

# ***Collaborative Value-engineering Management*** ***in*** ***Happy Valley Underground Stormwater Storage Scheme***



**LUK Wai-hung**  
**Drainage Services Department**



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# Project Background



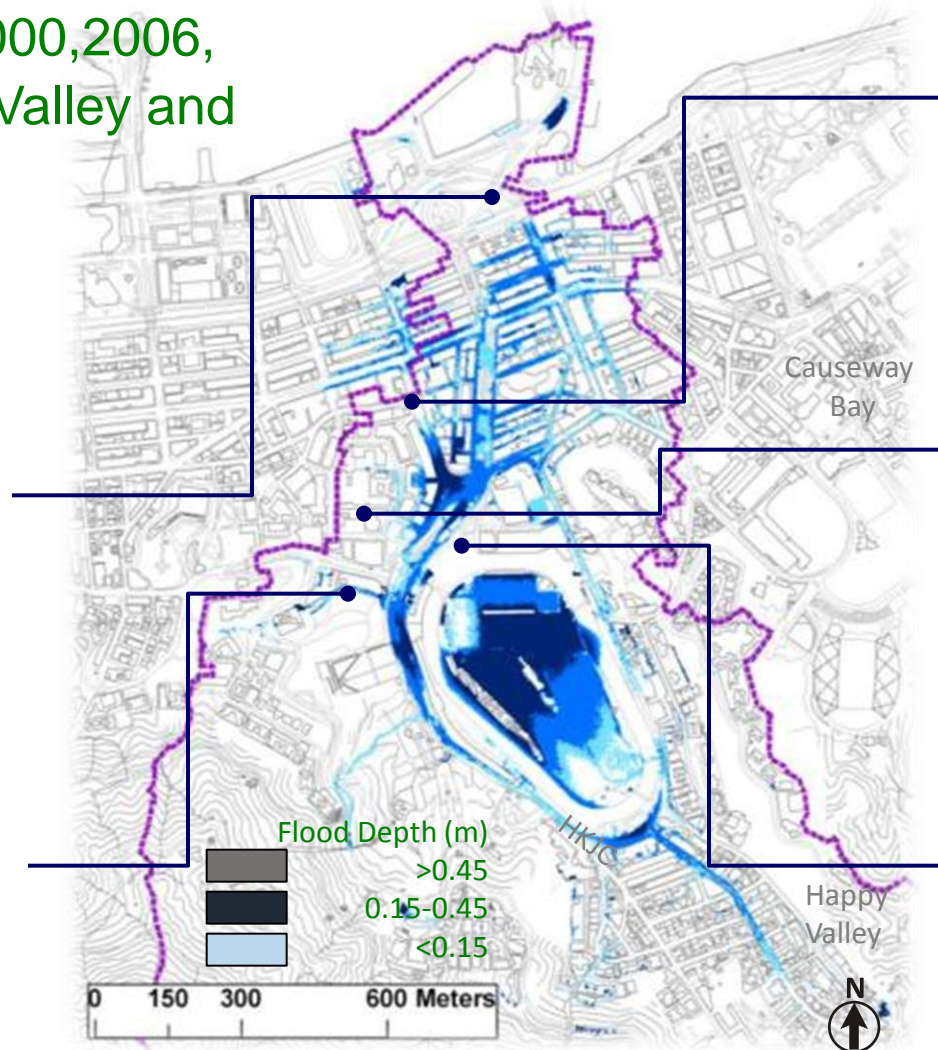
# THE PROBLEM - FLOODING

Over 26 ha of land was **flooded** in 2000, 2006, 2008 in Happy Valley and Causeway Bay

Lap Tak Lane



Wong Nai Chung Rd



Percival Street



Queen's Road East



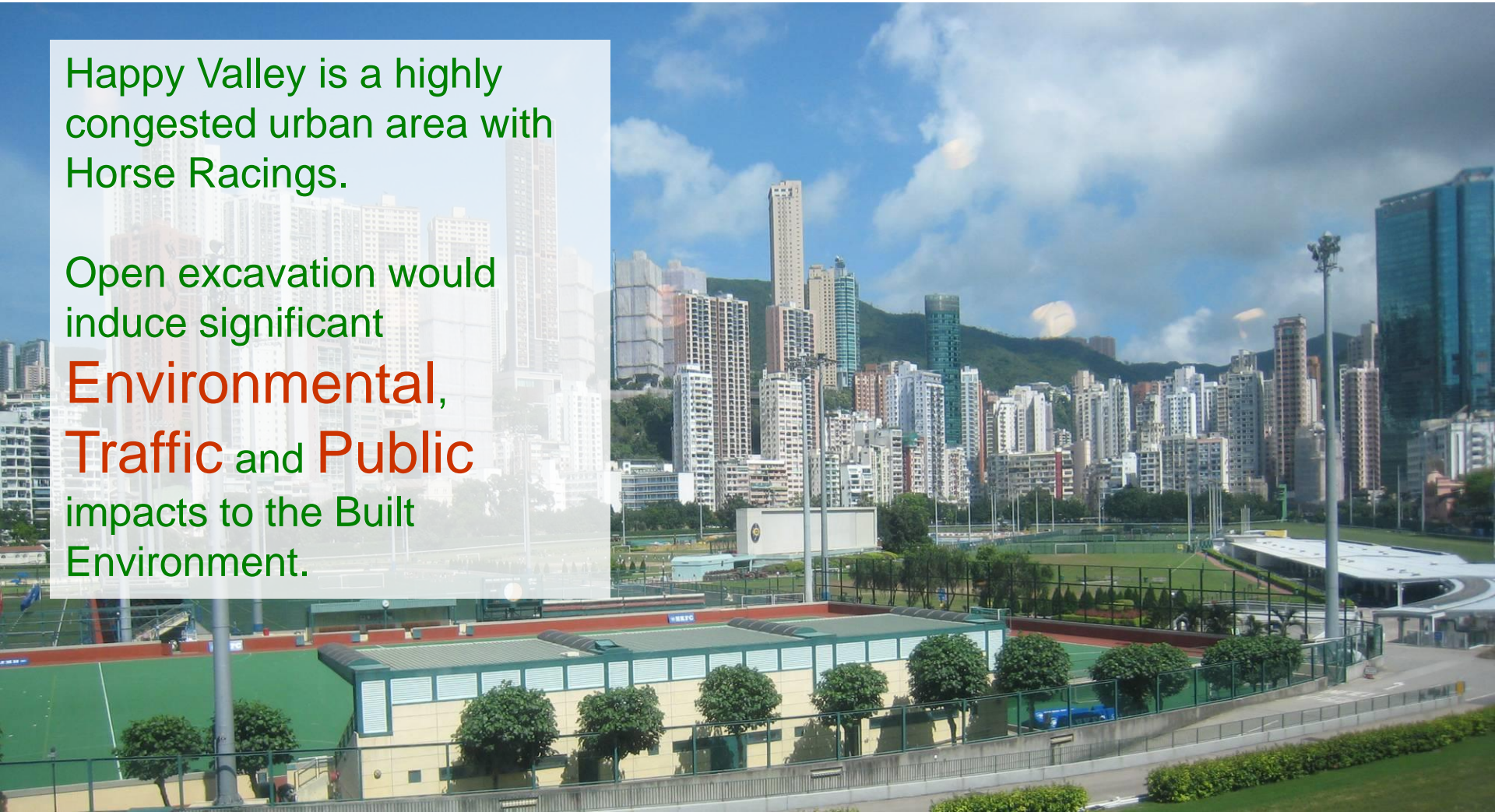
Happy Valley Recreation Ground and Race Course



# THE CONCERN

Happy Valley is a highly congested urban area with Horse Racings.

