



CONSTRUCTION  
INDUSTRY COUNCIL  
建造業議會

# Life First Walk the Talk

Contract No. 13/WSD/17  
Design, Build and Operate  
First Stage of Tseung Kwan O  
Desalination Plant



**David Wong**  
Senior Resident Engineer  
Binnies Hong Kong Limited

Contractor:  
**AJC Joint Venture**

Employer:  
**Water Supplies Department**



# Water Supplies Department

## TKO DESALINATION PLANT





Intake

Outfall



5% of HK Water Consumption

TKODP



# **TKODP**

**End 2019 – End 2023**

**Multi-country**

**Large Scale**

**> 700 nos. site personnel**

**Multi-disciplines**

**ZERO**

**Accident**

Smart Site

Safety

System

# TKODP's Path for Smart Site Safety System Implementation



# Project Starts

2022

2021

2023

Formation

TBM & Marine Work

T & C

Structure

E&M



Air Drone



CSMP



Moving Plant Proximity



4D CAVE



Moving Plant Proximity (upgrade)



DWSS



AI CCTV



GNSS



RFID



Temp Cover Alert System



4D BIM Simulation



GWIN Sensor



People Management



Tower Cranes & Mobile Cranes Anti-collision System



Integration of AR



LA/LG Management



Underwater Drone



IOT Sensor

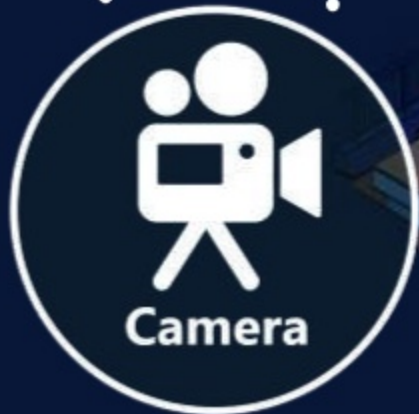


VR Safety Training



# SMART SITE FOR SAFETY

## SMART DEVICES







# GNSS

## Global Navigation Satellite Systems

GNSS 2A

○ Vertical Offset   ○ Horizontal Offset





People  
Management  
System

# Combined Shaft and TBM Tunnels



# People Management System

Smart Watch to detect location and health condition

Setting up people management machine at the entrance

星期三 12月08日 13:17 21°C 將軍澳海水

場內人數

Name of Workers

員工編號	姓名	職別	工程	員工時間
145848691	張國	機務	電氣安裝工	12月08日 10時26分
183912215	KSU Dhanjit	機務	機務維修工	12月08日 09時18分
145183101	李偉	機務	機務工人	12月08日 13時11分
145169682	張	機務	機務工人	12月08日 09時43分
145102306	楊文江	機務	機務維修工	12月08日 09時55分
184258612	JINGEN Shuwen	機務	機務工	12月08日 09時54分
98300903	李偉	機務	機務工人	12月08日 09時16分
145169458	張國強	機務	機務工人	12月08日 09時09分
145169461	GURUNG Chandra Bahadur	機務	機務工人	12月08日 09時10分

