New Era for NEC in Hong Kong

C. K. HON
Permanent Secretary for Development (Works)
Development Bureau, HKSAR Government
NEC Asia-Pacific Users’ Group Chairman
Why NEC?

• Challenges to Construction Industry:
  ➢ To improve efficiency
  ➢ To manage rising cost
  ➢ To contain budget cost overrun

• Contracting models of collaborative partnerships
• Works Departments:
  - ArchSD
  - CEDD
  - DSD
  - EMSD
  - HyD
  - WSD
• Works Nature:
  - site formation
  - government building
  - drainage & sewerage works
  - highway works
  - submarine pipelines
  - E&M facilities
  - geotechnical works
  - O&M works
<table>
<thead>
<tr>
<th>No.</th>
<th>Dept.</th>
<th>Title</th>
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<tr>
<td>1</td>
<td>DSD</td>
<td>Improvement of Fuk Man Road Nullah in Sai Kung</td>
<td>2009</td>
<td>2012</td>
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<td>5</td>
<td>ArchSD</td>
<td>Tin Shui Wai Hospital</td>
<td>2012</td>
<td>2016</td>
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<td>DSD</td>
<td>Happy Valley Stormwater Storage Scheme</td>
<td>2012</td>
<td>2018</td>
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<td>7</td>
<td>HyD</td>
<td>Improvement to Pok Oi Interchange</td>
<td>2012</td>
<td>2016</td>
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<td>49</td>
<td>CEDD</td>
<td>Tseung Kwan O-Lam Tin Tunnel – Road P2 and associated works</td>
<td>2016</td>
<td>2020</td>
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<td>50</td>
<td>CEDD</td>
<td>Kwu Tung North and Fanling North NDAs – Advance Works and First Stage Works</td>
<td>2016</td>
<td>2018</td>
</tr>
</tbody>
</table>
Private Sector Projects

- Clients: Hong Kong Academy, CLP, MTR, Airport Authority Hong Kong

Hong Kong Academy Campus

Chun Yat Street 132 kV Substation

Kennedy Town Swimming Pool Phase 2
## Private Sector Projects

<table>
<thead>
<tr>
<th>No.</th>
<th>Organization</th>
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<tr>
<td>1</td>
<td>HK Academy</td>
<td>Hong Kong Academy</td>
<td>2011</td>
<td>2013</td>
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<td>2</td>
<td>CLP</td>
<td>Chun Yat Street 132 kV Substation</td>
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<td>Kennedy Town Swimming Pool Phase 2</td>
<td>2014</td>
<td>2016</td>
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<td>...</td>
<td>CLP</td>
<td>Maintenance Framework Contracts (10 nos.)</td>
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<tr>
<td>...</td>
<td>AA</td>
<td>Automated People Mover System and Baggage Handling System (Existing Island Section) (under pre-qualification process)</td>
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NEC Awards

NEC CLIENT OF THE YEAR

NEC LARGE PROJECT OF THE YEAR

DSD (2016)

Kennedy Town Swimming Pool Phase 2 - MTR & Paul Y (2016)

Moving from Learning to Practising

Largest Pilot – Tin Shui Wai Hospital (HK$3B)

NEC ECC Practice Notes

Practice Notes for New Engineering Contract (NEC) – Engineering and Construction Contract (ECC) for Public Works Projects in Hong Kong

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<thead>
<tr>
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<td>Engineering and Construction Contract (ECC) for Public Works Projects</td>
<td>October 2016</td>
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<td>2</td>
<td>Library of Standard Conditions of Contract</td>
<td>October 2016</td>
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<tr>
<td>3</td>
<td>Library of Standard Conditions of Tender</td>
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<td>4</td>
<td>Library of Standard Conditions of Tender with Schedule</td>
<td>October 2016</td>
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<td>5</td>
<td>Library of Standard Conditions of Tenders</td>
<td>October 2016</td>
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<td>6</td>
<td>Library of Standard Notes to Tenders</td>
<td>October 2016</td>
</tr>
<tr>
<td>7</td>
<td>Sample Template of Contract Data Part 1</td>
<td>October 2016</td>
</tr>
<tr>
<td>8</td>
<td>Sample Template of Contract Data Part 2</td>
<td>October 2016</td>
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<td>9</td>
<td>Sample Template of Contract Data Part 3</td>
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<td>10</td>
<td>Sample Template of General Prerequisites of the Works Information</td>
<td>October 2016</td>
</tr>
<tr>
<td>11</td>
<td>Sample Template of Provisions to Specification of the Works Information</td>
<td>October 2016</td>
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</table>

NEC takes off in Hong Kong

1st Pilot – Fuk Man Road Nullah Decking
Improvement to Pok Oi Interchange

Client: HyD

NEC Form: ECC Option C

Incentivize Cost Saving

Happy Valley Stormwater Storage Scheme

Client: DSD

NEC Form: ECC Option C

Start-Finish: 2012 – 2018
<table>
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<tr>
<th>Happy Valley Stormwater Storage Scheme</th>
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<tr>
<td><strong>Client:</strong></td>
</tr>
<tr>
<td><strong>NEC Form:</strong></td>
</tr>
<tr>
<td><strong>Start-Finish:</strong></td>
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</table>
Unleash Design & Build Benefits

Tin Shui Wai Hospital

Client: ArchSD
NEC Form: ECC Option A
Incentivize Early Completion

Kennedy Town Swimming Pool
Phase 2

Client: MTR

NEC Form: ECC Option A

Myths and Truths

• Too simple wording (i.e. not enough protection)?

• Too much or not sufficient checking?

• Increased administration effort?

