding. This approval was formalised in June 2018 with the signing of European Development Fund 11 (EDF 11). This funding, totalling EU€21.5 million, was allocated to St Helena, Ascension and Tristan da Cunha for "Improved Connectivity and Accessibility". St Helena received EU€17.2 million of this total, which was earmarked for enhancing connectivity through the implementation of a fibre optic subsea cable. This initiative was in accordance with the Digital Strategy's aim to bridge the island's digital divide and reduce its isolation, enabling it to keep pace with the rest of the world.

Procurement

In FY 2016/17, SHG commissioned a study to investigate a variety of fibre optic cable solutions that would aid in the delivery of the Digital Strategy. The subsea

cables SHG considered included the Seaborn-owned cables running from Praia Grande, Brazil to New Jersey in the United States. The nearest point on this cable to St Helena was approximately 3,890 km away. The closest existing cable considered was the South Atlantic Cable System, an Angola government project, with the nearest point about 884 km from St Helena. SHG also considered Vodafone as part of a consortium owning the 2Africa project. However, these options were unfruitful due to a lack of responsiveness from some potential partners and a slow decision-making process typical of consortium structures, which did not align with SHG's need to meet the EDF 11 timelines. As a result, SHG signed a non-binding Memorandum of Understanding (MoU) in October 2017 with South Atlantic Express (SAEx), a company planning a cable that would reach from Singapore through Cape Town and Fortaleza, Brazil to the east coast of the Unites States.

Under this MoU SHG was responsible for covering the cost of the branch, including the landing station. The purchase agreement for one or more 'indefeasible' (exclusive and irrevocable) rights of use in one fibre pair (i.e. two cables) was to be further negotiated in the St Helena Cable Landing Agreement. SHG was set to receive a 200 gigabits (Gb) wavelength, with the initial right of use spanning 25 years and subsequent renewals occurring every 5 years. SAEx would retain the right to sell extra system capacity, with SHG having the right of first refusal. Ownership and the sale of wavelength capacity would be coordinated through SAEx or a special purpose vehicle.

By the beginning of 2019 the MoU with SAEx failed to progress due to factors outside of SHG's control. SHG considered either reinvesting the EDF 11 funding or using it to build a new hospital. At this time Pelagian, SHG's telecommunications consultant, approached Google Singapore Pte. Ltd. (Google) about the possibility of connecting a branch to St Helena from the Equiano subsea trunk running from Portugal to South Africa. After discussions with Google, SHG leadership conducted an assessment of the two subsea cable options – SAEx versus Google – in February 2019. It emerged that SAEx required a higher initial investment followed by relatively lower operating costs compared to Google's Equiano (see Figure 2 below). However, since Google's project was already underway, it aligned better with SHG's need to meet the EU's budgetary support requirements and timeframes. (To date the SAEx cable has not yet been built.)

FIGURE 2: COMPARISON OF SAEX AND EQUIANO SUBSEA CABLE OPTIONS

Option	Capacity	Initial investment	Annual operating costs	Delivery certainty
South Atlantic Express (SAEx)	Initially to avail 200 Gigabits per second	US$25 million	US$1.13 - 1.23 million	Delivery was highly uncertain, given that 2 years had already passed without progress.
Equiano (Google)	Scalable up to 12 terabits per second	Between US$19 - 23 million	US$1.6 million	The Equiano project was already in progress, as Google funded the trunk.

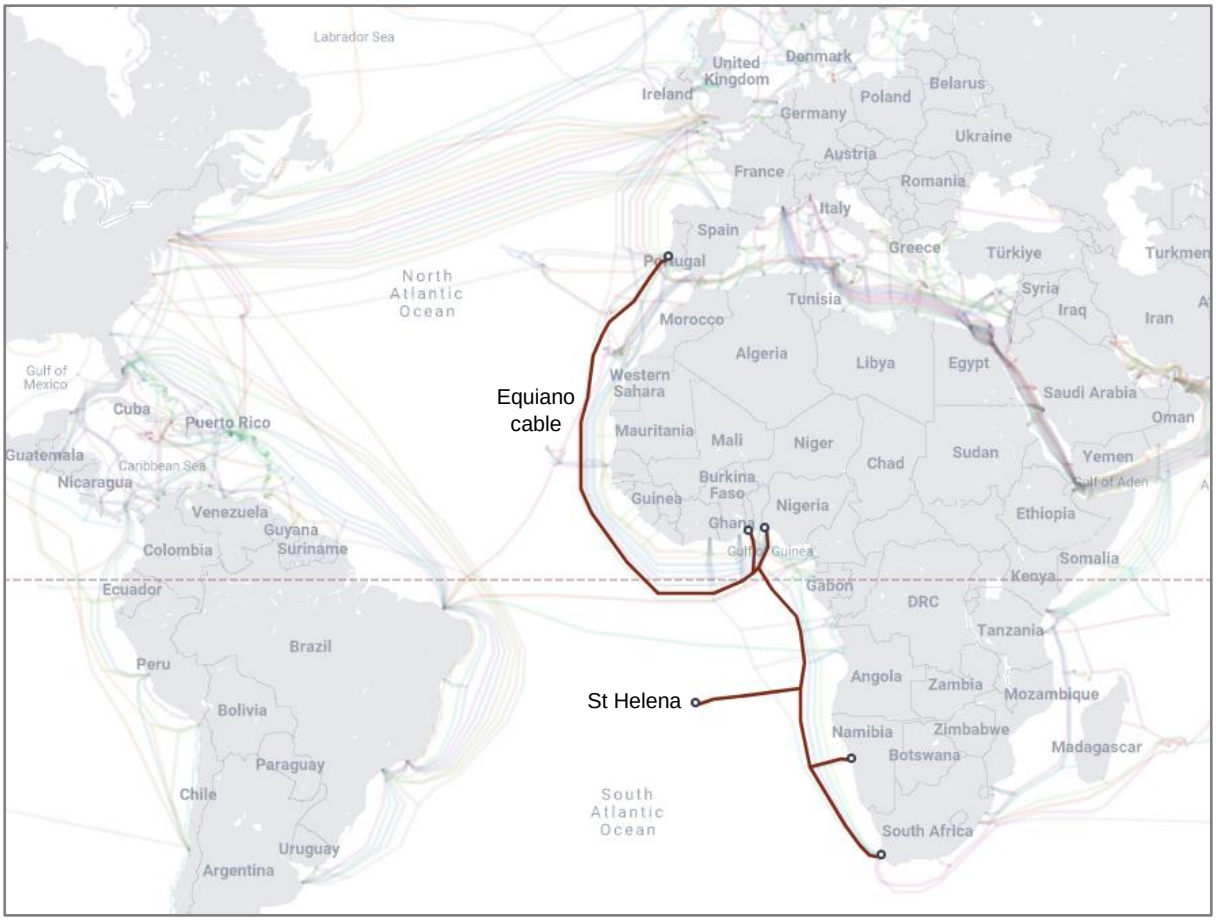
Source: Audit St Helena analysis of Pelagian documents

After St Helena's Executive Council approved the Equiano option in June 2019, SHG issued a letter of intent the following month and signed a contract with Google that December for the subsea fibre optic cable. They agreed that Google (on behalf of SHG) would construct an extension of the Equiano system to Rupert's Bay funded by SHG with Google obtaining an indefeasible right of use on two fibre pairs (out of four) in the branch system. This provision was one of several elements of the contract favourable to Google, the dominant partner supplying a much-wanted resource to SHG. However, the provision can also be seen as an opportunity for SHG: should Google or its nominated affiliate decide to use its designated fibre pairs, SHG could benefit from taxes, licensing fees and increased economic activity.

Google procured the construction of the branch through its contractor, Alcatel Submarine Networks (ASN), for a cost of US$16.0 million with the contractor invoicing SHG directly. However, Google and SHG agreed to execute separate contracts with ASN to reflect specific performance obligations. Import records and relevant permits were issued in SHG's name to confirm SHG's ownership of the branch.

Figure 3 shows the Equiano cable and the branch to St Helena within the context of other undersea cables around the world.

FIGURE 3: EQUIANO AND OTHER UNDERSEA TELECOMMUNICATIONS CABLES



Source: Submarine Cable Map from TeleGeography

Landing the cable at Rupert's was a key dependency that was delivered successfully.

At the other end of its branch, SHG also would own the terminal facilities, outside plant facilities and cable landing station in Rupert's Valley. SHG would pay US$20,000 to Google as project management fees along with the US$16.0 million to ASN for extending the Equiano system 1,154 km from its trunk to Rupert's Bay. Below is a table showing the cost breakdown as it appears in the Equiano St Helena Branch Agreement (Figure 4) followed by an extract detailing the billing milestones invoiced after confirmation by Google that each milestone had been completed (Figure 5).

FIGURE 4: TOTAL INITIAL BRANCH COST

No.	Item	Cost (US$)
1	Project Management and Support	$559,355
2	Submersible Plant – International Waters	$9,952,309
3	Submersible Plant – Territorial Waters	$228,105
4	Land Cable Plant	$451,824
5	Marine Operations – International Waters	$3,214,379
6	Marine Operations – Territorial Waters	$615,433
7	Terminal Station Equipment	$993,361
Total ASN Contract Cost		**$16,014,766**

Source: Equiano St Helena Branch Agreement

FIGURE 5: BILLING MILESTONES EXTRACT

BM	Billing Milestones	Criteria of achievement	BM %
BM0	Contract Variation Signature	St Helena Branch Agreement and Supplier Contract Variation signed	20%
BM1	Cable	Factory Release certified by the Purchasers, of all submarine cable lengths (excluding spares)	30%
BM2	Marine Installation	St. Helena submerged plant installation St Helena BMH to BU on Equiano trunk. *(Note 1)*	25%
BM3	Terminal Station Equipment	Factory Release certified of all TSE, and all spares	15%
BM4	Provisional Acceptance	Release of the Provisional Acceptance certificate	10%

Note1: Submerged Plant terminated in St Helena beach by definitive or temporary beach joint if land cable or BMH is not available.
Note 2: Billing Milestone will reflect Supplier contact Billing Milestone, above is subject to change to reflect final contracted Billing Milestone.

Source: Equiano St Helena Branch Agreement

The costs in Figure 4 above include the provision of training to SHG's selected staff. In addition, there was a project management cost of US$20,000 payable at billing milestone 2. Google also contributed US$40,000 towards a research body within SHG's Education Learning Centre.