Open excavation would induce significant  
**Environmental, Traffic and Public** impacts to the Built Environment.





# THE PROJECT- HVUSSS



# THE CONTRACT



<b>Contract No.</b>	DC/2012/03
<b>Contract Name</b>	Happy Valley Underground Stormwater Storage Scheme
<b><i>Employer</i></b>	Drainage Services Department
<b><i>PM/Supervisor</i></b>	Chief Engineer/DPD, DSD
<b>Scope of Works</b>	Construction of storage tank, box culvert, pump house
<b>Original Target Cost</b>	HK\$ 678M
<b>Duration</b>	Sep 2012 – April 2018 (64 months)
<b>NEC3 Option</b>	<b>Option C – Target contract with activity schedule</b>
<b>Contractor</b>	Chun Wo Construction & Engineering Co. Ltd.
<b>QS Consultant</b>	Mott MacDonald Hong Kong Limited
<b>NEC Advisor</b>	Arcadis / JCP

**NEC3 Cl. 10.1:**

# Mutual Trust and Cooperation

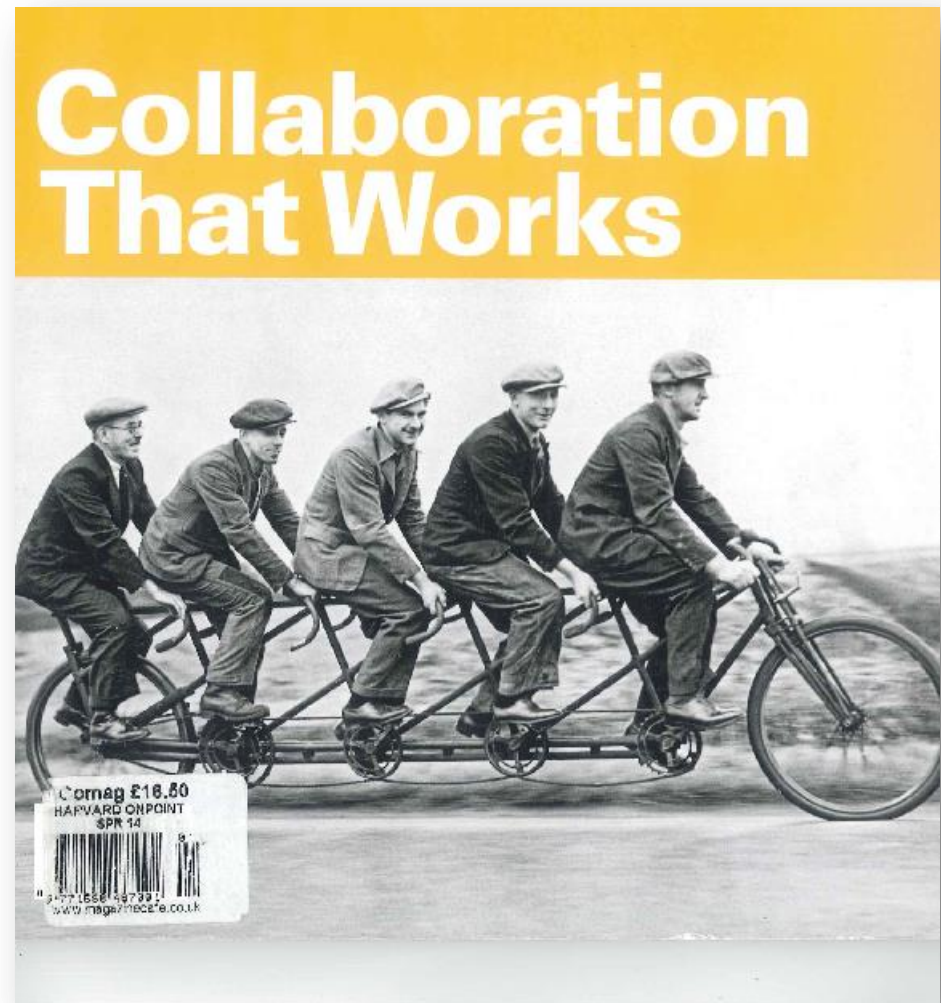
**among**  
***Employer,***  
***Project Manager,***  
***Supervisor, Contractor,.....***





*Employer*  
*Project Manager*  
*Supervisor*  
**Contractor**  
**Sub-contractor**  
**Stakeholders**  
**Consultants**

.....