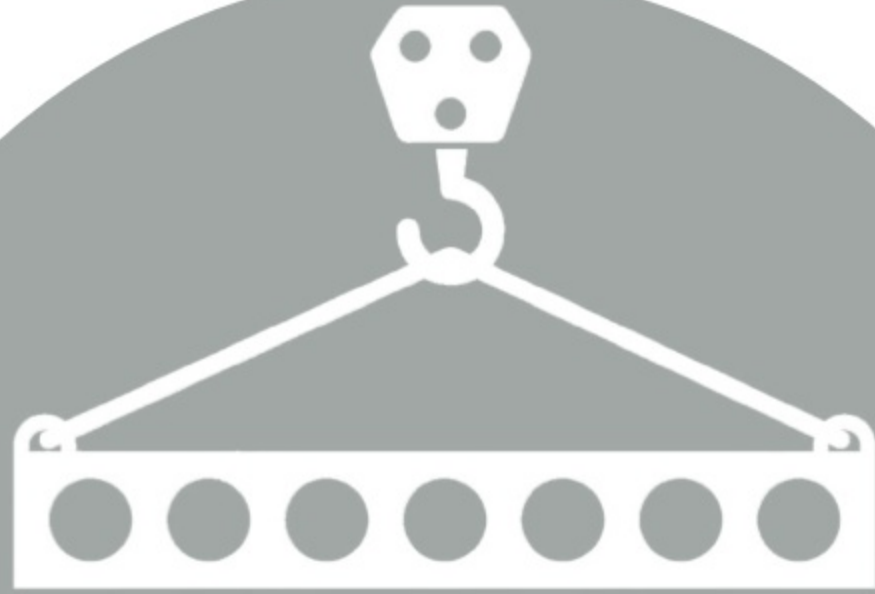
Entry Record

承包商: 全部

Monitoring System to show the record at Confined Space



The Smart watch and Ultra-Wide Band (UWB) Wireless Position System



**LALG**

**Management**

# Lifting Appliances (LA) & Lifting Gears (LG) Management System



Lifting Appliance

Lifting Gear









# Underwater Drone



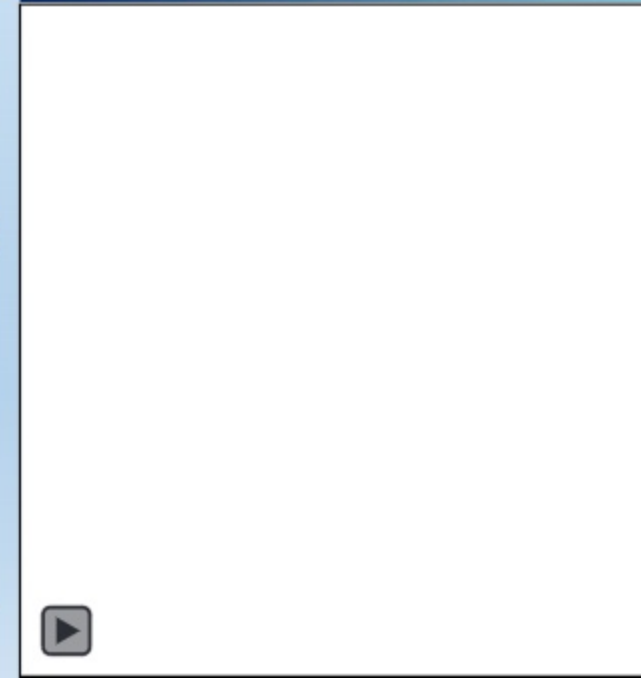
# AI Camera



<i>Detection of Safety Helmet</i>	<i>Detection at Entrance of restricted zone</i>