Execution

Following the agreements above, SHG proceeded with constructing the cable landing station. The modular CLS was supplied by American Manufactured Structures and Systems at US$1.8 million. A local company was contracted for civil works on the cable landing station building in Rupert's. SHG conducted public briefings to raise stakeholder awareness of the project and, through its CLS project manager, handled all planning permissions to speed up the project. Also, the project gained stakeholder buy-in from the engagements and regular updates published by SHG on its website and local press. As a result, the project did not encounter significant stakeholder pushback.

Cost escalation

Initially, the contract cost was US$16.0 million, as outlined in the payment schedule above. This amount was also agreed in the partial novation agreement between SHG, Google Infrastructure Bermuda Limited and Alcatel Submarine Networks. However, during contract execution, ASN issued two cost variation orders – US$1,011,032 and US$305,448 – bringing the total contract cost to US$17.3 million. The two variation orders were issued due to design changes and downtime due to bad weather, respectively, as specifically authorised in the contract.

The civil works on the cable landing station encountered minor cost increases (£17,883) due to changes in the scope of work. These changes and the associated cost increases were agreed by the operational team without prior project governance board approval: ratification for both change of scope and cost increase was sought retroactively from the board and ultimately secured.

Exchange gains

At the time of contract signing SHG forecasted an £871,000 funding shortfall that would have to be covered from other sources. However, the Financial Secretary informed the project governance board of exchange gains slightly greater than that amount because the British pound strengthened against the US dollar as milestone payments were made over time.

Figure 6 summarises the planned and actual costs for ASN to land the subsea cable at the CLS in Rupert's, excluding the civil works constructed by a local company.

FIGURE 6: SUBSEA CABLE PROJECT COST ESCALATION

Billing milestone	Work involved	% of cost	Original cost (US$)	Actual paid (US$)	Cost escalation (US$)
Contract signing	Contract signed	20%	$3,202,953	$3,202,953	$0
Cable	Factory release of the submarine cable	30%	$4,804,430	$5,309,946	$505,516
Marine installation	Submerged plant installation	25%	$4,003,692	$4,256,450	$252,758
	Ship delays (weather)		n/a	$305,437	$305,437
Terminal station equipment	Factory release of TSE and all spares	15%	$2,402,215	$2,553,870	$151,655
Provisional acceptance	Release of PA certificate	10%	$1,601,477	$1,702,580	$101,103
Total		**100%**	**$16,014,766**	**$17,331,235**	**$1,316,469**

Source: Audit St Helena analysis of ASN contract
Note: Individual amounts may not sum to totals due to rounding.

SHG ensured that its strategic, operational and procurement risks were properly managed through a project governance board.

The Equiano cable phase of the telecommunications project was overseen by the Fibre Optic Cable and Satellite Ground Station Project Board, which was originally established to work with SAEx and first met in May 2018. This board comprised SHG's Chief Secretary, Financial Secretary, IT Section Manager, Capital Programme Manager and Chief Economist; representatives from Crown Counsel, Property and Procurement; and a Member of Legislative Council. As such the board was properly constituted with senior officials authorized to make strategic decisions. Critical stakeholders were represented making it easier to direct, control and monitor the project. SHG's IT Section Manager, also serving as SHG's Chief Digital Officer, assumed the role of the project manager. He had the acumen to converse with the contractor's team.

The board took its responsibilities seriously and made critical decisions collectively. When operational staff overstepped their remit, the board would question it before collectively ratifying the decision. For instance, the operations team awarded a contract and agreed to a change in the scope of work for the CLS that resulted in an increased contract cost. The board emphasised that staff should seek board approval first on all important project-related decisions.

The board kept an issues log equivalent to a risk register where issues identified were recorded and suggested solutions tracked. These matters were discussed at

the board level and resolutions were passed to address these issues. The board did not direct the activities of ASN as the supplier was contracted by Google under a separate agreement. In this respect, Google was the expert responsible for project management services. However, the board was entitled to receive communications on activities such as changes in design that led to an increase in contract costs.

Most of the delays experienced with the Equiano branch were beyond SHG's control.

When the Equiano subsea branch agreement was signed in 2019, the project was scheduled for completion and public access by the end of 2021. But in March 2020, Covid 19 was declared a global pandemic and with that came travel restrictions. The movement of materials and manpower to the island was constrained resulting in delays to the project. Contractor availability was also an issue.

The Equiano cable branch eventually landed in Rupert's Bay on 29 August 2021, and the Cable Landing Station (CLS) was commissioned in June 2023. As an interim measure pending the fibre network rollout, businesses and the general public gained access to the cable-based internet in October 2023 (almost 2 years later than initially planned), after the incumbent internet service provider (Sure) connected its telecommunications infrastructure to the CLS.

The Equiano branch presents an opportunity to grow into a satellite ground station hub in the South Atlantic.

Ownership arrangements, associated rights and obligations

SHG owns the Equiano branch, has purchased a 15-year indefeasible right of use to broadband capacity from Telecom Egypt and is responsible for all operations and maintenance costs. Google owns the Equiano trunk which runs from Portugal to South Africa, the apparatus that connects SHG's branch to that trunk and an indefeasible right of use on its two designated fibre pairs at the CLS. Google is not responsible for any cost except for repairs it initiates on its fibre pairs. Telecom Egypt is contracted to provide O&M and transmission capacity to SHG. In return, SHG pays an annual fee for this service.

Greater affordability for residential subscribers

SHG can sell extra capacity to wholesale users like satellite ground station operators and telecommunications vendors such as internet service providers (ISPs). This way, SHG can use the proceeds to cover O&M costs. At the time of this report, the incumbent is paying a substantial amount for the capacity it resells to its broadband and mobile data subscribers, and other internet-based service clients. OneWeb, a satellite ground station, is expected to use part of the capacity when it commences

operations in a few months. Also, should Google decide to use its designated fibre pairs, regulatory fees and local taxes would apply which would help to defray SHG's O&M costs for those pairs and for its own. In this way, the costs ultimately passed to subscribers could decline.

PART TWO
ATTEMPTS TO BUILD A FIBRE NETWORK THROUGHOUT ST HELENA

The design, build and transfer (DBT) project evolved from an earlier tender with a different vision for the on-island fibre network.

The design, build and operate (DBO) tender

While the cable landing station was being finalised, SHG took a proactive step to explore options for the St Helena community to benefit from the subsea cable. In February 2020 the government requested expressions of interest from international communications providers to deliver voice and data communication services to St Helena from 1 January 2023. This was in anticipation of the Equiano cable going live in 2022 and Sure's licence expiring on 31 December 2022 (later extended). Subsequently, SHG invited tenders to design, build and operate (DBO) a terrestrial network on St Helena. SHG received two bids, with one emerging as the preferred bidder.

The winning bidder had received funding from its investors to support telecommunications projects in the UK. It intended to use part of that funding for the DBO project in St Helena, as the successful bidder would have to design, build and operate the network for 10 years backed by its own resources. However, the company's board would not approve the funds being used outside of the mainland UK. As a result, it withdrew from the tender leaving the remaining company as the conditional preferred (and only remaining) bidder. This led to a series of best and final offer (BAFO) negotiations with this bidder to determine if it could deliver a proposal that met SHG's needs. SHG raised what they termed 'redlines' around network build timing, transparency in the bidder's operation, licence term, pricing and exclusivity. When the two sides failed to come to an agreement, SHG formally closed the DBO tender process on 12 November 2021.

SHG's ambition to have a state-owned passive telecommunications infrastructure

Against that backdrop, Executive Council steered the initiative to have an SHG-owned network and adopt an open-access posture toward passive network infrastructure like poles and towers. The intention was to improve the telecommunications sector's contestability by minimising barriers to entry and exit, thus preventing any incumbent from exercising unchecked market power. The primary challenge with the DBO model is loss of control and the inability to adopt open-access frameworks, which are increasingly becoming the global norm. In addition, with the DBO model, after the operation period assets must be purchased by the government at fair market value, potentially exceeding the cost of a DBT

approach even though the assets will have been used. Essentially, the DBO model equates to a deferred DBT at a higher total cost.

On 13 April 2022, a DBT tender was issued which included two lots:

- **Lot 1.** Design, build and transfer to SHG a passive fibre optic broadband network for St Helena.
- **Lot 2.** Design, build and transfer to SHG the active fibre network and bring it to a point where wholesale-type services for data are provided.

A third lot (Lot 3) – to operate the network by providing broadband, telephony, TV and mobile services – was not issued at the time as it was dependent on the delivery of Lots 1 and 2.

Open access to passive network infrastructure

SHG has ambitions to adopt an open-access model, where passive infrastructure including ducts, poles and towers are made accessible to multiple telecommunications service providers. This stance promotes efficiency as there are limited benefits from the duplication of passive infrastructure and sharing such assets reduces both costs and disruption. Also, for structures like towers which need positioning free from obstacles, favourable sites are limited due to the island's relatively small size and difficult terrain. This necessarily means co-locating equipment on certain towers in prime spots. Further, according to the UK's former Department for Digital, Culture, Media and Sport,[2] the cost of civil works in laying passive infrastructure like ducts and poles tends to be the largest expense incurred when deploying a network. The open-access model allows areas that may not be commercially viable for ISPs to build out a full-fibre network to still be able to enjoy high-speed internet as a significant cost barrier is eliminated. St Helena is one such area with a small population and relatively low disposable income leading to a price-sensitive customer base, so ISPs would need to reduce their installation costs wherever possible.

To effectively implement the open-access model, a telecommunications sector regulator must set the rules for accessing shared infrastructure. For example, the Electronic Communications Code governs infrastructure sharing in the UK. This code makes it mandatory for network operators to share infrastructure like ducts, poles and masts, such that former telecommunications monopolies are now required to share their physical assets with competitors. SHG is in the process of bringing in a telecommunications regulator to monitor developments internationally and propose

[2] Responsibility for digital policy was transferred to the newly created Department for Science, Innovation and Technology in February 2023.

changes with regards to policies governing access to reusable infrastructure in the provision of media services.