# Collaboration



***NEC3 :***

***Risk Management***

***Programme Management***

***Compensation Events***

***Open Book Account***



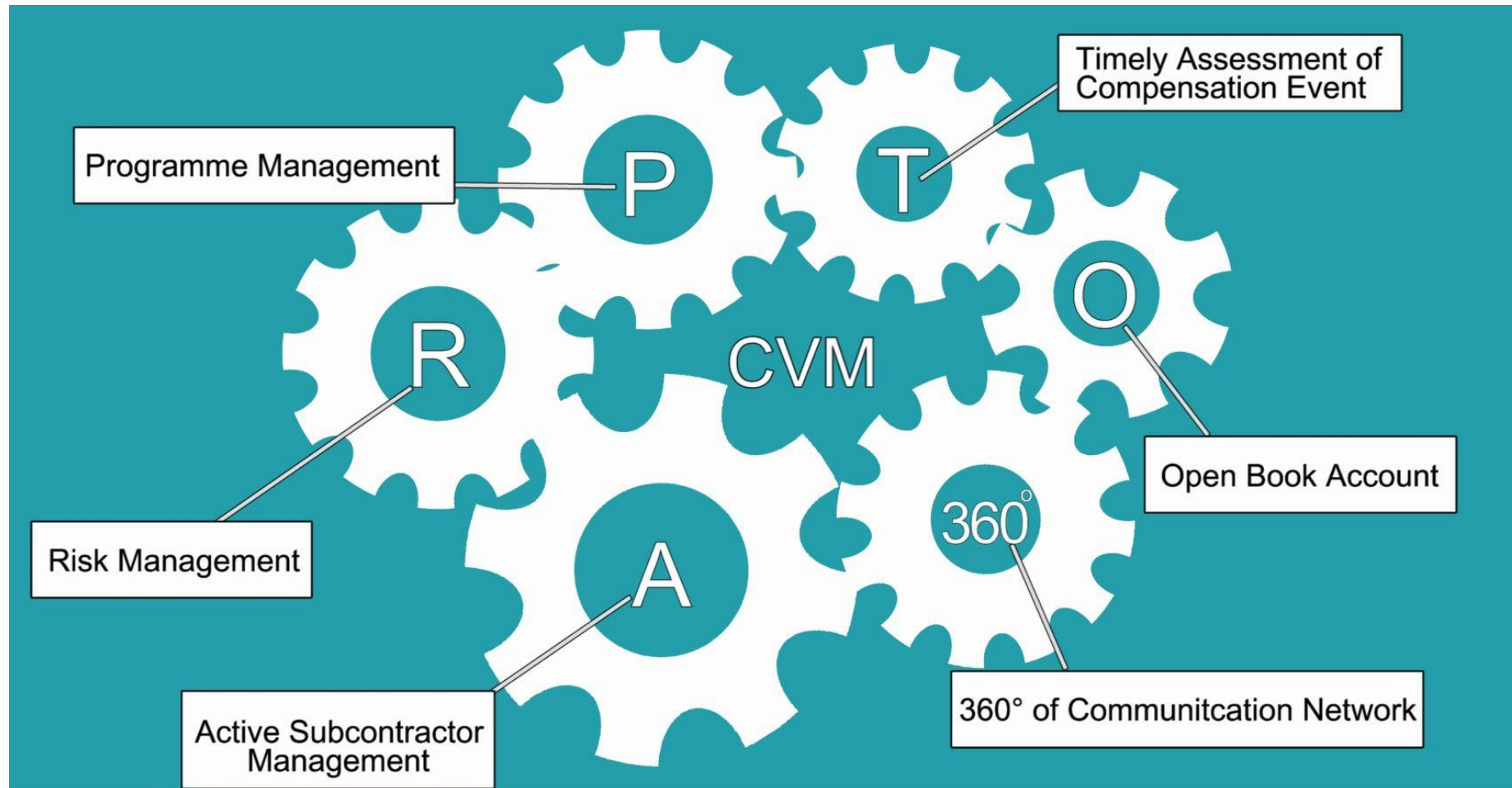
***360° Communication***

***Active Subcontractor Management***



***Collaborative Value-engineering  
Management***

# Collaborative Value-engineering Management (CVM) in HVUSSS



*Click to show Video...*





**In CVM,**  
**we develop mutual trust and cooperation**  
**by 360° communication network**



# Team Building



## 360° Communication Network

**36**  
**WhatsApp**  
**Groups**  
in different  
categories



## Stakeholders Workshop

District Council members,  
HKJC, LCSD, Contractor,  
Subcontractors...