• Too many Z clauses?
Public Works Policy

• Adopt NEC form for tenders to be invited in or after 2016

• Suitable large-scale contracts of value > HK$1B to adopt ECC Option C or D

Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works (ECC Option C – HK$2.4B)
Potential NEC Contracts in Future

- **Works Nature:**
  - major bridge & highway
  - land supply
  - government building
  - sewage treatment works
  - water supply works
Challenges Ahead

- Knowledge transfer
- Early Contractor Involvement (ECI)
- Measuring performance
- Interest of the private sectors
- Embrace new collaborative culture
One-Team Spirit across the Construction Industry
Thank you
References


- NEC (2016), NEC Users’ Group Newsletter Issue No. 78 (May 2016)


Experience Sharing of Project 713 – Re-provision of Kennedy Town Swimming Pool-Phase 2

NEC Annual Seminar on 21st Nov 2016
Agenda

1. Project Information

2. Experience Sharing
   - Case 1: Team preparation to achieve completion requirements
   - Case 2: Team preparation for Government pre-handover visits
   - Case 3: Problems encountered during WSD statutory inspections & rectification actions
   - Case 4: Issues encountered during close out of potential early warnings (PEWs) & early warnings (EWs)
1. Project Information
Project Information – Building Facilities

Phase 1

- Multipurpose Pool
  - 15m x 50m
- Training Pool
  - 12.5m x 25m
- Jacuzzi
- Main Changing Rooms on Split Levels
- Family cum Disabled Changing Rooms

Phase 2

- 1/F Plan +13.500 mPD
- G/F Floor Plan + 4.5 mPD

Leisure Park

- Zone 1
- Zone 2
- Zone 3

© NEC Contracts
## Project Reporting

<table>
<thead>
<tr>
<th></th>
<th><strong>Phase 1</strong></th>
<th><strong>Phase 2</strong></th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Contract 710</strong></td>
<td><strong>Contract 713</strong></td>
</tr>
<tr>
<td><strong>Start</strong></td>
<td>14 Jul 2009</td>
<td>1 Sep 2014</td>
</tr>
<tr>
<td><strong>Actual Completion Date</strong></td>
<td>14 Mar 2011</td>
<td>18 Oct 2016</td>
</tr>
<tr>
<td></td>
<td>(4 Nov 2016 – revised Contract completion date)</td>
<td></td>
</tr>
<tr>
<td><strong>Contract Period</strong></td>
<td>20 months</td>
<td>26 months</td>
</tr>
<tr>
<td><strong>Form of Contract</strong></td>
<td>MTR Lump Sum (without quantities)</td>
<td>NEC3 Option A (with relevant clauses of MTR Conditions of Contract)</td>
</tr>
<tr>
<td><strong>Contract Sum</strong></td>
<td>HK$ 311 million (£27.8 million)</td>
<td>HK$ 671 million (£60 million)</td>
</tr>
<tr>
<td><strong>Gross Floor Area</strong></td>
<td>13,494 m²</td>
<td>7,058 m²</td>
</tr>
<tr>
<td><strong>Final Account</strong></td>
<td>Apr 2011</td>
<td>19 Oct 2016</td>
</tr>
</tbody>
</table>
Project S-Curve as per Earned Value

- Target Completion Date: 4 Oct 16
- Actual Completion Date: 18 Oct 16

- Original Planned
- Revised Planned
- Actual
Early Warning and Compensation Event Summary

1st – 7th October 2016

<table>
<thead>
<tr>
<th>Workflow</th>
<th>Total Issued</th>
<th>Quotation Received from PYC</th>
<th>Agreed Quotations</th>
<th>PVC to submit quotations</th>
<th>MTR to reply</th>
<th>PVC to submit quotations</th>
<th>MTR to reply</th>
<th>Turnaround Days</th>
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<tr>
<td>Compensation Event</td>
<td>125</td>
<td>125</td>
<td>125</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
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</table>

<table>
<thead>
<tr>
<th>Workflow</th>
<th>Issued</th>
<th>Keep in View</th>
<th>Closed out</th>
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<tbody>
<tr>
<td>Early Warning</td>
<td>323</td>
<td>0</td>
<td>323</td>
</tr>
</tbody>
</table>

**Current status:**
1) CE Event Quotations – 100% agreed.
2) Early Warnings - 100% closed out.
3) MTR response to Paul Y submissions = Average 10 days.
2. Experience Sharing

Case 1: Team preparation to achieve completion requirements
Project Completion Requirements

W7.1 Requirements for Completion

W7.1.1 In accordance with CoC Clause 11.2(2), the Works will be deemed to be completed when the following has been provided:

(a) the permanent works detailed above including the correction of all defects;
(b) the granting of an occupation permit or temporary occupation permit or any other equivalent permit or acceptance by RDO;
(c) All Water Supply Certificates issued by WSD;
(d) Fire Service Certificate issued by FSD;
(e) Form 6 for all Lifts and Escalators issued by EMSD;
(f) Modified Form BA 13 and Modified Form BA 14;
(g) Work Completion Certificates for Electrical Installation;
(h) Spare parts and special tools as specified in the Annex 1 – Specification for Architectural Builder’s Work and Finishes for submission to the relevant Government departments;
(i) Spare parts and special tools as specified in the Annex 4 – Specification for Building Services and E&M Works for submission to the relevant Government departments;
(j) Approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawings for landscape, building, plumbing, drainage and services works (including all wiring diagrams and circuit diagrams down to component level);
(k) Approved schedules of all proprietary materials, fixtures, fittings, plant, equipment and appliances, with name and contact telephone numbers of their suppliers/agents in Hong Kong and all guarantees/warranties (including waterproofing systems for roofing, membranes to pools, decks and wet areas);
(l) Drainage test records;
(m) Testing and commissioning records of E&M equipment and systems;
(n) Approval records and certificates of utilities connections;
(o) Approved Operation and maintenance manuals and test reports for all building components and architectural finishes, systems, plant, equipment and other items as per Appendix Y as appropriate bound in separate volumes for different systems;
(p) Surveyor’s Certificates for all lifting appliances / lifting devices;
(q) Surveyor’s Certificates for high pressure vessel and documents showing acceptance for Registration under Boilers and Pressure Vessels Ordinance Cap. 56;
(r) Test report for Noise Measurement;
(s) As-built/installed, calculations, scaled and dimensioned record plan and detail drawings for piling works; and
(t) Foundation test results reports.