The Equiano cable's potential

The Equiano cable fibre pairs are capable of providing traffic capacity of up to 12 terabits per second (Tbps). This means SHG has access to these speeds as it owns two pairs of fibre cables. We learned that SHG is paying for a 100 Gbps traffic capacity in both directions (north and south) but using only 10% of that capacity (10 Gbps). However, the actual speeds available to premises (homes and businesses) depend on the technology used to deliver the broadband connection. It is SHG's aspiration as seen in its invitation to tender's scope of work that at a minimum, the new network will provide at least 95% full fibre coverage along with 5% fixed wireless access to cover hard-to-reach locations. Currently, St Helena consumers have access to residential plans with a maximum download speed of 20 Mbps and less than 1 Mbps upload speed. In the DBT tender SHG specified that the network should be capable of providing speeds of at least 300 Mbps download and 50 Mbps upload per residential premise, and 500 Mbps download and 100 Mbps upload per business premise.

Fibre to the premises was SHG's attempt at a future-proof solution to St Helena telecommunications.

The demand for high-speed internet is rising globally, prompting countries to upgrade their telecommunications infrastructure to gigabit-capable networks. St Helena is no exception: its ambitions to participate in the digital economy depend on establishing reliable and efficient telecommunications systems. Some options for upgrading its network are discussed below.

Fibre to the premises

Under the fibre to the premises (FTTP) deployment, also known as full fibre, technology runs entirely over fibre optic cables to homes and businesses. FTTP can deliver download speeds of one gigabit per second (or 1,000 Mbps), keeping up with the pace of global telecommunications. Building a full-fibre network is a strategic move in anticipation of the escalating demands of a digitally savvy consumer base that could come with new enabling policies.

Some countries without pre-existing copper infrastructure have benefited from progressing straight to full-fibre deployment. In St Helena, the current network infrastructure is a mix of copper, fibre and wireless, but it is an asset owned by Sure and subject to its commercial decisions. As such, SHG cannot plan with certainty for network solutions that rely in part on this infrastructure.

The UK has taken advantage of its existing telecommunications infrastructure to provide speeds above 30 Mbps under the fibre to the cabinet deployment (see below). However, the UK Department for Science, Innovation and Technology anticipates future demand will require faster broadband and is working to replace all copper and deploy FTTP by 2033. In June 2023, the UK government reported over 50% FTTP coverage across the country, with Northern Ireland reporting the highest coverage: 95% in urban areas and 75% in rural. Other countries, mainly those without reliable copper telecommunications infrastructure (such as the Baltic states of Estonia, Latvia and Lithuania) are going straight to full-fibre. While FTTP is more reliable, cheaper to maintain and can achieve gigabit download speeds, it is expensive to build and requires considerable time to deploy.

Fifth Generation (5G) networks

As a complementary network to FTTP, 5G networks support gigabit speeds to subscribers. These mobile networks also rely on a fast broadband network for their ‘backhaul’, which is the connection between a mobile network and the core network. 5G networks require significant investment in new infrastructure, including small cells, antennas and fibre backhaul. The deployment of these new networks can be complex and costly.

Fibre to the cabinet

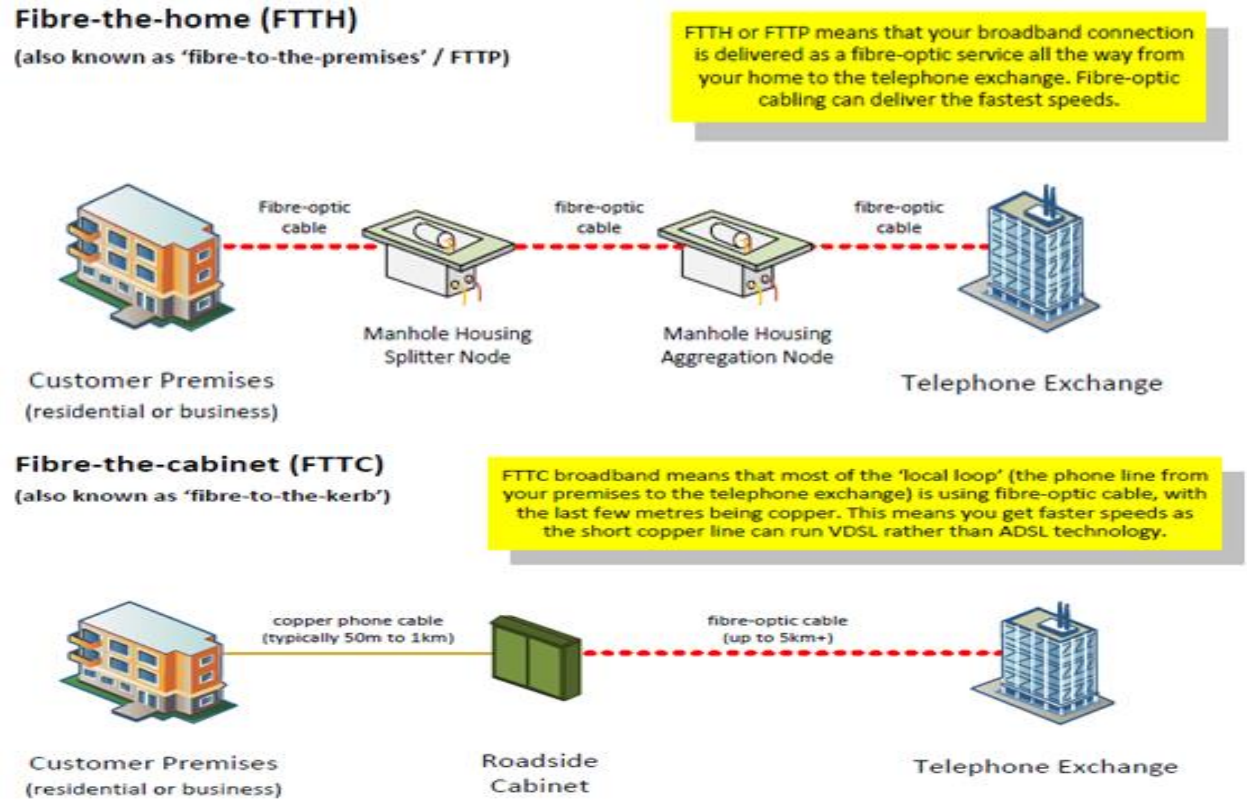
Less costly options include fibre to the cabinet (FTTC), which is often found in places with wider-reaching copper infrastructure and offers a quicker way to deploy the network. FTTC consists of fibre-optic cables running from the ISP to a street cabinet near the user’s location. The connection from the cabinet to the premises is usually completed using existing copper telephone lines. FTTC offers lower speeds compared to FTTP, typically up to 80 Mbps, because the final leg of the connection uses copper which can degrade the signal over distance. FTTC is more widely available in many areas, including the UK, because it employs the existing infrastructure, making it cheaper, quicker and easier to deploy. But the speed offered by FTTC is inconsistent: the further the property is from the cabinet, the poorer the performance.

Very high-speed digital subscriber line

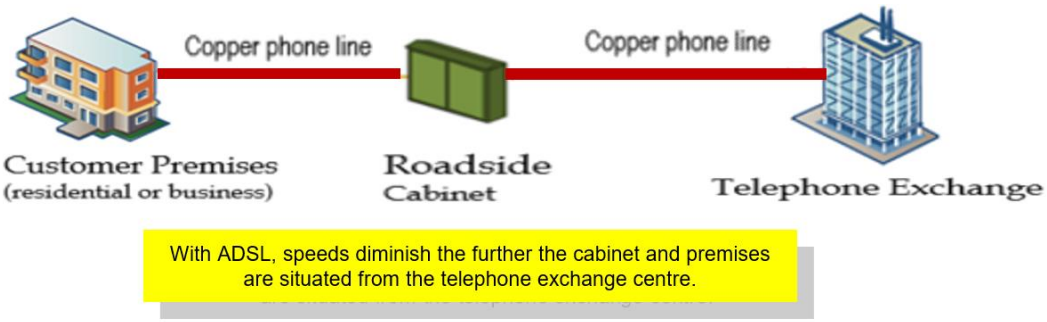
Another deployment option is upgrading St Helena’s current asymmetric digital subscriber line (ADSL) to very high-speed digital subscriber line (VDSL) technology which is governed by line length as boosted by ‘multi-service access nodes’. This can achieve download speeds of 80 Mbps and a theoretical 20-40 Mbps upload speed. It would require masses of small nodes all within a few tens of metres of each property – a considerable investment and with issues for long term maintenance.

Figure 7 further illustrates the FTTP, FTTC, ADSL and VDSL methods for deploying a broadband network (see next page).

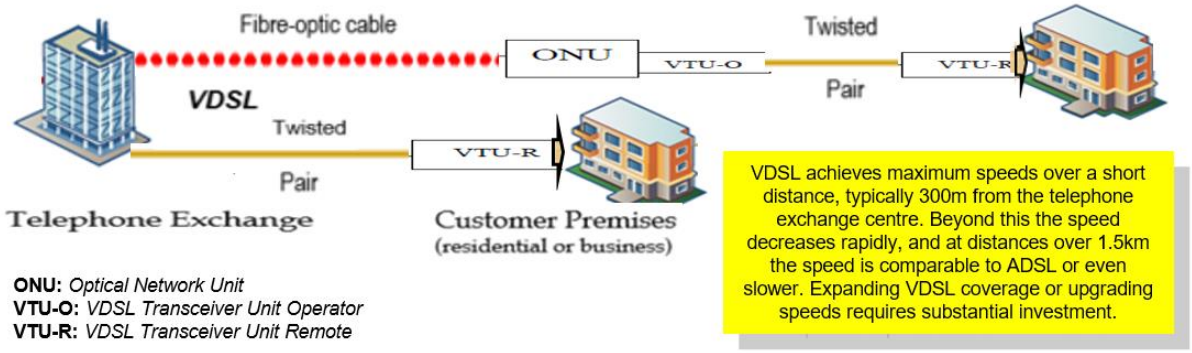
FIGURE 7: ILLUSTRATION OF BROADBAND CONNECTION OPTIONS



Asymmetric digital subscriber line (ADSL)



Very high-speed digital subscriber line (VDSL)



ONU: *Optical Network Unit*
VTU-O: *VDSL Transceiver Unit Operator*
VTU-R: *VDSL Transceiver Unit Remote*

Source: Audit St Helena analysis of thinkbroadband.com and Stanford University materials

The DBT project followed a standard procurement process.