# AIR Drone



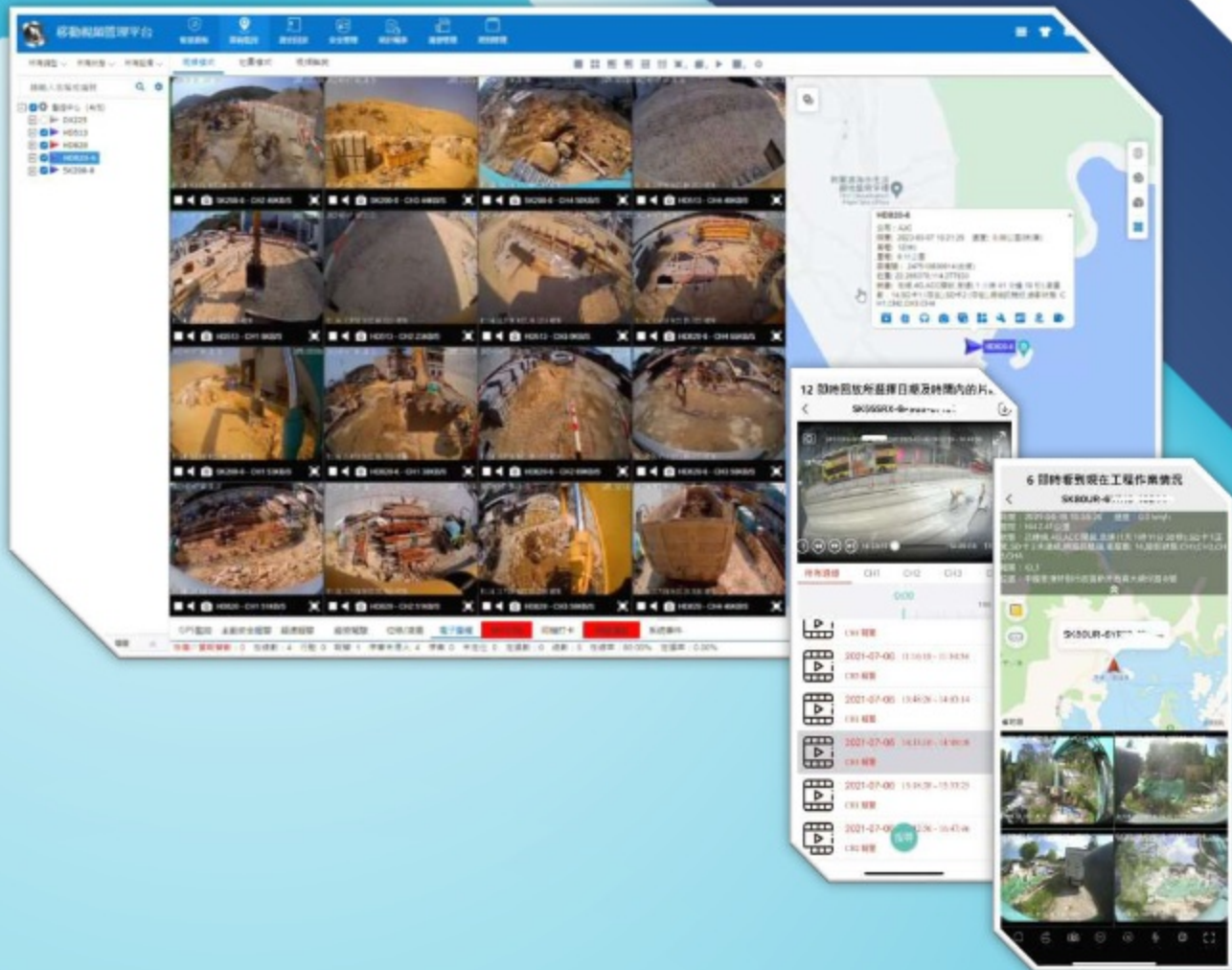
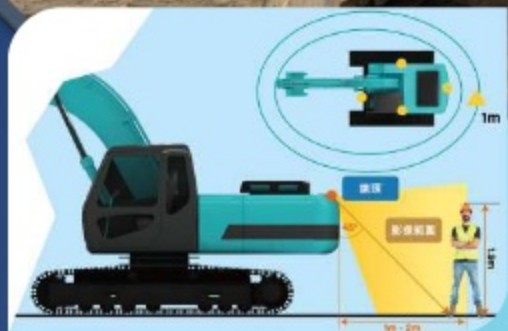


**Moving  
Plant**



# Moving Plant Monitoring System

Real-time Monitoring  
for Site Conditions in Cloud-base



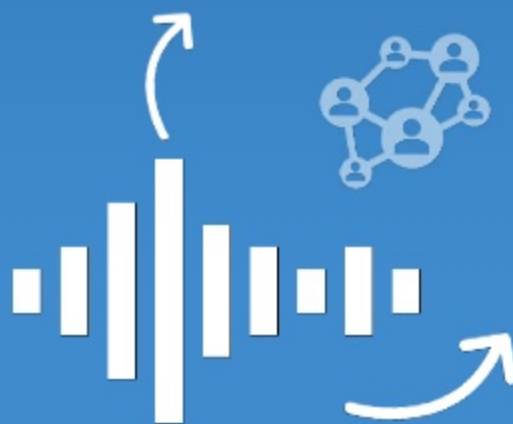


**Temporary  
Cover**

# Management System for Temporary Cover



序號	區域編號	社區編號	設備編號	發生時間	設備狀況	通訊狀況	電量	備註	維修
01	AO1	一號大壩	AO1	2023-02-28 17:23:34	正常	正常			
02	AO1	一號大壩	AO2	2023-02-28 17:23:34	正常	正常			
03	AO1	一號大壩	AO3	2023-02-28 17:23:34	正常	正常			
04	AO1	一號大壩	AO4	2023-02-28 17:23:34	正常	正常			
05	AO1	一號大壩	AO5	2023-02-28 17:23:34	正常	正常			
06	AO1	一號大壩	AO6	2023-02-28 17:23:34	正常	正常			
07	AO1	一號大壩	AO7	2023-02-28 17:23:34	正常	正常			
08	AO1	一號大壩	AO8	2023-02-28 17:23:34	正常	正常			
09	AO1	一號大壩	AO9	2023-02-28 17:23:34	正常	正常			
10	AO1	一號大壩	AO10	2023-02-28 17:23:34	正常	正常			
11	AO1	一號大壩	AO11	2023-02-28 17:23:34	正常	正常			
12	AO1	一號大壩	AO12	2023-02-28 17:23:34	正常	正常			
13	AO1	一號大壩	AO13	2023-02-28 17:23:34	正常	正常			
14	AO1	一號大壩	AO14	2023-02-28 17:23:34	正常	正常			
15	AO1	一號大壩	AO15	2023-02-28 17:23:34	正常	正常			
16	AO1	一號大壩	AO16	2023-02-28 17:23:34	正常	正常			
17	AO1	一號大壩	AO17	2023-02-28 17:23:34	正常	正常			