Item (a) ~ (t), total 20 nos. of requirements for project completion
Case 1 - Lessons Learnt

1. Early monitoring of completion status with regular review
2. Team’s full awareness of completion requirements
3. Team’s full involvement & support to ensure that all the completion requirement items were achieved as programmed
Monitoring on Completion Document

• Regarding to project requirement (a) to (t), we established a Master Register to monitor the status
• Total 7 main categories is devised from the Master Register:
  – Statutory Submissions
  – Spare Parts/ Special Tools
  – As-Built Record/ Drawings
  – Warranties
  – O&M Manuel
  – Testing Report/ Record
• Each category has breakdown/ detail registers
• Each item in detail register has schedule submission date
## Master Register – Document Requirement for Completion

In accordance with Works Information, Clause W7.1.1, all requirements for completion are listed out clearly:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description / required document</th>
<th>Works Information Ref.</th>
<th>Date of Submission</th>
<th>CSF No.</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scheduled</td>
<td>Actual</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>OP / TOP / any other equivalent permit / acceptance by RDO</td>
<td>W7.1.1 (b)</td>
<td>2016-09-19</td>
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<td></td>
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<tr>
<td>2</td>
<td>all water certificate issued by WSD</td>
<td>W7.1.1 (c)</td>
<td>2016-07-14</td>
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<tr>
<td>3</td>
<td>fire services certificate issued by FSD</td>
<td>W7.1.1 (d)</td>
<td>2016-08-08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Form 6 for all lifts issued by EMSD</td>
<td>W7.1.1 (e)</td>
<td>2016-06-11</td>
<td></td>
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<tr>
<td>5</td>
<td>modified Form BA13 and modified Form BA14A</td>
<td>W7.1.1 (f)</td>
<td>2016-09-17</td>
<td></td>
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<tr>
<td>6</td>
<td>work completion certificate for electrical installation</td>
<td>W7.1.1 (g)</td>
<td>2016-06-01</td>
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<tr>
<td>7</td>
<td>drainage test records</td>
<td>W7.1.1 (i)</td>
<td>2016-06-20</td>
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<tr>
<td>8</td>
<td>spare parts and special tools for ABWF</td>
<td>W7.1.1 (h) and Annex 1</td>
<td>2016-09-01</td>
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<td>9</td>
<td>spare parts and special tools for E&amp;M works</td>
<td>W7.1.1 (i) and Annex 4</td>
<td>2016-09-01</td>
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<td>10</td>
<td>approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawing for landscape</td>
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<td>11</td>
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<td>12</td>
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<td>2016-09-01</td>
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<tr>
<td>13</td>
<td>approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawing for drainage</td>
<td>W7.1.1 (j)</td>
<td>2016-08-20</td>
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</table>

- **Statutory Submission**
- **Spare Parts/ Special Tools**
- **As-built Record**
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<th>Item</th>
<th>Description / required document</th>
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<th>CSF No.</th>
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<td>14</td>
<td>approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawing for services works (including all wiring diagrams and circuit diagrams down to component level)</td>
<td>W7.1.1 (j)</td>
<td>2016-09-01</td>
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<td>15</td>
<td>approved schedule of all proprietary materials, fixtures, fittings, plant equipment and appliances</td>
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<td>2016-09-01</td>
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<td>16</td>
<td>as-built / installed, calculation, scaled and dimensioned record plan and detailed drawings for piling works</td>
<td>W7.1.1 (s)</td>
<td>2016-03-30</td>
<td>2016-03-24</td>
<td>713-CSF-PYC-FDN-000228 713-CSF-PYC-FDN-000271 2nd Comment received. PY to prepare 2nd re-submission</td>
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<td>17</td>
<td>foundation test results report</td>
<td>W7.1.1 (l)</td>
<td>2016-03-30</td>
<td>2016-03-24</td>
<td>713-CSF-PYC-FDN-000228 713-CSF-PYC-FDN-000271 2nd Comment received. PY to prepare 2nd re-submission</td>
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<td>W7.1.1 (k)</td>
<td>2016-09-24</td>
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<td>W7.1.1 (o) and appendix Y</td>
<td>2016-09-24</td>
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<td>22</td>
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<td>surveyor's certificate for all lifting appliance / lifting devices</td>
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<td>24</td>
<td>surveyor's certificate for high pressure vessel and documents showing acceptance for registration under Boilers and Pressure Vessels Ordinance Cap 56</td>
<td>W7.1.1 (q)</td>
<td>2016-09-01</td>
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### Breakdown Register – Statutory Submission

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<tbody>
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<td>1</td>
<td>OP / TOP / any other equivalent permit / acceptance by RDO</td>
<td>W7.1.1 (b)</td>
<td>2016-09-19</td>
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<tr>
<td>2</td>
<td>all water certificate issued by WSD</td>
<td>W7.1.1 (c)</td>
<td>2016-07-14</td>
</tr>
<tr>
<td>3</td>
<td>fire services certificate issued by FSD</td>
<td>W7.1.1 (d)</td>
<td>2016-08-08</td>
</tr>
<tr>
<td>4</td>
<td>Form 6 for all lifts issued by EMSD</td>
<td>W7.1.1 (e)</td>
<td>2016-06-11</td>
</tr>
<tr>
<td>5</td>
<td>modified Form BA13 and modified Form BA14A</td>
<td>W7.1.1 (f)</td>
<td>2016-09-17</td>
</tr>
<tr>
<td>6</td>
<td>work completion certificate for electrical installation</td>
<td>W7.1.1 (g)</td>
<td>2016-09-01</td>
</tr>
<tr>
<td>7</td>
<td>drainage test records</td>
<td>W7.1.1 (h)</td>
<td>2016-08-20</td>
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### Statutory and Utilities Submission and Inspection Schedule