The DBT tender was undersubscribed

SHG's telecommunications consultant (Cube Ultra) advised SHG during the DBT tender process. The tender was publicised on SHG's e-procurement system (In-Tend) and an online tender site that Cube Ultra monitors. The consultant then prompted telecommunications service suppliers to visit these platforms to consider the tender. Three bids were received and two of the bidders were UK telecommunications suppliers.

The bidders were both companies that participated in the DBO tender, including the UK company that withdrew, and Maestro Technologies Limited (another UK company). The UK is also seeking to roll out gigabit-capable networks, meaning the demand for the same services is even higher there which could be one reason the DBT generated relatively little interest among UK-based telecommunications suppliers.

SHG allowed pre-tender communication with the bidders via the In-tend platform in order to provide clarifications. All questions and responses were visible to all bidders to ensure no bidder could gain an unfair advantage. This helped bidders to bolster their bids before final submissions. SHG received the final bids on 10 June 2022 and initiated an evaluation process.

DBT tender evaluation and award

Five SHG officials and consultants from various backgrounds including IT, legal, procurement and telecommunications formed the evaluation team for the DBT tender. Four members evaluated the bids and the procurement officer moderated the evaluation results. The evaluation criteria allocated 80% to quality, with the overall technical solution taking half of this share, and the remaining 20% to price. Maestro's bid scored highest on quality. The highest-priced bid almost doubled Maestro's, which was the lowest submitted.

One bidder's alternative offer

Together with its bid, one of the bidders submitted a best and final offer (BAFO 3) as an alternative to the DBT. In this version, it addressed SHG's DBO redlines with changes and compromises arising from the earlier-offered BAFO 2. SHG assessed this submission as a possible alternative despite the DBO tender process being officially closed. This offer, which would give a private company control over a critical component of economic growth, was rejected mainly because of the proposed pricing scheme.

Contract awarded to Maestro

According to the evaluation team, Maestro's bid demonstrated superiority in the overall solution, was nearly full-fibre supplemented with fibre-like wireless capability and offered a bid price that was nearly half of the highest submitted. In addition, Maestro also promised to facilitate the acquisition of the UK country code (+44) for St Helena mobile subscribers to help address issues with roaming and banking.

Following the moderation of evaluation results and internal approvals, SHG awarded Maestro the tender and the two parties signed a £3.27 million contract on 17 November 2022.[3] The contract term was 12 months, in view of the 31 December 2023 expiration of Sure's licence extension. Although all three bidders promised to deliver the project in 12 months in accordance with the tender requirement, one bidder indicated it would need 6 months after tender signing to bring materials to the island. All things considered, 12 months was an optimistic timeframe considering the administrative and financial documentation required before construction could commence. We have recommended in a past report that SHG take steps to counter optimism bias in its planning.[4]

Project funding

As discussed above, funding for the fibre optic cable network project – from the subsea cable through the cable landing station and DBT contract – came from a variety of sources. See Figure 8 for a summary.

FIGURE 8: FUNDING FOR THE FIBRE OPTIC CABLE NETWORK PROJECT

Funding source	Amount	Purpose
EDF 11	EU€17.2 million	Equiano cable, CLS, DBT project
EU Envelope B	EU€0.6 million	Covid funding authorised for Equiano cable
FCDO / Economic Development Investment Programme	£1 million	DBT project materials, design and staff costs
	£250,000	DBT project management
EDF 9	£1 million	DBT project funding shortfall due to Equiano cable/CLS overrun
SHG General Reserves	£1 million	DBT project

Source: Audit St Helena analysis of information provided by Programme Management Office

[3] As detailed in Part Three, Maestro registered a local company, Maestro St Helena, to contract with SHG.
[4] Audit St Helena, *Performance Audit: The 1, 2, 3 Main Street Hotel Development* (February 2020).

PART THREE
FACTORS THAT CONTRIBUTED TO THE DBT PROJECT'S FAILURE, ITS CURRENT STATUS AND THE PATH FORWARD

SHG overpromised bidders during the DBT procurement and did not fulfil important obligations.

Coordinating local contractors

On 20 May 2022, the government issued a document to all DBT bidders titled Government Coordinated Local Contractors Assistance. In this document, SHG promised to coordinate with local contractors to provide the necessary services and agree on the cost of this part of the network build with them. Bidders through a pre-tender question inquired about the procedure to access poles used for telephone and low voltage power distribution. SHG responded that this was no longer a concern because local contractors would be taking on this issue. Upon arrival, Maestro was told to deal directly with local contractors without SHG's promised assistance. The local contractors were either unavailable or charged prices above Maestro's willingness to pay. For instance, according to Maestro, the standard cabling cost is £2 per metre in other parts of the world but local contractors in St Helena asked for £20 per metre. As an alternative Maestro attempted to hire engineers in South Africa and bring them to St Helena. Due to the timeframes necessary to obtain the police vetting certificates required for immigration clearances, Maestro proposed using digital certificates from an online vetting platform instead. Maestro representatives told us that SHG immigration authorities would not accept these digital certificates and attempts to seek SHG leadership's intervention were unsuccessful.

Planning permissions

The DBT tender scope of work, part of the tender pack issued by SHG, stipulates that the contractor shall support SHG in obtaining all planning and zoning permissions by informing SHG of risks, issues and challenges relating to site acquisition discussions. The wording in this document suggests a supporting role for the contractor rather than a leading one. Maestro indicated it was unaware of its responsibility to seek planning permissions although SHG told us the requirement was informally communicated to the contractor as early as October 2022 when senior members of Maestro were introduced to SHG's Planning team. The lack of planning permission presented serious risks as the work could not start without this approval.

Pole sharing agreement

Item 9.4.2 of the DBT contract scope of work states that SHG as the employer will take the lead in agreeing access to Connect St Helena's (Connect's) poles and pass this access on to the contractor. This arrangement made sense to Connect because a future network operator could be different from the original cable installer but the agreement with SHG would still apply. However, SHG did not convene discussions between Connect's leadership and Maestro until the contract was awarded. When Maestro started mobilising resources, it approached Connect which asked it to produce a risk assessment method statement (RAMS) demonstrating how it would deploy the network equipment safely. Also, despite the impression SHG gave in its invitation to tender, not all of Connect's poles would be available to the contractor and Sure would not sell or rent back any that it owned. As a result, Maestro had to plan for the purchase, importation and installation of up to 420 new poles after budgeting for only 200 in its bid.

In order to be able to assist Maestro with its planning, Connect needed a finalised, sufficiently detailed project design from the contractor but this was never received (discussed further below). Maestro requested the pole sharing format Connect had used before with the incumbent as a guideline but Connect did not have one. This was because the pole sharing agreement is a historic one between predecessors: SHG's former Energy Division had a very basic agreement to share infrastructure with Sure's predecessor, Cable and Wireless, and standard operating procedures were never formally signed. In principle, pole sharing involves health and safety considerations requiring a risk assessment. Both parties – Connect and Sure – would need to satisfy themselves with the proposed RAMS for poles containing Sure's equipment.

Maestro submitted eight versions of the RAMS which were all rejected as insufficient, leading the contractor to conclude that Connect was being unhelpful. Given the informality of Connect's past agreement with Sure, Maestro argued that Connect was applying dissimilar conditions to equivalent transactions with other trading parties, placing Maestro at a competitive disadvantage. Connect's position was that this non-standard practice, while regrettable, was in the past, and it was imperative that such agreements be done right in the present. Connect leadership added that, despite not having a formal agreement with Sure, years of working with the company has proved that their work is at an acceptable standard.

The threat of procurement-related litigation limited communication with Maestro in the project's early months.

Following the 9 September 2022 announcement of Maestro as the preferred bidder for the DBT project, one of the losing bidders contacted SHG to request a detailed explanation as to why both its bid and alternative offer were unsuccessful. SHG

provided the requested clarification and proceeded to sign the contract with Maestro on 17 November. However, 11 days after the contract signing the same bidder raised concerns with SHG about a potential conflict of interest in the DBT tender process. The following month its legal representative issued a second letter reinforcing the bidder's position. The alleged conflict involved an individual whom Maestro listed as a director of its St Helena-registered subsidiary who had previously advised SHG on the DBO procurement as a consultant.

In response, SHG sought legal advice and commissioned an investigation into the alleged conflict of interest and its potential impact. While awaiting the outcome of this procurement challenge, SHG was unable to fully commit to the DBT project. Some officers were advised not to have conversations with Maestro nor to share information with the public, which complicated communication and led to contract frustration. SHG's delayed responses to Maestro's requests hindered progress, as the latter could not advance the project.

According to SHG leadership, this challenge and the subsequent investigation resulted in a period of partial inaction lasting until at least March 2023, approaching one-quarter of the contract term. Despite this significant delay and express advice to reset the contract's end date, SHG did not extend the contract performance period to make up for time lost due to the litigation threat.

Sure would not allow access to ducts in Jamestown for assessment to inform potential use.

In 2012, SHG contracted Sure to provide it with a fibre wide area network (WAN) connecting government premises across the island. SHG paid Sure to design and build the network, which includes ducts installed to convey cables throughout Jamestown, then operate and maintain it for SHG. This agreement extends to the parties' respective successors and permitted assignees.

In 2021, Cube Ultra oversaw a telecommunications infrastructure survey in St Helena and produced a report which was part of the DBT tender pack. The survey was meant to provide technical insight into the recommendation for a full fibre rollout across the island. The resulting report noted that surveyors were denied access to the incumbent's infrastructure, including the ducts in Jamestown. Section 12 of the Telecommunications Ordinance 1989, the ordinance under which Sure's then licence was granted, gives SHG or its representative access to the incumbent's premises to inspect telecommunications infrastructure. While the same section states that any information gained by such inspection shall not be published or publicly made known without the owner's consent, that would not bar SHG from gathering the information for an internal assessment. Thus, if the infrastructure survey report was accurate, Sure's denial of access could be considered non-compliance with local regulations.

Later, during the DBT project, the incumbent stopped SHG's permitted assignee (Maestro) from inspecting Jamestown's ducts to assess them for potential use. Sure told us that (1) Maestro did not first seek permission to gain access and (2) the DBT was tendered as a 'greenfield' project and thus not intended to use existing infrastructure. It should be noted that, under the current regulatory regime, Sure has no obligation to share its privately-owned network.

SHG drafted enabling telecommunications policies that were never operationalised.