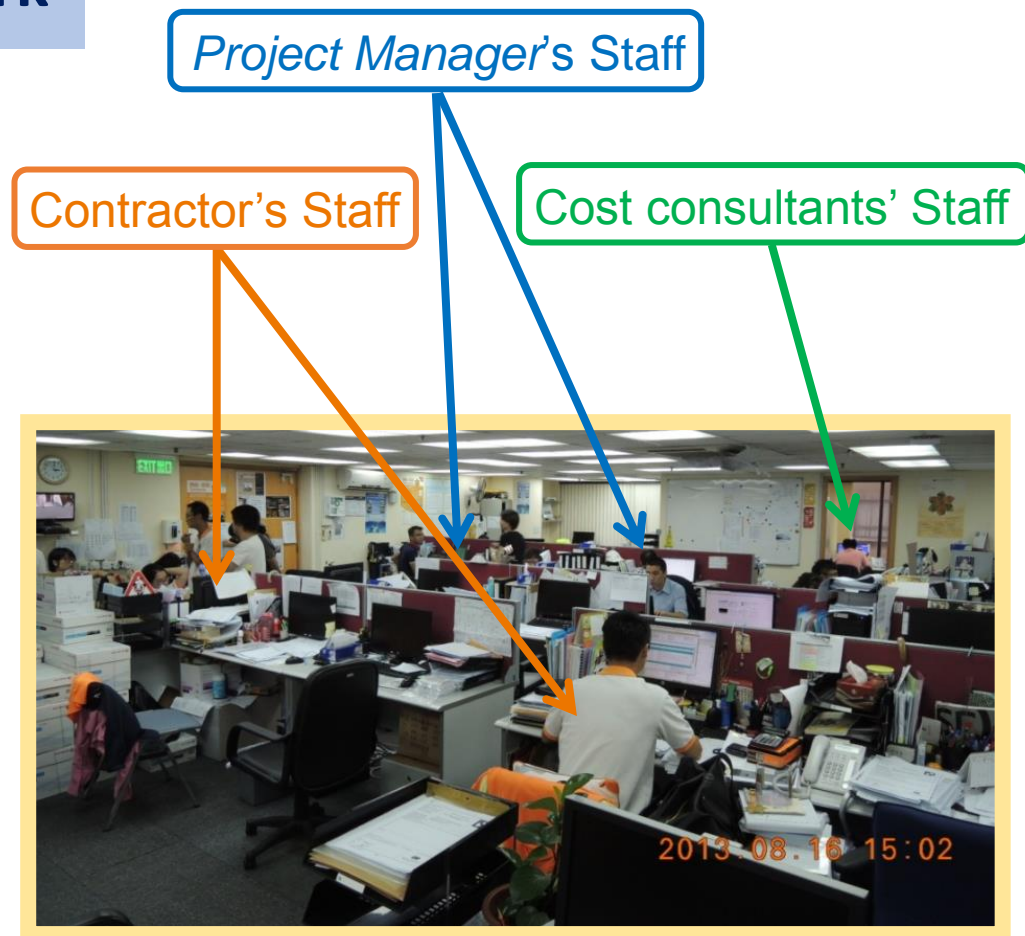
# Team Building



## 360° Communication Network



## Morning Briefing



## Joint Office





# Team Building



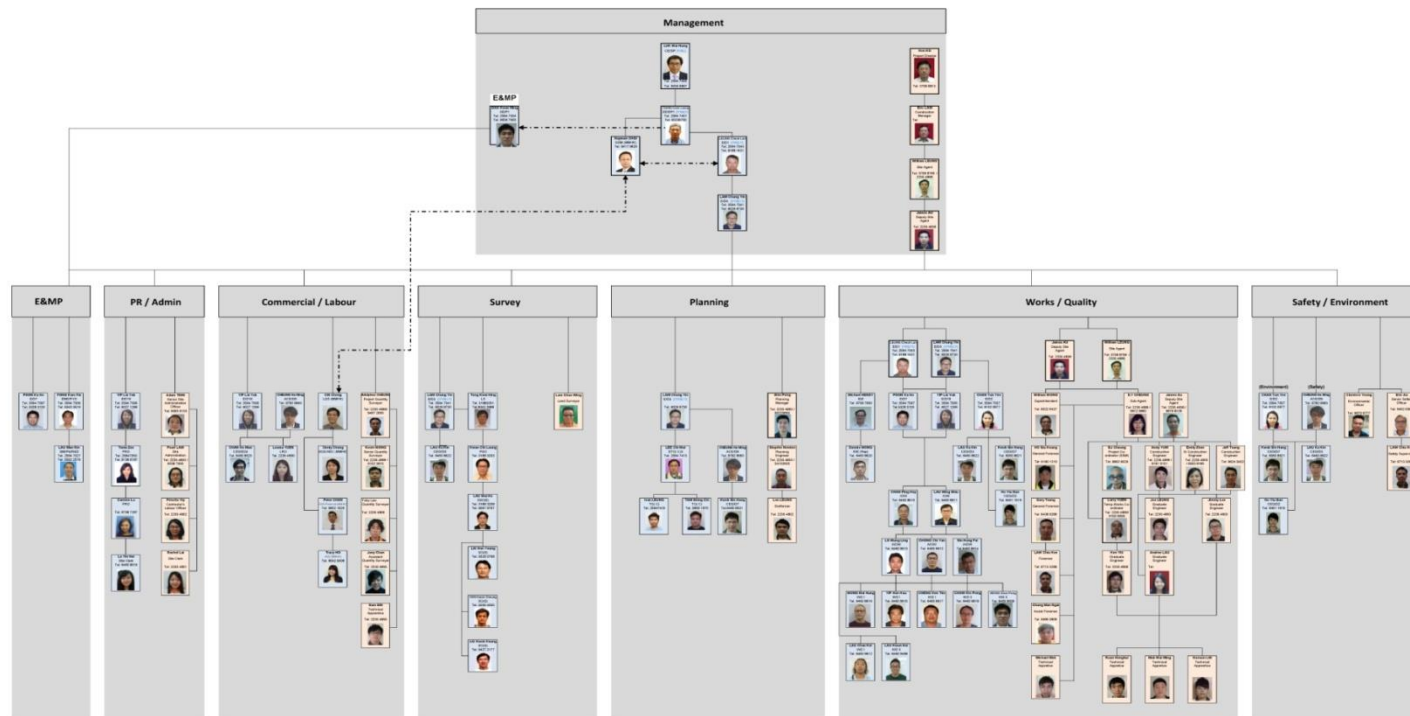
## 360° Communication Network

Drainage Services Department  
Drainage Projects Division



ChunWo Construction &  
Engineering Co. Ltd.

Contract No. DC/2012/03 - Happy Valley Underground Stormwater Storage Scheme  
Organisation Chart for Joint Project Manager / Contractor Site Office