<table>
<thead>
<tr>
<th>trade</th>
<th>Item No.</th>
<th>Item Description</th>
<th>Schedule</th>
<th>Submission Date</th>
<th>Actual Submission Date</th>
<th>Approved Dated</th>
<th>Action Parties</th>
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<tbody>
<tr>
<td>PD</td>
<td>PD.1</td>
<td>Submission of WWO46 Part I &amp; II (for FS)</td>
<td>28-Feb-15</td>
<td>11-Mar-15</td>
<td>24-Mar-15</td>
<td>PYC/FS</td>
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<td>PD</td>
<td>PD.2</td>
<td>Submission of VPLD (for FS)</td>
<td>19-Mar-16</td>
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<tr>
<td>PD</td>
<td>PD.3</td>
<td>Submission of WWO46 Part IV (for FS)</td>
<td>15-Jun-16</td>
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<td>PD</td>
<td>PD.4</td>
<td>WSD Inspection (FS)</td>
<td>23-Jun-16</td>
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<td>PD</td>
<td>PD.5</td>
<td>Issuance of WWO46 Part V (FS- Water Certificate)</td>
<td>14-Jul-16</td>
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<td>PD</td>
<td>PD.6</td>
<td>Submission of WWO46 Part I &amp; II (for Plumbing)</td>
<td>15-Jan-16</td>
<td>3-Mar-16</td>
<td>11-Mar-15</td>
<td>PYC/PD</td>
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<td>PD.7</td>
<td>Submission of VPLD (for Plumbing)</td>
<td>17-Mar-16</td>
<td>24-Aug-15</td>
<td>6-Feb-16</td>
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<td>15-Jun-16</td>
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<td>23-Jun-16</td>
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<td>Issuance of WWO46 Part V (non-FS- Water Certificate)</td>
<td>14-Jul-16</td>
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<td>DSD</td>
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<td>Application for Drainage and Sewerage Inspection</td>
<td>23-Jul-16</td>
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<td>DSD.2</td>
<td>DSD Inspection</td>
<td>30-Aug-16</td>
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<td>Fire Services Installation</td>
<td>30-Jul-16</td>
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<td>FS.2</td>
<td>Submission of Form 314 &amp; 501</td>
<td>30-Jul-16</td>
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<td>30-Jul-16</td>
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<td>Issuance of Fire Certificate (Form 172)</td>
<td>30-Aug-16</td>
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</table>

**In Summary**

- Most statutory submission were submitted on/before the date specified in the programme except for WSD certificates.
- All statutory submissions were submitted to MTR from end Jun to end Sep 16.
### Breakdown Register – Spare Parts & Special Tools

#### In Summary

- All spare parts and special tools are clearly specified and quantified.
- All spare parts are already in LCSD storage area

<table>
<thead>
<tr>
<th>Item</th>
<th>Description / required document</th>
<th>Works Information Ref.</th>
<th>Date of Submission</th>
<th>CSF No.</th>
<th>Remarks Scheduled</th>
<th>Actual</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>spare parts and special tools for ABWF</td>
<td>W7.1.1 (h) and Annex 1</td>
<td>2016-09-01</td>
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<td></td>
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<tr>
<td>9</td>
<td>spare parts and special tools for E&amp;M works</td>
<td>W7.1.1 (i) and Annex 4</td>
<td>2016-09-01</td>
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#### Breakdown Register – Spare Parts & Special Tools

<table>
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<th>Specification ref</th>
<th>Qty</th>
<th>Date of Submission</th>
<th>Scheduled</th>
<th>Actual</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>1</td>
<td>one full set of hand tools for the maintenance of the roof cladding system</td>
<td>Annex 1 12.142</td>
<td>1 set</td>
<td>2016-08-6</td>
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<tr>
<td>2</td>
<td>2 set of fixing and operating tools of ironmongery</td>
<td>Annex 1 14.123(i)</td>
<td>2 set</td>
<td>2016-08-13</td>
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<td>3</td>
<td>type A 500 x 250mm non-perforated powder coated aluminum internal plank ceiling</td>
<td>Annex 1 13.23; 13.45.05</td>
<td>5 % of all</td>
<td>2016-08-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>type B 500 x 250mm perforated powder coated aluminum internal plank ceiling</td>
<td>Annex 1 13.23; 13.45.05</td>
<td>5 % of all</td>
<td>2016-08-15</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>type G &amp; K 500 x 2500mm non-perforated PVF2 coated aluminum external plank ceiling</td>
<td>Annex 1 13.23; 13.45.05</td>
<td>5 % of all</td>
<td>2016-08-15</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>type N 400mm wide double lock standing seam zinc sheet formed ceiling</td>
<td>Annex 1 13.23; 13.45.05</td>
<td>5 % of all</td>
<td>2016-08-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>each particular wall, floor and skirting tiles for pool area</td>
<td>Annex 1 13.23; 18.208</td>
<td>5 % of all</td>
<td>2016-09-1</td>
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<td></td>
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</table>
## Breakdown Register – As-Built Record

### In Summary

- As agreed with MTR, Approved in Principle (AIP) for as-built drawings/ document should be acceptable to fulfill the Contract’s requirement for completion.
- All as-built records were submitted to MTR from End Jul to Early Sept 16 (except from piling as-built record)