The current system of telecommunications services licensing was established 35 years ago in the Telecommunications Ordinance 1989. In anticipation of the coming fibre network, SHG in recent years drafted new ordinances to support its installation and operation. The Communications Ordinance 2022, which introduces the concept of a communications regulator for St Helena, was enacted but not yet brought into force through an order issued by the governor. Similarly, the Telecommunications (Amendment) Ordinance 2023 replaces certain sections of the 1989 ordinance with language that extends the definition of telecommunications service to include fibre optic cable and gives SHG the ability to award a licence to install telecommunications apparatus even though the installer is not an operator. An entity licensed to install such apparatus was given the same powers as one licensed to operate it and provide services, such as access to private properties and exemption from certain planning permissions. Like the 2022 ordinance, this 2023 amendment to the 1989 ordinance was enacted but not yet brought into force.

According to Maestro, the contractor was informed by senior SHG officers that St Helena was undergoing a reform to allow third parties to build, deploy and maintain telecommunications infrastructure. Because these ordinances were not operationalised, Maestro found itself in an ambiguous legal position with respect to the existing regulatory regime and Sure's position as the exclusive telecommunications licensee. Had these ordinances been in force, Maestro's legal certainty would have been greater for planning its work and negotiating with the incumbent.

SHG did not require a pre-tender site visit.

The invitation to tender did not require a site visit before the contract was awarded. Instead, bidders were expected to rely on geographic information system (GIS) diagrams and the Cube Ultra-led infrastructure survey report. Given the terrain in St Helena, this was not the best approach. The other bidders had an advantage because they were familiar with the island and its challenging landscapes. But Maestro had never been to the island, and thus its network designs were based on

desktop simulations. This again caused delays as designs needed to be adjusted after the contract was awarded to suit the terrain.

SHG did not have much experience with the form of contract it chose.

On the advice of counsel in the Attorney General's Chambers, SHG adopted the New Engineering Contract's (NEC4) Engineering and Construction format for the DBT project. The NEC4, established by the UK Institute of Civil Engineers, provides a structured and formalised system for awarding and managing civil engineering, construction and maintenance projects. However, SHG did not have the expertise in-house to manage NEC4 contracts which led to problems as the project proceeded. According to several interviewees, the NEC4 contract guidelines are relatively more prescriptive and less intuitive than other common formats. Because the contract was not well understood by participants it was not strictly followed, especially in the early months of the project.

The contract required a project manager and supervisor to be assigned but neither role was filled permanently in a timely manner.

The NEC4 form of contract requires the employer to fill two key roles: project manager and supervisor. The project manager administers the contract on behalf of the employer and is the designated authority for all instructions, notifications and other communications. The supervisor's sole responsibility is to monitor for compliance with the project's scope and note any defects or deviations. Although there were several tenders after the DBT contract was signed in an attempt to fill these roles on a long-term basis, they encountered difficulties. SHG never appointed a supervisor, and the project manager role was performed on a temporary basis first by a consultant, then by the construction manager for SHG's Economic Development Investment Programme (EDIP) despite the cable project not falling under EDIP. When the latter manager assumed the role full-time in April 2023 he recognised that some NEC4 guidelines were not being followed and tried to realign the project accordingly. Ultimately SHG appointed Moorhouse Consulting as the permanent project manager in June 2023 but by then the DBT project was already in crisis.[5] Maestro's leadership blamed slow response times and habitual unavailability among SHG officers and consultants, which was related to the lack of a permanent project manager as they tried to progress the DBT deliverables.

[5] We were not able to arrange a meeting with Moorhouse Consulting, a private firm whose contract with SHG had expired. However, we discussed Moorhouse's work on the DBT project in our meetings with other participants. Further, we reviewed relevant project board minutes that covered Moorhouse's entire tenure.

SHG did not give Maestro a finalised list of properties requiring fibre connection.

Maestro needed a complete list of properties requiring connection in order to finalise its design with respect to the number of customers to connect, appropriate cable sizes, optimised cable routes and other considerations. However, at the time of contract signing a customised list that identified only the properties SHG wished Maestro to connect did not yet exist. The master list maintained by SHG's GIS section that includes all island properties could be filtered by type of property or structure – e.g. residences, offices, cropland or recreation sites – but still needed to be ground-truthed to determine key pieces of information such as whether residential structures were occupied and how many users were present in commercial buildings. Consequently, the need for a 'sanitised' list by 1 December 2022 was recognised as a compensation event in the DBT contract, which meant that any delay in providing the list could result in additional costs to the employer (SHG) under the NEC4 contract. Maestro and SHG's project manager, assisted by computer mapping and visual inspections from the GIS staff, iterated for months but never agreed on a finalised list. Further, in tender documents SHG indicated that the number of premises to be connected to fibre was 2,377, which later was revised upward to at least 3,000. These additional properties and fixed wireless access designs for hard-to-reach locations led to a £1.23 million increase in the contract price.

Maestro never produced a final project design.

Key SHG stakeholders in IT and the Planning Office expected Maestro's finalised design in the December-January timeframe following the November 2022 contract signing between Maestro and SHG. Maestro initially submitted a GIS map showing where certain infrastructure would need to be installed. To SHG's Planning Office this seemed to be a desktop exercise based on satellite data, rather than any form of physical work such as topographical surveying to determine the given terrain within a particular part of the island.

According to the Planning Office, Maestro's submission for a screening opinion included 17 transmission towers on the southern side of the island where the use of poles and lines to run cable would not be feasible. During this stage, the Planning Office along with representatives from the Environmental Management Division, St Helena National Trust and Roads Section would have visited each proposed site and provided specialist advice on any potential concerns. However, Maestro's screening request never received a final opinion from the responsible planning officer because its submission lacked sufficient detail and thus the exercise was never completed. For example, with respect to transmission towers, Maestro submitted a general map with some coordinates, but did not yet know precisely where the structures would be placed. This ambiguity meant Maestro could not identify the landowners for each

location nor tell whether they would provide clear line of sight for network infrastructure. Thus the screening exercise focussed more on where to put the towers and less on their environmental impacts. Instead, planning officers should have been given detailed site plans to review with elevation drawings that would help determine the proposed towers' visual impact.

The lack of a finalised design also impeded Connect's ability to coordinate with Maestro on a pole sharing agreement, as noted above. Conversely, Maestro's difficulty gaining access to poles and ducts added uncertainty that made designing the network more difficult, as did the lack of a finalised list of properties requiring connection.

SHG never approved a final design from Maestro, but did accept a detailed draft with several caveats on 20 April 2023. One such caveat stated that "the level of design for the Active equipment needs to be improved" with "a system architecture drawing… with labelled equipment" requested by 20 May; no further full drafts were received. Ultimately SHG paid Maestro £78,600 for staff costs related to network design.

Maestro struggled to deliver two instruments of assurance required by SHG.

Ultimate holding company guarantee

SHG's invitation to tender specified that tenders should be submitted by the same provider that would ultimately supply goods and services, with no substitution unless SHG gave prior written approval. However, after the preferred bidder (Maestro Technologies Limited) was awarded the contract it registered a new local company, Maestro St Helena, which then entered into a contract with SHG. This move to establish Maestro as a long-term presence on the island was done after consultation with SHG officers and may have benefitted both parties, improving Maestro's position for the eventual tender to operate the network (Lot 3) and providing local tax revenue to SHG. However, it necessitated extra assurance in the form of an ultimate holding company guarantee (UHCG). A UHCG is a means of safeguarding against inherent commercial risks such as the contractor being unable to fulfil its obligations in the contractual relationship. NEC4 option X4 prescribes that if the contractor is a subsidiary of another company, the parent company should provide the UHCG assuring the employer that if the subsidiary fails to deliver the contract, the parent company will complete the work. In December 2022 Maestro submitted a UHCG which SHG could not accept citing the holding companies' structure. It took Maestro and SHG 8 months to agree on a satisfactory structure for the holding companies' ownerships, thus slowing progress on the project.

Performance bond

A performance bond is an additional security against a contractor's failure to perform. It works like an insurance policy where a third party promises to compensate SHG a percentage of the contract price if the contractor falters. The contract between SHG and Maestro stipulated that the contractor shall provide a performance bond of 30% of the tendered sum. This bond was high compared to general industry standards, e.g. 10% of the contract price, and atypically it was not set to decline as construction milestones were met. The Cube Ultra consultant who advised on this element of the contract told us both attributes were intentional, to provide SHG with extra assurance given past issues with insufficient performance bonds and troubled capital projects.[6] The agreed percentage exposed the contractor to financial pressure as the higher the value of the required bond, the higher the premium the contractor's surety will require.

In August 2023, 9 months into the contract term, Maestro claimed to have secured the bond but would not release it to SHG until the two parties agreed on a new contract term. It was apparent that Maestro could not deliver the project within the last 3 months of the contract term, and thus releasing the bond at the time it was already collectable would pose a major risk for the contractor. The parties could have agreed to reset the contract term if the bond were belatedly provided, extending the performance date to give the contractor a new opportunity to meet it (as Cube Ultra recommended and Maestro agreed). Further, the parties could have considered other forms of security such as registering an interest in Maestro's assets, thus placing a lien on the asset.

Those alternatives notwithstanding, the contract was clear on the requirements for the performance bond and SHG was under no obligation to amend it. A performance bond is a critical component of NEC4 contracts. It was discussed at the board level for more than 6 months before Maestro claimed to have secured it. When the bond was not given within the required time – 4 weeks after the November 2022 contract date – SHG had the right to terminate the contract under sub-clause R12. However, SHG waited for more than 10 months to terminate the contract for this reason. Officers considered proceeding with the contract via an extension of the performance period or other amendment, but were advised that opening such a dialogue could invite litigation.

[6] See, for example, Audit St Helena, *Investigation: The Bulk Fuel Installation Project* (September 2020).

The governance arrangements and practices for the DBT did not provide adequate scope for controlling, directing and monitoring the project effectively.

The Fibre Optic Cable and Satellite Ground Station Project Board detailed in Part Two last met on 1 December 2022. At that meeting, members agreed that the work being undertaken by Maestro should be governed by a separate board. However, according to the Head of the Programme Management Office, there was no clear governance before the PMO became involved in March 2023, as the structure outlined in the November 2022 contract was unworkable. With advice from the PMO the Fibre Optic Telecommunications Infrastructure (FOTI) Project Board was soon established to provide direction, control and monitoring of the DBT project. As that project began to falter, two additional workgroups – Telecommunications Contingency Planning Groups 1 and 2 – were assembled to explore contingencies available for SHG should the contractor fail to deliver the project on time.