DESIGN - Design, Monitor and Control



## Joint Organization Chart

**In CVM,**  
**we promote value-engineering by**  
**utilizing tools in NEC Contract**

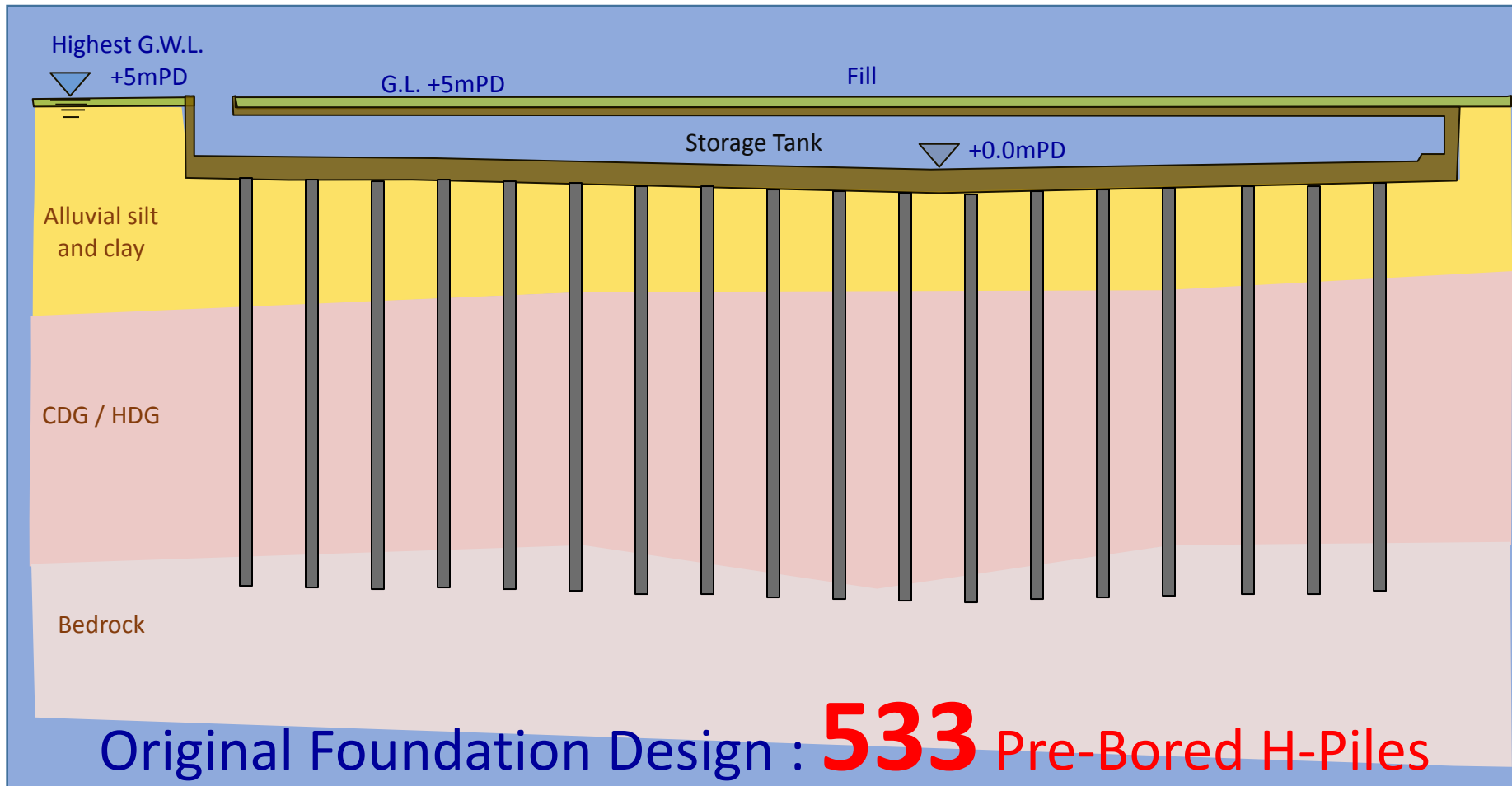


# Value-engineering



## Pain/ Gain Share by Open Book Account

### Initiative for Contractor to propose Cost-saving Design



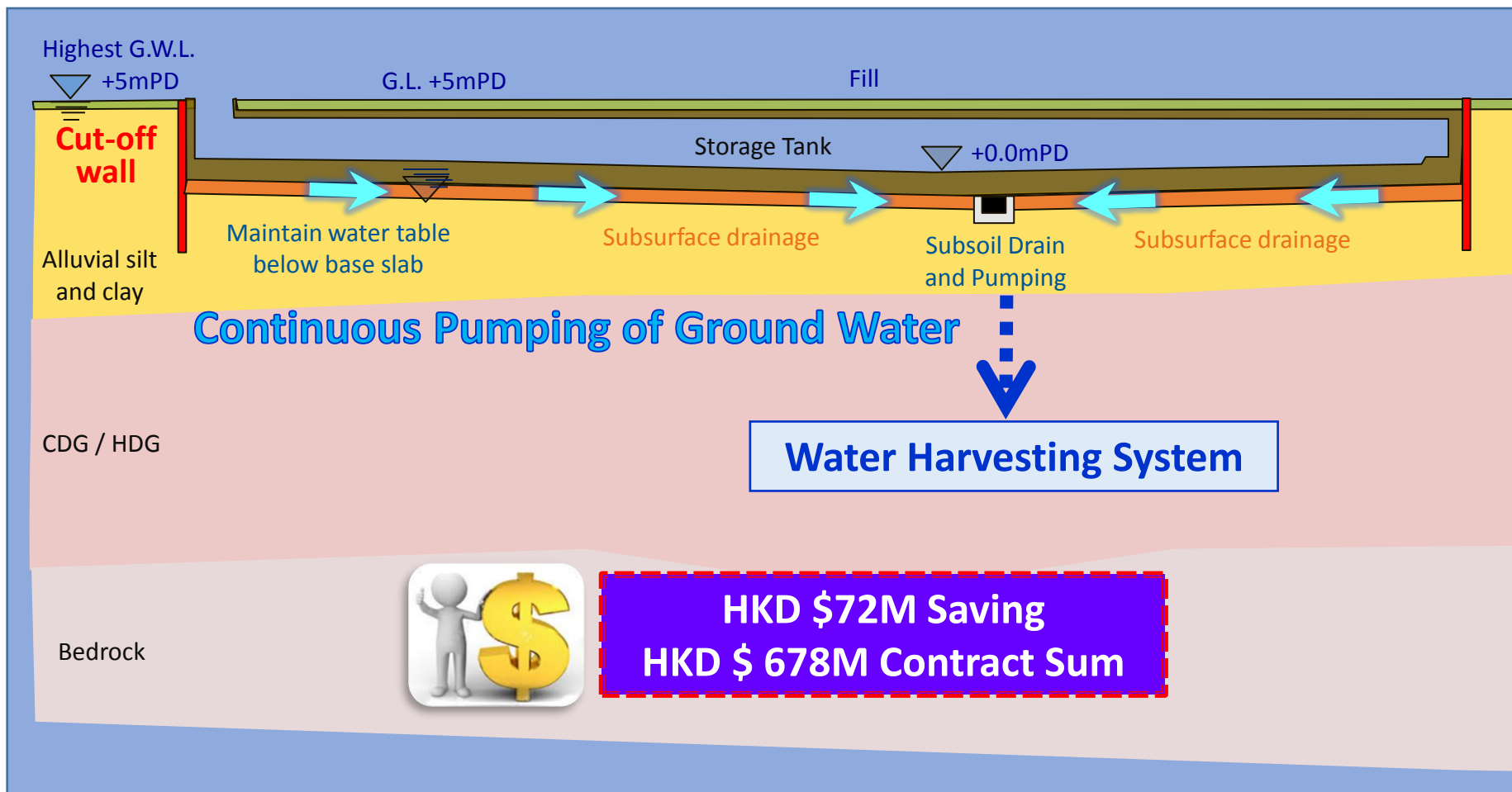




# Value-engineering



## Pain/ Gain Share by Open Book Account

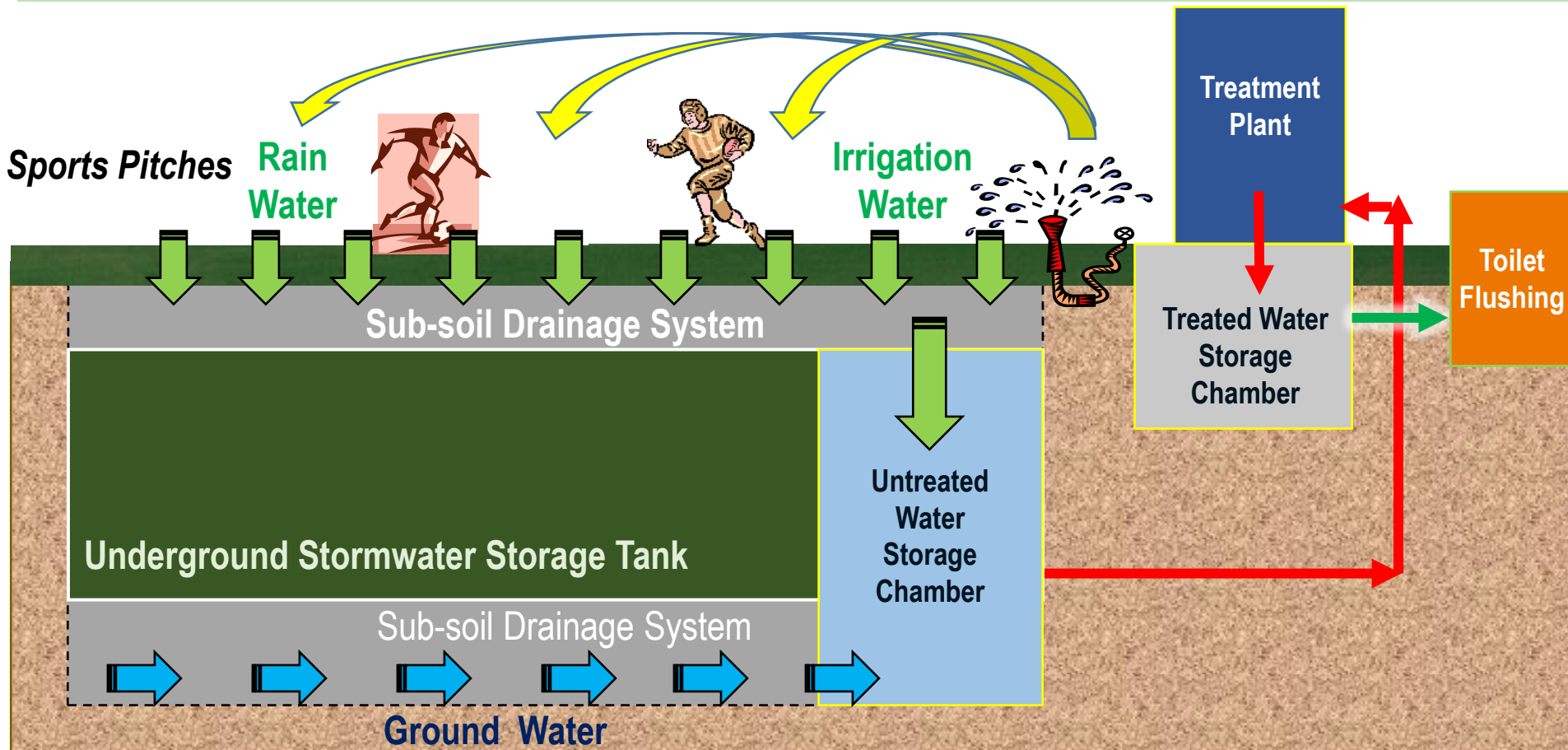


Cost Saving Design: **Cut-off Wall / Sub-surface Drainage System**



## Timely Assessment of Compensation Event

CE about Water Harvesting System  
was issued within **one month** with **no abortive works**



## Active Subcontractor Management

### Concerns on Target Contract:

- ? *Cost of work by subcontractor is reimbursable*
- ? *Contractor may have no incentive to selective most competitive offer*