### List of as-built drawing / schedule / record

<table>
<thead>
<tr>
<th>Item</th>
<th>Description / required document</th>
<th>Works Information Ref.</th>
<th>Date of Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawing for landscape W7.1.1 (j)</td>
<td>2016-09-10</td>
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<tr>
<td>11</td>
<td>approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawing for building W7.1.1 (j)</td>
<td>2016-08-31</td>
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<tr>
<td>12</td>
<td>approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawing for plumbing W7.1.1 (j)</td>
<td>2016-08-20</td>
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</tr>
<tr>
<td>13</td>
<td>approved as-built/installed, calculations, scaled and dimensioned record plan and detail drawing for drainage W7.1.1 (j)</td>
<td>2016-08-20</td>
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</tr>
<tr>
<td>14</td>
<td>as-built / installed, calculation, scaled and dimensioned record plan and detailed drawings for piling works W7.1.1 (a)</td>
<td>2016-3-30</td>
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</table>

### Breakdown Register – As-Built Record

<table>
<thead>
<tr>
<th>Item</th>
<th>Description / required document</th>
<th>Works Information Ref.</th>
<th>Date of Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>final version of approved metal windows drawings</td>
<td>Appendix Y Part II</td>
<td>2016-08-15</td>
</tr>
<tr>
<td>11</td>
<td>final version of approved metal louvers drawings</td>
<td>Appendix Y Part II</td>
<td>2016-08-15</td>
</tr>
<tr>
<td>12</td>
<td>final version of approved metal doors drawings</td>
<td>Appendix Y Part II</td>
<td>2016-08-20</td>
</tr>
<tr>
<td>13</td>
<td>final version of approved door schedule</td>
<td>Appendix Y Part II</td>
<td>2016-08-20</td>
</tr>
<tr>
<td>14</td>
<td>final version of approved ironmongery schedule</td>
<td>Appendix Y Part II</td>
<td>2016-08-20</td>
</tr>
<tr>
<td>15</td>
<td>final version of approved external &amp; internal cladding drawings</td>
<td>Appendix Y Part II</td>
<td>2016-09-1</td>
</tr>
<tr>
<td>16</td>
<td>final version of approved balustrade and glass railing drawings</td>
<td>Appendix Y Part II</td>
<td>2016-09-1</td>
</tr>
<tr>
<td>17</td>
<td>final version of approved metal roofing system drawings</td>
<td>Appendix Y Part II</td>
<td>2016-8-6</td>
</tr>
<tr>
<td>18</td>
<td>final version of approved fire shutter and roller shutter drawings</td>
<td>Appendix Y Part II</td>
<td>2016-08-31</td>
</tr>
<tr>
<td>19</td>
<td>final version of approved fire extinguisher drawings</td>
<td>Appendix Y Part II</td>
<td>2016-08-31</td>
</tr>
<tr>
<td>20</td>
<td>final version of approved oak panel drawings</td>
<td>Appendix Y Part II</td>
<td>2016-08-31</td>
</tr>
<tr>
<td>21</td>
<td>final version of approved timber partition drawings</td>
<td>Appendix Y Part II</td>
<td>2016-08-31</td>
</tr>
<tr>
<td>22</td>
<td>final version of approved external seat bench drawings</td>
<td>Appendix Y Part II</td>
<td>2016-09-3</td>
</tr>
<tr>
<td>23</td>
<td>final version of approved internal seating drawings</td>
<td>Appendix Y Part II</td>
<td>2016-09-3</td>
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<tr>
<td>24</td>
<td>final version of approved hoisting crane i riling eye drawing</td>
<td>Appendix Y Part III</td>
<td>2016-3-24</td>
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<tr>
<td>25</td>
<td>final version of approved structural steelworks drawing</td>
<td>Appendix Y Part III</td>
<td>2016-7-30</td>
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<tr>
<td>26</td>
<td>as-built plans, test reports and records of drainage works</td>
<td>Appendix Y Part III</td>
<td>2016-08-20</td>
</tr>
<tr>
<td>27</td>
<td>as-built plans, test reports and records of new pavement and road works</td>
<td>Appendix Y Part III</td>
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<td>28</td>
<td>as-built records survey of the permanent works</td>
<td>E1.5</td>
<td>2016-09-10</td>
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</table>

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In Summary

- All warranties were submitted to MTR on/before end Sept 16
**In Summary**

- O&M Manuals were submitted to MTR in end Sept 16.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description / required document</th>
<th>Works Information Ref.</th>
<th>Date of Submission</th>
<th>CSF No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>approved operation and maintenance manuals and test reports</td>
<td>W7.1.1 (o) and appendix Y</td>
<td>2016-09-24</td>
<td></td>
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</tr>
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</table>
## In Summary

- Contractor’s surveyor certificates were submitted **by end Sep 16**
- All testing and commissioning report for E&M were submitted **by end Sep 16**
Case 1 - Lessons Learnt

- 4. MTR allowed sufficient resources to perform timely review of PY’s submitted documents
- 5. MTR also allowed sufficient resources on timely inspections of works & worked with PY for timely rectification of defects