Fibre Optic Telecommunications Infrastructure Project Board

In April 2023 SHG established the FOTI Project Board to oversee the DBT project. This body was established to provide strategic direction and management, take responsibility for the realisation of benefits and monitor risks, quality and timeliness. The board's first meeting was 20 April 2023; the DBT tender was issued in April 2022 and the contract was signed on 17 November 2022, thus this project-specific governance board began meeting about 5 months into the project's 12-month term and almost a year after the project tender. (SHG indicated that the losing bidder's procurement challenge was a key reason a governance board was unable to be formed during the initial months of the contract.) Further, there was no approved business case or budget in place to guide the project board once established. The board continued meeting about once per month through August 2023.

The board's terms of reference pass the decision-making authority to a few individuals – the Executive as supported by the Senior User and Senior Supplier – as opposed to collective decision-making. The board's members were as follows:

- Capital Programme Manager (Project Assurance)
- Chief Digital Officer (IT Section Manager as Senior User)
- Financial Secretary (Project Executive and Chair)
- Interim Project Manager (Client Lead)
- Maestro Chief Operations Officer (Senior Supplier)
- Minister for Treasury, Infrastructure and Sustainable Development (Political Representative)
- Governor's Office (Project Assurance)
- UK Foreign, Commonwealth and Development Office (Project Assurance)

- Programme Support Officer (Board Secretariat)

Critical stakeholders like SHG's Financial Secretary, Chief Digital Officer and Capital Programme Manager were included. However, other key stakeholders like SHG's Planning Office, Procurement Office and Connect were not represented.

Telecommunications Contingency Planning Group 1

In the shadow of the losing bidder's procurement challenge, and as it became apparent that Maestro would not be able to deliver the project on time, a contingency planning group was formed around March 2023 to anticipate risks and possible mitigations for the worst-case scenario. This group was set to identify contingencies for project delays and completion, funding alternatives and Sure's licence extension, and assess what could be done to maximise the benefits of the cable investment and intended outcomes.

Members:

- Capital Programme Manager
- Chief Digital Officer (IT Section Manager)
- Chief Economist
- Chief Secretary
- Financial Secretary
- Deputy Financial Secretary
- Head of Programme Management Office
- Strategic and Social Policy Coordinator

Telecommunications Contingency Planning Group 2

A second group was formed around August 2023 to identify further contingency measures as the DBT project continued to struggle. This group developed options for a new network and a successful interim arrangement with Sure.

Members:

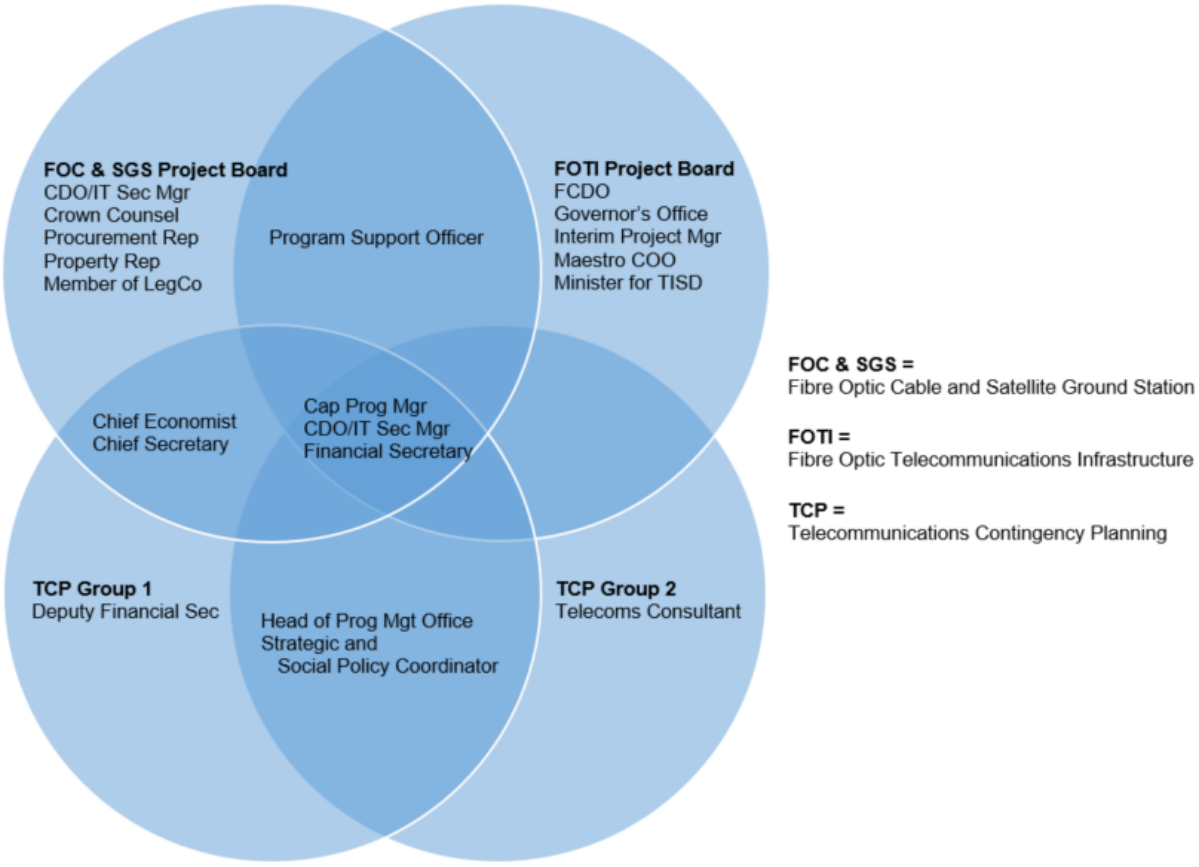
- Capital Programme Manager
- Chief Digital Officer (IT Section Manager)
- Financial Secretary
- Head of Programme Management Office
- Strategic and Social Policy Coordinator
- Telecommunications Consultant

Cross-board memberships

As detailed above, the Financial Secretary, Chief Digital Officer/IT Section Manager and Capital Programme Manager were members of all four project boards and workgroups (see Figure 9). This level of cross-board memberships tends to affect the boards' independence and creativity. Members who sit on multiple interlinked boards can dominate meetings as they are presumed to hold superior information about the project. The most serious limitation is when one of these boards reports to the other: because such members participated in decisions made by the subsidiary board, they can influence decisions to advance their ideas. This can lead to self-serving decisions and discourages fresh ideas at the expense of the organisation.

However, SHG drew benefits from cross-board memberships as well. For example, having the Financial Secretary on multiple boards allowed him to fulfil his duties as the EU Territorial Authorising Officer for cable grant funding and accelerate related decision-making. Also, cross-membership may allow for more informed deliberations as board members gain a deeper understanding of operations, risks and opportunities from retained institutional memory.

FIGURE 9: ILLUSTRATION OF CROSS-BOARD MEMBERSHIPS



Source: Audit St Helena analysis

Telecommunications Programme Board

In May 2023, a higher-level body was established – the Telecommunications Programme Board (TPB) – to drive the suite of cable-related projects forward, ensure delivery of their intended outcomes and benefits, apply lessons learned and maximise value for money through consistent oversight. The board's composition included senior leaders with appropriate decision-making authority at the strategic level. These included the Chief Secretary (Chair), Governor, Chief Minister, Financial Secretary and Attorney General as core members and Head of the Programme Management Office, a programme manager and a board secretary as non-core members.

The board discussed critical issues such as funding, satellite ground station licensing, continued telecommunications services provision and changes to the operating environment needed to keep pace with evolving technologies. The board also reviewed challenges escalated from the project level, such as the pole sharing agreement with Connect, the performance bond and subsequent decisions on how to progress with the project. This version of the TPB stopped meeting after the DBT contract turned into a legal dispute with Maestro and the Attorney General assumed

responsibility for its resolution. Later the TPB's membership was largely reconstituted and meetings resumed in June 2024 with the Portfolio Director of Economic Development as its chair.

The Electronic Communications Consultative Committee

A final telecommunications governance board with a stake in the project is the Electronic Communications Consultative Committee. According to its terms of reference, the board was established in 2013 to review and report on the status of telecommunications services on the island, monitor compliance with licence terms and advise the government on telecommunications matters. This board's composition evolved over time: it currently consists of SHG's Financial Secretary (Chair), Chief Digital Officer and Technical Regulatory Consultant along with Sure's Chief Executive Officer, Legal and Regulatory Director and Networks Manager.

SHG anticipated and communicated project risks but failed to effectively mitigate them.

Major risks identified at the FOTI Project Board (DBT) level included delays, unavailability of Sure's assets for reuse, wayleaves and access to poles, and identifying critical stakeholders. Issues raised included the need for a pole sharing agreement, Maestro's performance bond, Connect's response times and obtaining permissions to install telecommunications apparatus on-premises. These issues were recorded in the risk register by the project manager and consultant. The risks would then be discussed and, if not resolved, recorded in an early warning register and communicated to the responsible party.

Despite having documented mitigation measures, the board neither implemented solutions nor suggested alternatives for risks that were seemingly difficult to resolve. For example, using the equivalent of UK Electronic Communications Code powers to access infrastructure like Connect's poles or engaging with all affected land owners to establish a general right of access were listed as possible mitigations in the risk register to facilitate infrastructure sharing and wayleaves, respectively, but were never implemented. This contributed to DBT project failure as the board was operating more like a scrutiny board rather than a decision-making unit.

More generally, SHG missed several opportunities to advance the project by exercising authorities found in strategic documents, policies and ordinances to remove regulatory barriers. For instance, the Land Development Control Plan expressly prioritises granting development permissions necessary to build structures required for island telecommunications. Further, sections 13 and 14 of the current Telecommunications Ordinance permit a telecommunications utility to enter any land to construct and maintain lines or conduct related work like attaching wires to buildings. This concurs with section 5 of the Land Acquisition Ordinance, as read

with section 16 of the Land Planning Development Control Ordinance, which empower the Governor in Council to declare that a certain parcel of land is needed for a public purpose (followed by an acquisition process) and, by General Development Order, to specify types of development deemed to have been granted development permission. Similarly, a project-specific ordinance could be enacted that streamlines planning approval, giving broad rights to enter property and access utility infrastructure owned by Connect and Sure.

