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|  | **Moorwell**  **Fire Detection System**  Specification for goods |
|  | Landscape-BlueonWhite |
|  | January 2021 |
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# 1. List of Drawings and Reference Materials

Annex 1 : Moorwell Site Plan

# 2. Specification

The Council of the Isles of Scilly seeks a specialist contractor to design, install and commission a comprehensive and effective Fire Detection System (FDS) in accordance with the current British Standard BS5839-1 (2017) for the Council’s operational services and waste site at Moorwell, St Mary’s, Isles of Scilly.

Moorwell is a secure Council site which includes the following Operational Services functions;

* Household Waste and Recycling Centre
* Waste Transfer Station (storage and processing of waste)
* Carpenters workshop
* Engineering workshop
* Vehicle, plant and equipment storage
* Waste site office
* Weighbridge office
* Staff welfare facility

The Fire Detection System will be compliant with BS5839-1 and will take into consideration the fire detection options outlined below:

A comprehensive and effective fire detection system should be installed in accordance with BS 5839 pt1. Consider a combination of thermal imaging cameras as an early warning system for temperature monitoring of the surface temperature of the storage piles within receiving halls alongside the use of infrared flame detectors for actuation of fire protection systems upon detection of fire. Infrared flame detectors are designed to detect and respond to the presence of a flickering visible flame or fire.

The potential impact of stratification within lofty buildings is also to be considered at design stage for the fire detection system. This has the potential to impair the timely actuation of the fire detection system. Many modern lofty buildings can be affected by stratification. The phenomenon of smoke stratification caused by thermal gradients is well known and understood. In tall buildings of height 40 feet (12m) and up, stratification effectively prevents smoke from rising high enough or quickly enough to reach ceiling-mounted detectors level until the fire has reached conflagration stage.

Optical beam detectors – which work on the principle of light obscuration - are also sometimes considered for this industry. The photosensitive element of the optical beam detector sees light produced by the transmitter in normal conditions. The receiver is calibrated to a preset sensitivity level based on a percentage of total obscuration. There are two general types of optical beam smoke detector – projected and reflective. The type used will be dictated by the installation and environment conditions and constraints. Beam-type smoke detectors suffer from several disadvantages. Being relatively insensitive, such detectors typically provide delayed warning relative to other detectors. Also, beam detectors rely to a high degree on perfect beam alignment. Modern steel frame buildings flex in response to solar heating and wind pressure, and this can cause beams to move out of alignment. Beam detectors can be a poor choice in applications where the beam is apt to be interrupted by movement.

An aspirating smoke detection system can be installed to overcome the issue of stratification, provided that challenging environmental site conditions, e.g. dust dirt and containments, do not exist. This form of smoke detection system is not adversely affected by building movement, stratification or heating.

Specifically, the system will include:

* On site Fire Detection System control panel
* Automatic fire detection across the site
* Sufficient call points and sounders which can be heard across the site
* Provision of beacons in areas of excessive noise due to waste processing activity
* Remote alarm monitoring to offer asset protection when the premises are unoccupied
* Optional thermal imaging cameras as an early warning system for temperature monitoring of the surface temperature of the storage piles within the waste receiving halls
* Optional infrared flame detectors for actuation of fire protection systems upon detection of fire.
* Inter-operability and compatibility with the Council’s existing fire detection systems
* 12 months warranty
* Optional cost item: Annual servicing

# 3. Variations from the Specification (Variant Bids)

**The Council will accept variant bids relating to this procurement.**

**Where variants are allowed the participants will need to identify how the solution proposed provides an equivalent result to the materials, items, processes, methods or other aspects outlined in this specification (and any accompanying documents) for each and every variation from the specification. The participant shall also identify the means by which the equivalence can be verified (independently) by the Contracting Authority.**