**Defects Rectification Progress regarding to MTR DOWL List**

**ABWF defect items:**

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<tbody>
<tr>
<td>Phase 1</td>
<td>66/78 (85%)</td>
<td>72/78 (92%)</td>
<td>77/78 (92%)</td>
<td>78/78 (100%)</td>
<td>78/78 (100%)</td>
<td>78/78 (100%)</td>
<td>78/78 (100%)</td>
</tr>
<tr>
<td>G/F</td>
<td>78/85 (92%)</td>
<td>82/85 (96%)</td>
<td>82/85 (96%)</td>
<td>84/85 (99%)</td>
<td>85/85 (100%)</td>
<td>85/85 (100%)</td>
<td>85/85 (100%)</td>
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<tr>
<td>M/F</td>
<td>43/53 (81%)</td>
<td>49/53 (92%)</td>
<td>51/53 (96%)</td>
<td>52/53 (98%)</td>
<td>52/53 (98%)</td>
<td>53/53 (100%)</td>
<td>53/53 (100%)</td>
</tr>
<tr>
<td>1/F</td>
<td>110/124 (89%)</td>
<td>114/124 (92%)</td>
<td>116/124 (93%)</td>
<td>117/124 (94%)</td>
<td>119/124 (95%)</td>
<td>122/124 (98%)</td>
<td>124/124 (100%)</td>
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<tr>
<td>2/F</td>
<td>71/81 (88%)</td>
<td>78/81 (96%)</td>
<td>78/81 (96%)</td>
<td>81/81 (100%)</td>
<td>81/81 (100%)</td>
<td>81/81 (100%)</td>
<td>78/81 (100%)</td>
</tr>
<tr>
<td>Roof area</td>
<td>49/61 (80%)</td>
<td>52/61 (85%)</td>
<td>53/61 (87%)</td>
<td>55/61 (90%)</td>
<td>58/61 (95%)</td>
<td>61/61 (100%)</td>
<td>61/61 (100%)</td>
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<tr>
<td>External area</td>
<td>13/40 (33%)</td>
<td>20/40 (50%)</td>
<td>24/40 (60%)</td>
<td>25/40 (63%)</td>
<td>30/40 (75%)</td>
<td>37/40 (93%)</td>
<td>40/40 (100%)</td>
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**MEP defect items:**

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<tbody>
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<td>LVS</td>
<td>32/40 (80%)</td>
<td>32/40 (80%)</td>
<td>33/40 (83%)</td>
<td>35/40 (88%)</td>
<td>40/40 (100%)</td>
<td>40/40 (100%)</td>
<td>40/40 (100%)</td>
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<tr>
<td>ELV</td>
<td>40/51 (78%)</td>
<td>42/51 (82%)</td>
<td>45/51 (88%)</td>
<td>45/51 (88%)</td>
<td>48/51 (94%)</td>
<td>50/51 (98%)</td>
<td>51/51 (100%)</td>
</tr>
<tr>
<td>ECS</td>
<td>43/56 (77%)</td>
<td>45/56 (80%)</td>
<td>48/56 (86%)</td>
<td>50/56 (89%)</td>
<td>54/56 (96%)</td>
<td>56/56 (100%)</td>
<td>56/56 (100%)</td>
</tr>
<tr>
<td>FS</td>
<td>02/43 (98%)</td>
<td>02/43 (98%)</td>
<td>03/43 (100%)</td>
<td>04/43 (100%)</td>
<td>04/43 (100%)</td>
<td>04/43 (100%)</td>
<td>04/43 (100%)</td>
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<tr>
<td>P&amp;D</td>
<td>05/17 (88%)</td>
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<td>16/17 (94%)</td>
<td>17/17 (100%)</td>
<td>17/17 (100%)</td>
<td>17/17 (100%)</td>
<td>17/17 (100%)</td>
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<tr>
<td>Filtration system</td>
<td>02/52 (79%)</td>
<td>03/52 (79%)</td>
<td>04/52 (87%)</td>
<td>04/52 (94%)</td>
<td>04/52 (94%)</td>
<td>04/52 (94%)</td>
<td>02/52 (100%)</td>
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<tr>
<td>Lift</td>
<td>02/100%</td>
<td>02/100%</td>
<td>02/100%</td>
<td>02/100%</td>
<td>02/100%</td>
<td>02/100%</td>
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</tbody>
</table>
2. Experience Sharing

Case 2: Team preparation for Government pre-handover visits
Preparation for Government pre-handover visits

- Pre-handover Inspections with Government & MTR started from end June 2016 to identify defects and outstanding items.

- Items which must be completed before project completion are:
  (i) Statutory;
  (ii) Safety;
  (iii) Operational

---

**WIL713 - Kennedy Town Swimming Pool Phase 2**

**Pre-Handover Inspection Schedule with MTR**

<table>
<thead>
<tr>
<th>Item</th>
<th>Date for Pre-handover</th>
<th>By Authority</th>
<th>Floor</th>
<th>Room no.</th>
<th>Room/ Location Name</th>
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<tbody>
<tr>
<td>1</td>
<td>30/6/2016 (A)</td>
<td>MTR</td>
<td>Phase 1 - 1/F</td>
<td>-</td>
<td>Male Changing Room</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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<td>-</td>
<td>Female Changing Room</td>
</tr>
<tr>
<td>3</td>
<td>4/8/2016 (A)</td>
<td>MTR</td>
<td>Phase 1 - 1/F</td>
<td>-</td>
<td>First Aid Room</td>
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<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>Other 1/F Area</td>
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<tr>
<td>5</td>
<td>8/8/2016 (A)</td>
<td>MTR</td>
<td>Phase 1 - G/F</td>
<td>-</td>
<td>All Area (excluding signage)</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>All Area</td>
</tr>
<tr>
<td>7</td>
<td>16/8/2016 (A)</td>
<td>MTR</td>
<td>1/F</td>
<td>-</td>
<td>Training Pool (Tile)</td>
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<tr>
<td>8</td>
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<td>MTR</td>
<td>1/F</td>
<td>-</td>
<td>Jacuzzi (Tile)</td>
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<tr>
<td>9</td>
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<td>MTR</td>
<td>1/F</td>
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<td>Top Floor</td>
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<td>Roof</td>
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<td>External Wall - Sea Side</td>
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<td></td>
<td>-</td>
<td>External Wall - Facing Landscape Area</td>
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<td>MTR</td>
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<td>Multi-Purpose Pool (Tile)</td>
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<td>16</td>
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<td></td>
<td>G/F</td>
<td>1301C</td>
<td>Fitting Plant Room</td>
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<td>1302</td>
<td>AC Plant Room 1</td>
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<td>18</td>
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<td>Corridor &amp; TOB</td>
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<td>19</td>
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<td>Compressor Room</td>
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<td>AC Switch Room</td>
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<td>1308</td>
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<td>Corridor</td>
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<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>1315</td>
<td>Dose Generator Room</td>
</tr>
</tbody>
</table>