Other challenges encountered during the DBT project include incomplete planning information and the nature of St Helena's telecommunications market.

Lack of detailed island-wide master plan

SHG does not have a detailed master plan for the island: instead, it has a Land Development Control Plan that provides regulations for specific developments in a zoned area (and expired in 2022). Unlike a development control plan, a master plan is a statutory land-use plan which guides the physical development of a district, town, city or province over the long term, usually covering a time frame of about 10 to 15 years into the future. It generally shows the permissible land use and density for development earmarked for a particular location. A master plan helps to achieve integrated development by prompting infrastructure planning thus fostering efficient land utilisation and considering the environmental sustainability of the permissible development. Planning permissions waiver can be granted for structures meeting the development criteria set for the location thereby eliminating the regulatory barrier.

Exclusivity in St Helena's telecommunications sector

St Helena issued a 10-year exclusive telecommunications licence to Sure to provide telecommunications services from January 2013 through December 2022 (later extended). The licence was issued under the Telecommunications Ordinance of 1989. Under this ordinance, no other operator is permitted to provide telecommunications services in St Helena unless this provision is to a single private property (with a few exceptions for Crown operations). This presented challenges, as Sure's 10-year licence was, to a large extent, static with few mechanisms for enforcing regular improvements that kept pace with global trends in the digital sector. This contributed to the digital divide between the island and the rest of the world as technological improvements could be implemented only where it was economical for the licensee to do so.

SHG terminated the DBT contract and is now prioritising the legal and regulatory framework over a near-term technological solution.

SHG issued a notice of termination to Maestro on 30 October 2023, citing the lack of a performance bond required by the contract. Earlier that year, while the performance bond was still being pursued, SHG authorised Maestro to order £508,733 of fibre optic cables, poles, tools and other materials. Maestro pre-purchased the materials in March 2023 to avoid construction delays, as SHG's shipping contract was expiring without a solid continuation plan. We were told there was an incentive to use the funds before the conclusion of the financial year, which otherwise could have resulted in the funds being unavailable. We were further told that these materials could still be used should SHG decide to engage another contractor, assuming that contractor adopts a compatible network design.

A mutual 'drop hands' settlement was agreed between SHG and Maestro in March 2024 where both parties were discharged of their respective obligations associated with the DBT contract. According to both SHG and Maestro, no other payment was made by either party beyond (1) the £508,733 that SHG reimbursed Maestro for the fibre cables, poles, tools and other materials it purchased on SHG's behalf and (2) a further £170,000 in staff costs including work on network design, for a total of £678,733. This amount was funded out of a £1 million contribution from SHG's Economic Development Investment Programme. See Figure 10 for details about the payment to Maestro.

FIGURE 10: PAYMENT TO MAESTRO

Description	Amount
Material costs	£508,733
Cables	*403,496*
Tool and installation equipment	*70,437*
Poles	*34,800*
Staff costs	£170,000
Project management	*81,600*
Design (fibre and wireless)	*78,600*
On island support	*9,800*
Total	**£678,733**

Source: Cube Ultra payment memo for SHG

At the time of this report, the planned fibre rollout has been halted while SHG prioritises the development of a more robust legal and regulatory framework for telecommunications. Only after this framework is established does SHG intend to make decisions on improving connectivity. Presently, a date to achieve these milestones has not been set. However, the reconstituted Telecommunications Programme Board has set about developing the legislation and policies that will inform SHG's strategy. A key consideration will be what mix of current network

upgrades, new technologies and improved licensing is most appropriate. Meanwhile, Sure’s licence has been extended until December 2025 subject to a 6-month notice period for further extensions or other changes.

PART FOUR
WHAT INFORMS SHG'S ASPIRATIONS FOR THE CABLE NETWORK

This part takes a closer look at two aspects of SHG's cable project management: stakeholder engagement and the continued relevance of its Digital Strategy.

SHG did not sufficiently engage stakeholders in the DBT project, missing an opportunity for buy-in and support that would have helped this island-wide project to progress more smoothly.

As the subsea cable agreement was being pursued and implemented, SHG proactively gathered information from stakeholders about their minimum expectations ('essential outcomes' or 'needs') and more aspirational hopes ('delighters') for the new technology. Through public consultation, survey and focus group, SHG solicited opinions from key departments – such as Corporate Support, Education, Health and Safeguarding – as well as from island residents and the business community. One such group was St Helena Connected, headed by the then-chair of Legislative Council's Economic Development Committee and including representatives from SHG, Sure, Bank of St Helena, Enterprise St Helena and the Chamber of Commerce. See Figure 11 for examples of specific 'asks' that were conveyed during this engagement.

FIGURE 11: EXAMPLES OF NEEDS AND DELIGHTERS ACCORDING TO SHG, BUSINESS AND RESIDENTIAL RESPONDENTS

Respondent	Essential outcomes	Delighters
Corporate Support	Live streaming of formal LegCo meetings and enhanced video links for Judicial Services.	(none)
Education	Speeds that would support online teaching packages (e.g. 20 Mbps download and 5 Mbps upload).	Rollout of laptops to all schoolchildren.
Health	Video conferencing for medical specialist examination by professionals in other locations around the globe (telemedicine) and remote mental health / counselling support services.	Increased use of robotic operative technologies and remote supervision of procedures allowing on-island staff to undertake medical intervention that might otherwise be unacceptably risky.
Safeguarding	Minimum 10 Mbps internet package, which would enable remote monitoring and high-definition video consultations.	(none)
Business community	Ability for accommodation providers, restaurants, clubs and library/college to provide complimentary Wi-Fi. Ability for those dialling St Helena internationally to be able to get through.	St Helena websites being able to take payments online (as opposed to relying on bank transfers).
Residents	Able to stream video freely in at least two rooms in one household at the same time. Able to receive overseas texts rapidly enough for real-time authentication services.	St Helena as a digital hub: satellite ground stations, strong financial services industry, call centre services, gaming centres and gig economy.

Source: Audit St Helena analysis of SHG data

Beyond this consultation, SHG kept the public informed through a series of press releases. These communications ranged across each phase of the full project, from agreement with Google for the Equiano branch through landing the cable, completing the landing station, selecting a preferred DBT bidder and signing the contract. The press releases were detailed and at times solicited public feedback.

The outreach summarised above indicates that by the time of DBT contract signing in November 2022, SHG had made a concerted effort to understand the requirements of the full project. It subsequently delivered the subsea cable and landing station while coordinating with relevant stakeholders. However, as detailed in Part Three and briefly recapped here, there was less outreach to key stakeholders

that would be critical to the final phase of the project's success: Connect, the Planning Office, Sure and on-island contractors.

Connect. The utility's first involvement with Maestro on the cable project was in October 2022 when it had an initial visit with the contractor's CEO. Before then, Connect's leadership was unaware that the project was going forward. Because they had not been consulted during SHG's discussions with Maestro prior to contract signing, they assumed Connect would have no involvement. They learned from press releases in local media when Maestro's work would be starting.

Planning. The Planning Office did not participate in telecommunications project planning: it was not involved before the tender, and was brought in only when Maestro was ready to begin construction work. In late 2022, around the time of contract signing, a Planning Office representative informed Maestro's leadership that they would need to submit a master plan for the cable network project. Because the project never proceeded through the planning process, there was no opportunity for the public to scrutinise Maestro's plans.

Sure. Most of SHG's engagement with Sure was focused on licence renewal; Sure had minimal engagement with SHG's chosen contractor. Sure's position was that, per the tender, Maestro was contracted to build an entirely new network and thus should not need to rely upon Sure's existing infrastructure. Further, Sure could not share its private assets that eventually could be transferred to SHG, given the risk of damage to those assets and service disruption. Sure pointed out that Lot 3 (the ISP tender) had not been released and could potentially require its own infrastructure if it chose to enter that tender for future provision of services. Finally, Sure's agreements with landowners are not transferable to third parties. From Sure's perspective, this left little to discuss.

On-island contractors. In a May 2022 tender clarification SHG proposed coordinating with local contractors on behalf of the chosen contractor, offering to arrange subcontractors and agree on costs for their work. However, according to Maestro's leadership, upon their arrival in St Helena later that year they were advised to deal directly with local contractors. Ultimately this was unsuccessful due to the quoted cost of labour and limited availability.

Some of the Digital Strategy's objectives have been met but it has not been reviewed and updated to reflect the changing needs, developments and opportunities in the digital world.

SHG's Digital Strategy was published in 2017, the same year as the MoU with SAEx for a subsea cable branch. The strategy prioritised improved connection speed, increased download capacity and decreased cost to the consumer through increased revenue streams from sources such as satellite ground stations. It anticipated

benefits to the economy, education, health delivery and public services. It further anticipated subsea cable connections and concluded that such technology would be the only way of achieving “affordable, reliable and quicker broadband”.

Even without the on-island cable infrastructure, many of the Digital Strategy’s priorities have been addressed. According to SHG’s Chief Digital Officer, connection to the subsea cable has produced significant improvements for the hospital, community care centre, schools and the Castle, with download speeds increasing from 5, 7, 10 and 10 Mbps to 100, 100, 300 and 200-plus Mbps, respectively. Moreover, after negotiations with SHG, Sure introduced new broadband packages in October 2023 offering more data and faster speeds at lower prices, along with a social tariff and two packages with uncapped data. Finally, one satellite ground station is under construction and a second is being pursued.

Notwithstanding this progress, multiple stakeholders told us the 2017 strategy sets the bar too low given current world standards. While it was intended to be reviewed and monitored on an annual basis, there has been no formal update since 2017 despite the fast-evolving technologies in the telecommunications sector and the new opportunity presented by the Equiano cable. Others said the strategy’s objectives are realistic given the limited funding available to support infrastructure upgrades. Whatever technical solution and level of ambition Ministers ultimately endorse, stakeholders encouraged SHG to articulate its vision and requirements more clearly in the next cable network tender.

CONCLUSIONS AND RECOMMENDATIONS

The arrival of the Equiano subsea cable saw a significant improvement in the telecommunications services on St Helena. Before connecting to Equiano, St Helena users were sharing limited bandwidth from satellite technologies which was far below the current 10 Gbps. Now, Sure's new broadband packages mean that business and residential customers are paying less for greater access at faster speeds.