### Control Measures on

- Subcontract Package
- Selection
- Payment
- Finalisation

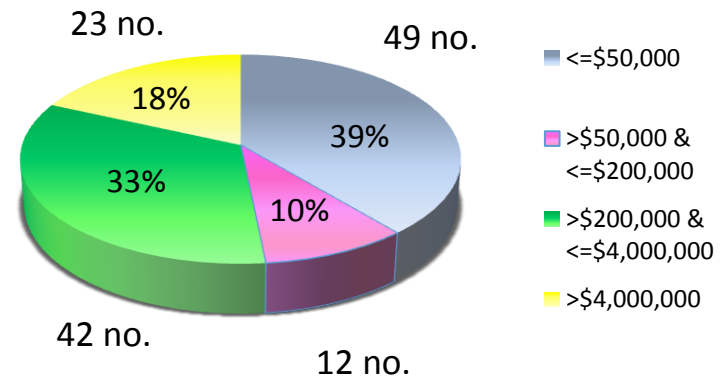




## Active Subcontractor Management



### Sum of awarded subcontracts



No. of finalized Subcontracts = 28 out of 126



**Tender Briefing**



**Tender Interview**

## Active Subcontractor Management



### Alternative Turf Proposal

Save **\$3M**  
out of \$16M



Advance Progress by  
**1 month**

**Capture Innovative Proposal by Subcontractor**

**In CVM,  
we manage risk and programme by  
utilizing tools in NEC Contract**



## Early Warning and Risk Register

### Pre contract : 9

- Ground Condition
- Excessive Settlement
- Congested Working Environment
- Flood Risk

### Construction : 44

- Interfacing works with HKJC
- Delay in Access Date of Pitch No. 4
- Lack of engineering and site resources
- Slow progress of different work fronts
- Missing details
- Defects