---

**WIL713 - Kennedy Town Swimming Pool Phase 2**

**Pre-Handover Schedule for ABMMS Works with Gov Department**

<table>
<thead>
<tr>
<th>Item</th>
<th>Date for Pre-handover</th>
<th>By Authority</th>
<th>Floor</th>
<th>Room no.</th>
<th>Room/ Location Name</th>
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<tbody>
<tr>
<td>1</td>
<td>27/8/2016 (A)</td>
<td>ICSD/Q SYEM/ EMIS/RDO</td>
<td>Phase 1 - 1/F</td>
<td>-</td>
<td>Male Changing Room</td>
</tr>
<tr>
<td>2</td>
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<td></td>
<td></td>
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<td>Female Changing Room</td>
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<tr>
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<td>All Area (excluding signage)</td>
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<tr>
<td>4</td>
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<td>Other 1/F Area</td>
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<td>5</td>
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<td>Phase 1 - 1/F</td>
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<td>First Aid Room</td>
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<td>1/F</td>
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<td>Training Pool (Tile)</td>
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<td></td>
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<td>Multi-Purpose Pool (Tile)</td>
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<td>AC Plant Room 1</td>
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<td></td>
<td></td>
<td></td>
<td>1315</td>
<td>Dose Generator Room</td>
</tr>
</tbody>
</table>

---

22/11/2016
Preparation for Government pre-handover visits

Phase 2 inspection and re-inspections on 14/9/16, 23/9/16 & 28/9/16

LCSD Chiefs inspection on 30/9/16

LCSD AD inspection on 7/10/16
Case 2 - Lessons Learnt

• 1. Early discussion with Government to agree pre-handover inspections programme.

• 2. Defects were identified by MTR & rectifications were completed prior to pre-handover inspections by Government to minimize the number of defects for Government’s inspections.

• 3. To cater for a large number of Government inspectors in various engineering disciplines, MTR-PY team provided necessary number of colleagues to work with Government inspectors to record defects.
Case 2 - Lessons Learnt

4. Sufficient time was allowed in the programme for re-inspections

5. Detailed monitoring and tracking of defects rectification status to ensure that most of the defects will be rectified before handover

6. Close liaison with Government to avoid any possible misunderstanding of the defect rectification requirement
2. Experience Sharing

Case 3 - Problems encountered during WSD statutory inspections & rectification actions
Incident of excessive Lead Content In Portable Water: WSD issued several Circular Letters, which make very difficult to obtain WWO 046 approval

WSD took approx. 3 months for review and comment (normally 1.5 month turnaround period)
WSD Inspection Event

• On 12 Jul 2016, partial statutory inspection on cleansing pipe failed. Five points were deducted from the Licensed Plumber (LP).

• Extensive subsequent inspections on FS pipes and fittings were expected with further possible points deduction from the LP based on revised Point penalty system (PPS) which could lead to the LP’s license suspension.

• Original planned submission date for WWO 046 Part IV (FS): 13 Jul 2016 could no longer be achieved.

➢ Action: PY seek MTR and RDO’s assistance to approach WSD for advice.
➢ MTR, RDO and PY had meeting with WSD on 1 Aug 2016
Findings of pipes & fittings inspections

- Majority of pipes in 1/F are installed at the high-level positions
- Considerable amount of pipes are concealed in false ceiling
Difficulties in WSD Inspection

1) Hard to access to concealed pipe in false ceiling for inspection

2) Use of high-level access platform (~14m height) to carry out inspection

3) Relative long inspection period by WSD inspectors to view all standards and brand names marked on all pipes and fittings
Inspection Format Proposal

• Inspection focus on easy accessible areas by access platform or cherry pickers

• Pipes located in hard to access areas to be referred in the following MTR/ PY in-house inspection records:
  – Procurement Order or Delivery Note of the materials.
  – MTR inspection records for material delivery on site
  – MTR inspection records for installation works before cover up
Inspection Format Proposal

• Advantages of inspection focus on easy accessible areas:

  1) Shorten inspection time

  2) Reduce inspection difficulties

  3) Timely project completion due to manageable amount of bamboo platform erection and false ceiling dismantlement

  ➢ WSD agreed 713 team’s inspection format proposal on 1 Aug 2016
Schedule for WSD (FS) Inspection

• WSD inspection date for FS pipes & fittings: 23 Aug 16
To facilitate WSD inspection, the following was arranged:

1. Scissor platforms & Cherry pickers (with plywood floor protection);
2. Access bamboo platforms;
3. Ceiling dismantling
1/F & 2/F High Level Inspection Plan by Scissor Platform/ Cherry Picker

- Inspector has make use the scissor platform to high-level for inspection
- Detail inspection on main routing, pipes & fittings brand names

- General visual inspection on main routing from pool deck level, not access through the cherry pickers

Area accessible by scissor platform/ cherry picker
Bamboo Scaffolding

Erection period: 11/8/16 – 12/8/16
Serving period: 13/8/16 - 25/8/16
- General visual inspection on main routing and sprinkler head locations from pool deck level, not access through scissor platform

Erection period: 7/8/16 – 18/8/16
Serving period: 19/8/16 – present
- Inspector has make use the scaffolding to high-level for inspection
- Details inspection on main routing, pipes & fittings brand names

Erection period: 7/8/16 – 18/8/16
Serving period: 19/8/16 – present
- General visual inspection on main routing and sprinkler head locations from pool deck level, not access through scaffolding

Erection period: 11/8/16 – 12/8/16
Serving period: 13/8/16 - 25/8/16
- General visual inspection on main routing from pool deck level, not access through scissor platform

Inspection through Bamboo Scaffolding on 1/F & 2/F Plan
Grid 9-10/B-D, 1/F ceiling
Visual inspection on main routings from 1/F pool deck level

Grid 10-11/A-F, roof ceiling
Visual inspection on main routings from 1/F pool deck level

Grid 10-11/A-E, 1/F ceiling
Visual inspection on main routings from 1/F pool deck level

Grid 11-18/A-B, false ceiling
Detail inspection on main routings, pipes and fittings brand names through access bamboo scaffolding

Ceiling dismantled
Case 3 – Lessons Learnt

1. The team was still following previous experience to prepare for WSD statutory inspections which have been tightened up by WSD after the Lead in Water incident.