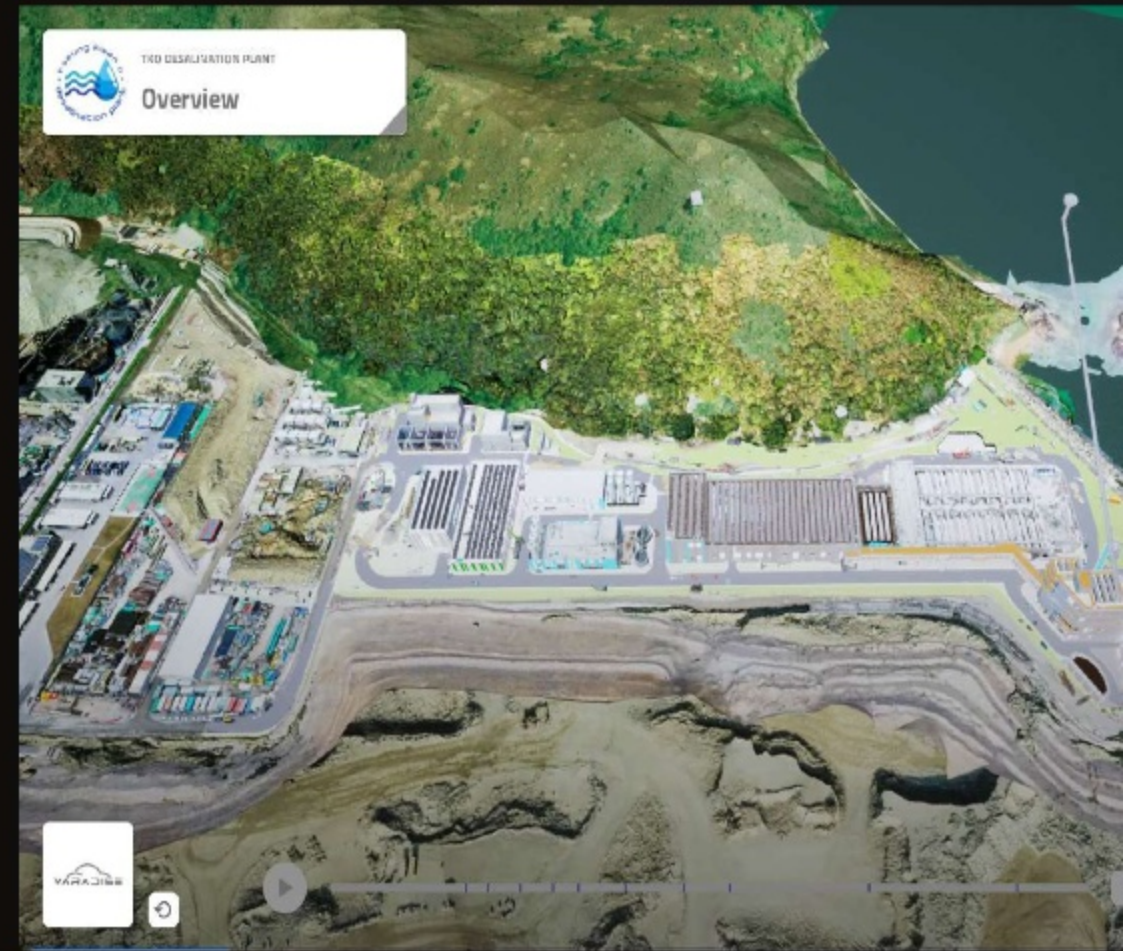


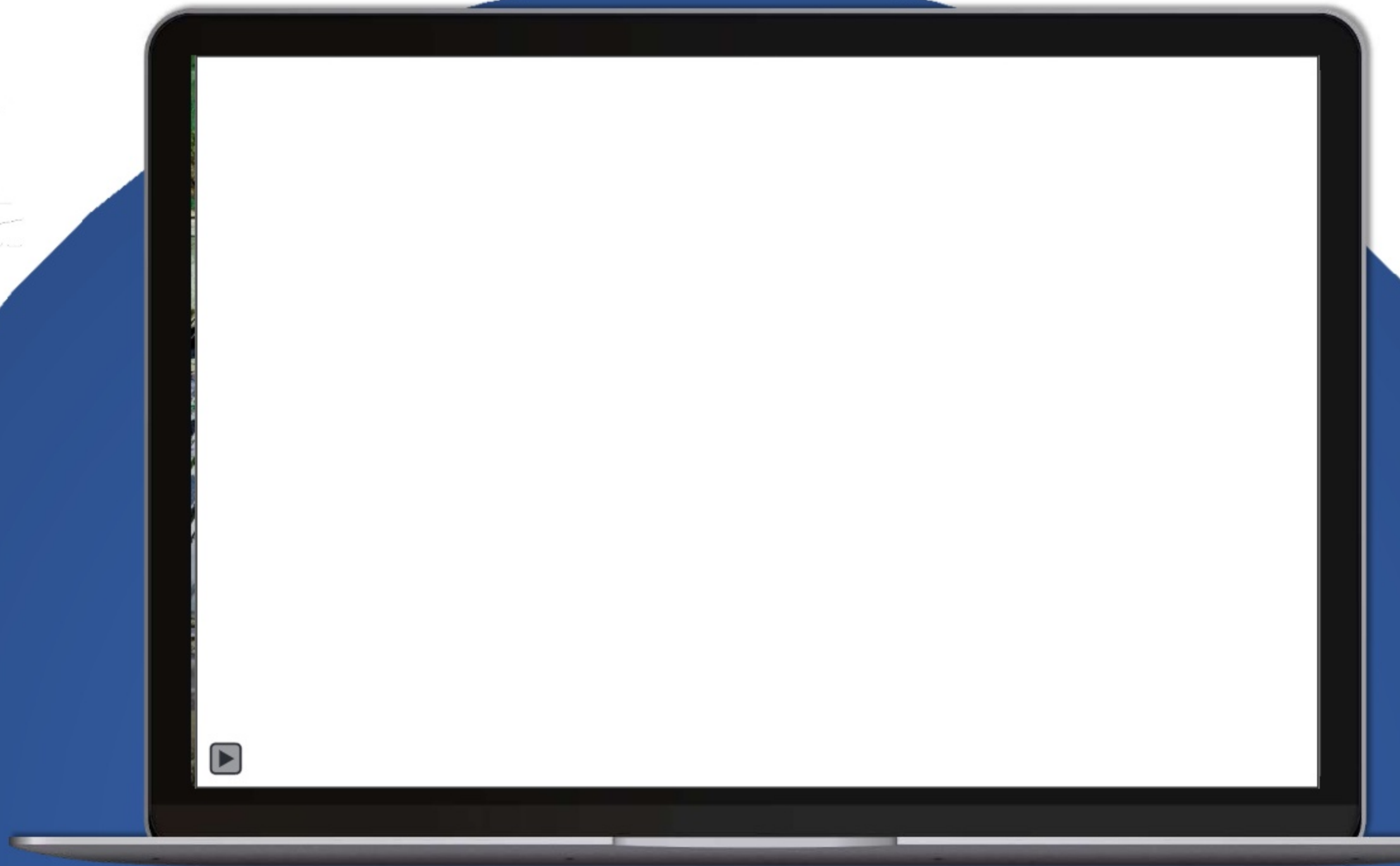
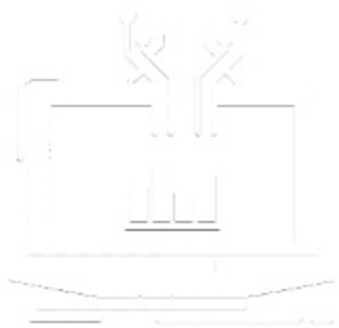
# Management Platform



## Smart Site for Safety

13/WSD/17 - Tseung Kwan O Desalination Plant





# Videos for Smart Site Safety System

[tkodesal.hk](http://tkodesal.hk)



**360° Smart  
Monitoring  
System**

**AI Camera**



**Inspection  
Underwater  
Drone**

**Global Navigation  
Satellite System  
(GNSS)**



**LA/LG  
Management  
System**





# 生命第一 LIFE FIRST

TSEUNG KWAN O DESALINATION PLANT  
將軍澳海水化淡廠



善用我海港  
CONNECT  
THE SEA  
共連化淡廠

## 對危險說不 SAY "NO" TO DANGER