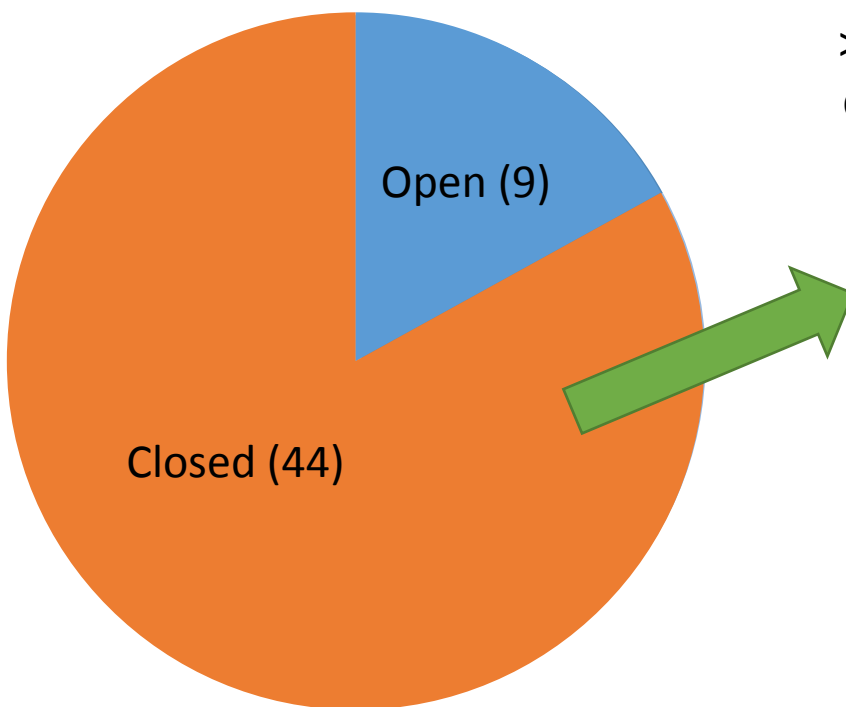




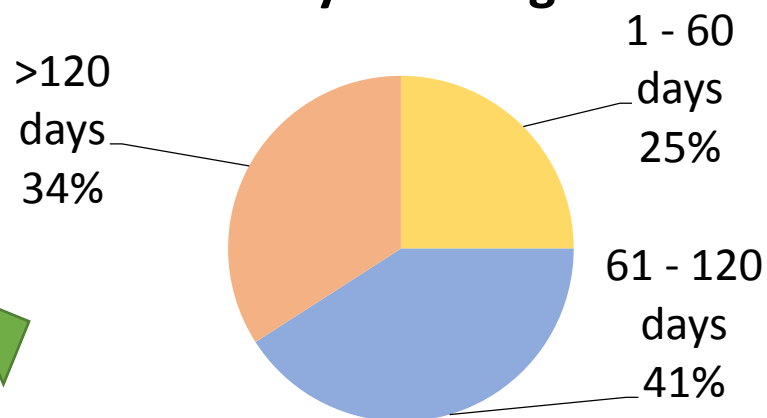


## Early Warning and Risk Register

Number of Early Warnings



Time required for closing the Early Warnings





# Risk and Programme Management



## Collaboration in Risk and Programme Management

Interface construction works of HKJC and DSD during summer break of 2014



**Tight Schedule, High Project Risk**




# Risk and Programme Management



## Collaboration in Risk and Programme Management


27.05.2014





**PARTNERING CHARTER**

Happy Valley Underground Stormwater Storage Scheme



Hong Kong Jockey Club, Gammon, Chun Wo, Drainage Services Department

Mutual Objectives	Common Targets
Time	Completion of box culverts and related works for commencement of 2014-15 race season in Happy Valley by 19 October 2014 and operation of Stage 1 of the Scheme before 31 March 2015
Safety and Environmental	No reportable accident No offence
Quality	100% compliance in final tests
Public relations	Zero disruption to horse racing Zero complaints


**VALUES & BEHAVIOURS**

**Trust**

- Commitment
- Punctual/Quick response
- Openness/Communication
- Honour
- Be considerate
- Understanding and fair

**Cooperation**

- Good planning
- Joint ownership/responsibility
- Sharing of information
- Caring for each other
- Empathy
- Passion



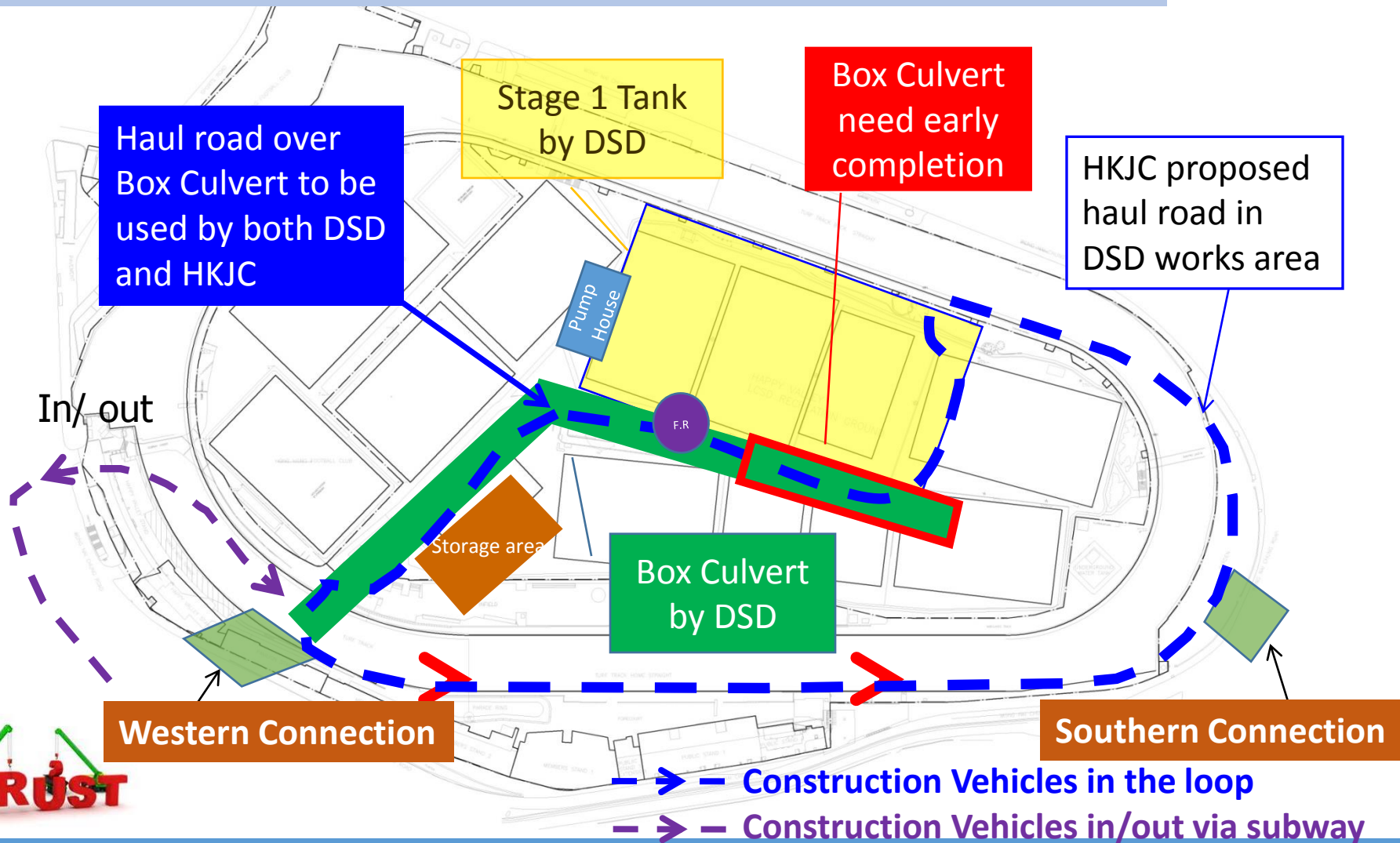
This Charter is a voluntary statement of general principles and objectives to guide the parties during the project. It is not binding and shall not be used to interpret contracts between the parties