Without downplaying the quick wins from the Equiano going live, more work needs to be done to upgrade the island's telecommunications network system to unlock the full value of SHG's investment in the subsea cable. Currently, SHG is paying for a traffic capacity of 100 Gbps in each direction but utilising only 10% of this total because of the limitations of the incumbent's existing copper infrastructure. Moreover, the majority of residential users are experiencing download speeds below 10 Mbps and upload speeds below 1 Mbps, which fall short of EU milestones specifying at least 17 Mbps for residential properties. Meanwhile, the growth of the digital economy has generated demand for high-speed internet beyond what was envisioned in the EU milestones and SHG's 2017 Digital Strategy. The majority of countries keen to participate in this multibillion-dollar economy are upgrading their telecommunications infrastructure to gigabit-capable networks.

With the Maestro contract terminated, SHG's next move remains unclear. SHG has engaged consultants and is currently developing needed regulations for the telecommunications sector. In doing so it should take a proactive role in rationalising its regulatory regime, eliminating barriers to development while empowering a regulator for a sector whose small customer base may require exclusivity within an economy that otherwise prefers competition. The government should also make every effort to use the half-million pounds' worth of materials it has already purchased in the network project's next iteration to avoid wasting public funds, but not in an inflexible way that dictates the choice of technologies.

More broadly, once SHG selects its preferred approach, it must do everything possible to ensure the project's success. This means choosing a realistic delivery timeframe free of optimism bias and assigning staff who are responsible for managing the project from before contract signing. These staff should help to facilitate all aspects of the contract requirements, from planning permission to infrastructure sharing to coordination with local subcontractors, regardless of which project partner is assigned to lead. The appropriate governance structure must be in place from the start, like what the PMO designed for the DBT but only after it was belatedly given this responsibility several months into the project's 12-month term. SHG must engage all key stakeholders during the planning stage, and the type of contract must be appropriate for the experience and expertise of those who will be responsible for implementing it. When unexpected challenges occur, the bias should

be towards finding a mutually acceptable solution rather than adhering to the original contract without amendment. Finally, SHG must commit to wielding its significant powers to clear obstacles in a manner befitting a national government engaged in building critical infrastructure.

We have identified the following recommendations for SHG:

1. To revive the momentum of the cable network project and further enhance St Helena's connectivity, SHG should:

    a. Publish in the FY 2025 edition of the Economic Development Portfolio's Strategy and Delivery Plan specific targets and a timeframe for (1) the new telecommunications regulatory framework, including necessary ordinances and the appointment of a regulator, and (2) a decision on any technological solution.
    b. Ensure that the next telecommunications licence (or extension) is issued under the new regulatory framework.
    c. Update its 2017 Digital Strategy to reflect new ambitions, opportunities and technologies.

2. To avoid the need for additional assurance, such as an ultimate holding company guarantee, SHG should adopt a policy of signing contracts only with the entity that submitted the winning bid and received all relevant internal approvals unless the Procurement Board gives its express permission to do otherwise.

3. To ensure consistency and quality across strategic projects, and to leverage the skills and experience incumbent in its staff, SHG should begin each strategic project with the assumption that the Programme Management Office will lead on planning, governance and project management unless the Chief Secretary documents a written rationale why it would not be appropriate for that project.

4. To ensure the streamlined execution of strategic projects, SHG should develop a comprehensive and realistic project plan with clear objectives, deliverables, timelines and key milestones. The planning stage should be a cross-governmental enterprise, with each relevant portfolio, department or section availing its expertise, whether regulatory or procedural.

5. To align expectations, raise public awareness and reduce resistance in the implementation phase, SHG should engage critical stakeholders such as utilities, affected companies, major landowners, relevant portfolios and the general public as early as practicable when planning island-wide strategic projects.

6. To facilitate telecommunications projects and avoid inefficient duplication, SHG should adopt a UK-style policy equivalent to the Electronic Communications Code that makes it mandatory to share physical infrastructure like poles, ducts and transmission towers, assuming compliance with established standards. Such an approach may also be desirable for other utilities, such as electricity and water.

APPENDIX ONE: OUR APPROACH AND EVIDENCE BASE

Our four key lines of enquiry:	**1. How has SHG planned, managed and governed the cable network project thus far?**	
	Divided into key sub-questions:	• What was considered in selecting a fibre optic cable delivery partner? • Was the selected option the best in respect of value for money? • Was the input from all stakeholders considered at early stages of the project? • What, if any, significant issues arose during the procurement process? • What governance arrangements are in place to ensure the achievement of value for money?
	2. How effectively is SHG ensuring that the cable network project's strategic, operational, procurement and contract risks are properly understood, scrutinised and mitigated?	
	Divided into key sub-questions:	• How are project risks identified and communicated? • Which risks and risk factors were identified throughout the project life? • What mitigations were put in place? • Is there a continuity plan after the expiry of the current 18-month contract with Sure South Atlantic?
	3. Are SHG's cable network operational arrangements sufficiently supportive of islanders' economic wellbeing?	
	Divided into key sub-questions:	• What are the rights and obligations relating to the fibre optic cable ownership between SHG and delivery partners like Google, Telecom Egypt and the on-island internet service provider once selected? • In the original plan, what other ISP options are available to SHG once the infrastructure work is completed? • What is the ideal internet speed (capabilities) for this fibre optic cable technology? • How does the final internet cost for islanders compare to other regions?

		• How will SHG balance the quality of service for all and the need to recover maintenance costs? • Has a robust costing model been developed to recover the maintenance costs going forward? What makes up the components of the model? How will this be monitored?
	4. Is SHG effectively engaging with partners, businesses and stakeholders in its management of the cable network project?	
	Divided into key sub-questions:	• How did SHG ensure stakeholder engagement and that their concerns are considered in this project? • Has SHG's Digital Strategy been reviewed, updated and monitored on an annual basis as indicated in the 2017 version of the document to meet changing digital needs?
Our evidence base:	To answer these questions, we researched, reviewed, compared and analysed the following documents and data: **From SHG,** the island's updated 10 Year Plan, Vision and Strategy 2022-2025, Digital Strategy 2017, 2030 Vision and Infrastructure Plan, Sustainable Economic Development Plan 2018-28, Sustainable Economic Development Strategy 2023-2033, TISD Portfolio Strategy and Delivery Plan 2021-2024, Economic Development Portfolio Strategy and Delivery Plan 2024-2027, Telecommunications Ordinance 1989, Communication Networks and Services Policy 2020, Communication Ordinance 2022 and Telecommunications (Amendment) Ordinance 2023 (not in force), Cable and Telecommunication Needs and Delighters, Land Acquisition Ordinance 2006, Land Development Control Plan 2012-2022 and Land Planning and Development Control Ordinance and Regulations 2013; MoU with SAEx, Google contract and partial novation agreements, Maestro contract, Fibre Capacity Agreement with Telecom Egypt, tender documents for DBO and DBT, and inventory of materials Maestro handed over to SHG; SHG budget books, financial statements and relevant invoices; sessional papers, terms of reference and minutes of various project boards and workgroups. **From Maestro,** detailed designs, planning application reports, Early Warning Register and correspondence with the following: Financial Secretary, interim project manager, Sure, Attorney General's Chambers and the Governor; and a sample UK framework agreement for pole sharing.	

	From project consultants, fibre to the home designs and subsequent reviews, project plan (including proposed clusters and spine route), handover note and accepted detailed designs. **From the UK government and other overseas sources**, Communications Act 2003, Communications (Access to Infrastructure) Regulations 2016, Digital Economy Act 2017, Product Security and Telecommunications Infrastructure Act 2022 and European Union Regulation 2024/1309; International Telecommunication Union publications; Department for Digital, Culture, Media and Sport reports; Ofcom and National Audit Office reports. Throughout our work, we engaged with SHG officials like the Chief Secretary, Financial Secretary and Chief Economist, as well as officers from the Attorney General's Chambers, Economic Development, GIS, IT, Planning, Programme Management Office and Procurement; a representative from Cube Ultra; and key stakeholders like Connect, Maestro and Sure. Finally, we reviewed other sources to inform our thinking, such as academic and technological literature for relevant topics like performance bonds in construction contracts, broadband connection options and infrastructure sharing practices abroad. From this evidence base and analysis we were able to address our key lines of inquiry and draw conclusions as stated in this report. We conducted our audit work through August 2024, followed by an extensive draft review and comment period with multiple officers across SHG as well as Connect, Maestro and Sure prior to publication.

APPENDIX TWO: RECOMMENDATIONS SUMMARY

Number	Recommendation
1	To revive the momentum of the cable network project and further enhance St Helena's connectivity, SHG should: a. Publish in the FY 2025 edition of the Economic Development Portfolio's Strategy and Delivery Plan specific targets and a timeframe for (1) the new telecommunications regulatory framework, including necessary ordinances and the appointment of a regulator, and (2) a decision on any technological solution. b. Ensure that the next telecommunications licence (or extension) is issued under the new regulatory framework. c. Update its 2017 Digital Strategy to reflect new ambitions, opportunities and technologies.
2	To avoid the need for additional assurance, such as an ultimate holding company guarantee, SHG should adopt a policy of signing contracts only with the entity that submitted the winning bid and received all relevant internal approvals unless the Procurement Board gives its express permission to do otherwise.
3	To ensure consistency and quality across strategic projects, and to leverage the skills and experience incumbent in its staff, SHG should begin each strategic project with the assumption that the Programme Management Office will lead on planning, governance and project management unless the Chief Secretary documents a written rationale why it would not be appropriate for that project.
4	To ensure the streamlined execution of strategic projects, SHG should develop a comprehensive and realistic project plan with clear objectives, deliverables, timelines and key milestones. The planning stage should be a cross-governmental enterprise, with each relevant portfolio, department or section availing its expertise, whether regulatory or procedural.
5	To align expectations, raise public awareness and reduce resistance in the implementation phase, SHG should engage critical stakeholders such as utilities, affected companies, major landowners, relevant portfolios and the general public as early as practicable when planning island-wide strategic projects.

Number	Recommendation
6	To facilitate telecommunications projects and avoid inefficient duplication, SHG should adopt a UK-style policy equivalent to the Electronic Communications Code that makes it mandatory to share physical infrastructure like poles, ducts and transmission towers, assuming compliance with established standards. Such an approach may also be desirable for other utilities, such as electricity and water.