# Risk and Programme Management



## Collaboration in Risk and Programme Management







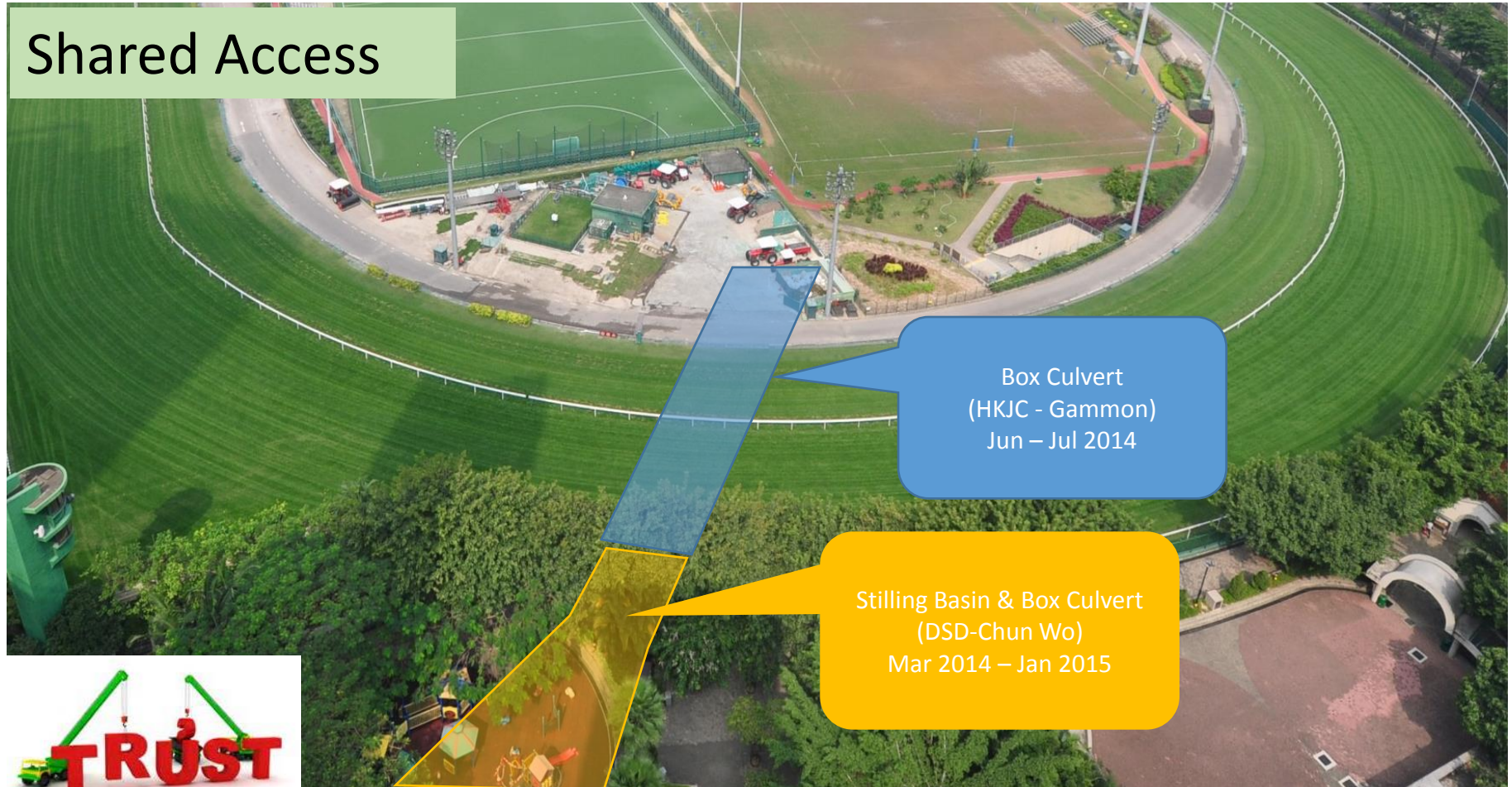
# Risk and Programme Management



## Collaboration in Risk and Programme Management

### Construction of Pipe Pile Wall at Crescent Garden

Shared Access





# Shared ELS system



## Race Track

## DSD's Works Area

SECTION  
SCALE 1 : 100







# Risk and Programme Management



## Collaboration in Risk and Programme Management

### Shared Access



### Shared ELS System





# Risk and Programme Management



## Collaboration in Risk and Programme Management



Management Involvement from both sides



# Trust and Morale – Ups and Downs

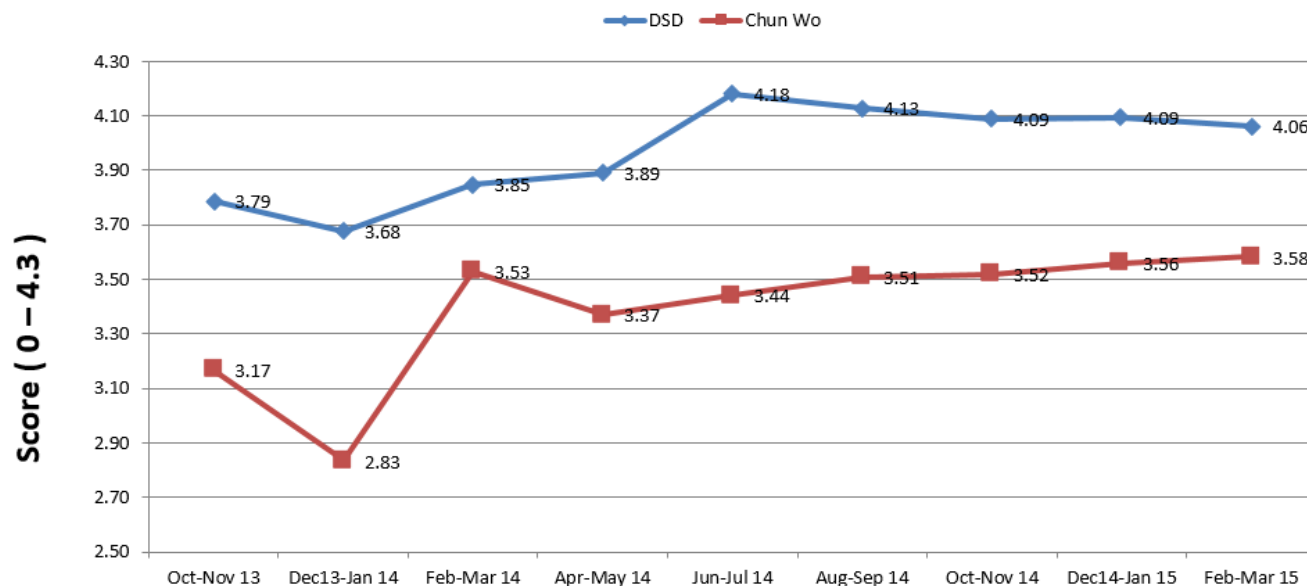




# Trust: Ups and Down



**Contract DC/2012/03**  
**Happy Valley Underground Stormwater Storage Scheme**  
**Partnering Evaluation Scoring for Targets in Progress, Safety, Communication and Cooperation**  
**Frontline Staff**



Frontline Staff	Oct-Nov 13	Dec13-Jan 14	Feb-Mar 14	Apr-May 14	Jun-Jul 14	Aug-Sep 14	Oct-Nov 14	Dec14-Jan 15	Feb-Mar 15
DSD	3.79	3.68	3.85	3.89	4.18	4.13	4.09	4.09	4.06
Chun Wo	3.17	2.83	3.53	3.37	3.44	3.51	3.52	3.56	3.58



# One Team One Goal





# Achievement



**Highly Commended New Engineering Contract (NEC) Large Project  
of the Year 2015 Award by NEC Users' Group in UK**



(photo taken at the prize presentation ceremony held in London, UK, April 2015)





# Conclusion



*ACHIEVEMENTS in progress, cost, quality and safety*  
*CERTAINTY of risks about time and cost for all parties*  
*TRUST has to be earned*  
*EFFORT has to be paid for the achievements*





# Thank You