2. The team should have made an enquiry with WSD to understand the tightened up inspection requirements in the preparation of the inspections.

3. As a result, the entire Government inspection programme was delayed.
Case 3 – Lessons Learnt

• 4. However when the partial statutory inspection failed on 12 Jul 2016, the team took appropriate action immediately to address the issues arising from the failed inspections including a visit to WSD office on 1 Aug 2016 to better understand their inspection requirements.

• 5. From this experience, it is very important for the team to stay vigilant of any possible changes in Government inspection practice during the entire construction period.
2. Experience Sharing

Case 4 - Issues encountered during close out of Potential early warnings & early warnings
### Potential Early Warnings

<table>
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<tr>
<th>Det</th>
<th>Total Transmitted No.</th>
<th>Subj.</th>
<th>By</th>
<th>Status</th>
<th>Cost Event YYN</th>
<th>Program Risks Code YYN</th>
<th>Received Issued Date</th>
<th>Description</th>
<th>Agreed Solution</th>
<th>Agreed Time (T)</th>
<th>EAR Ref</th>
<th>EAR Issued Date</th>
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<tbody>
<tr>
<td>0</td>
<td>330</td>
<td>Assigned</td>
<td>Leon</td>
<td>Complete</td>
<td>N</td>
<td>N</td>
<td>28-05-19</td>
<td>Fitting top gutter G115 displaying out of position</td>
<td>PVC to taker TPP previous comment to mock-up and provide details.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0</td>
<td>353</td>
<td>Assigned</td>
<td>Leon</td>
<td>Complete</td>
<td>N</td>
<td>N</td>
<td>28-05-19</td>
<td>Alternative design of lighting pole (Autodesk)</td>
<td>PB has no issue comment. PVC to review the weld work shop drawing and autocad design check certificate for record.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>0</td>
<td>354</td>
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<td>Leon</td>
<td>Complete</td>
<td>Y</td>
<td>N</td>
<td>10-06-18</td>
<td>Water accumulation at end of gutter grid 10 and grid 19</td>
<td>PVC replied that the rain grids at grid 11 to 15 to be shifted forward grid 13. Gutter at grid 19 additional stainless steel plate should added to the lower part of the gutter to ensure water fall to the RWCS. PVC has issued the EAR-210 for the proposed additional work.</td>
<td>N/A</td>
<td>231</td>
<td>2016-05-11</td>
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<tr>
<td>0</td>
<td>355</td>
<td>Assigned</td>
<td>Leon</td>
<td>Complete</td>
<td>Y</td>
<td>N</td>
<td>10-06-18</td>
<td>LED message display board</td>
<td>PVC received a list of LED message display board are required. PVC confirmed 2 LED display boards plus 1P5V sine and one 40A fuse shall be supplied in phase 3.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>0</td>
<td>356</td>
<td>Assigned</td>
<td>Leon</td>
<td>Complete</td>
<td>Y</td>
<td>N</td>
<td>10-06-23</td>
<td>Ensure rain water from the lower part of drain system</td>
<td>CTR to reply the EAR.</td>
<td>N/A</td>
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<tr>
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<td>357</td>
<td>Assigned</td>
<td>Leon</td>
<td>Complete</td>
<td>Y</td>
<td>N</td>
<td>10-06-25</td>
<td>Request for confirmation for reducing size of issuing L2A at ST-01 2P</td>
<td>PVC has no comment to reduce the size. TTP to confirm and reply.</td>
<td>2015-07-03</td>
<td>218</td>
<td>2015-08-21</td>
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<tr>
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<td>358</td>
<td>Assigned</td>
<td>James</td>
<td>Complete</td>
<td>Y</td>
<td>N</td>
<td>10-06-25</td>
<td>False ceiling at phase 1 changing rooms</td>
<td>The size of the light fitting that is provided by PY CEM was found smaller than the existing opening of false ceiling panel. PY CEM has submitted the alternative light fitting for further comment. PVC has provided the standard light fitting for TTP to confirm and reply.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>0</td>
<td>359</td>
<td>Assigned</td>
<td>Leon</td>
<td>Complete</td>
<td>Y</td>
<td>N</td>
<td>10-06-25</td>
<td>Ensure the interface detail between zinc wall cladding and metal cladding (piv 10)</td>
<td>PVC checked. TTP to review and reply by 29/6.</td>
<td>N/A</td>
<td>218</td>
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<td>N</td>
<td>10-06-25</td>
<td>Installation of column cash dampers and the damper on 1.5F pool deck</td>
<td>PVC confirmed to be carried out.</td>
<td>218</td>
<td>2015-06-13</td>
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<td>EOS</td>
<td>Complete</td>
<td>Y</td>
<td>N</td>
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<td>Installation of an air duct lined with glass on 1F pool deck</td>
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<td>218</td>
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<td>Installation of condenser drain pipe for WVR outdoor unit on 2F</td>
<td>PVC to reply the EAR-205.</td>
<td>217</td>
<td>2015-07-23</td>
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<td>Connection of condenser drain pipe for WVR outdoor unit on 2F</td>
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<td>PVC to reply the EAR-205.</td>
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<td>Connection of condenser drain pipe for WVR outdoor unit on 2F</td>
<td>PVC to reply the EAR-205.</td>
<td>217</td>
<td>2015-07-23</td>
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## Early Warnings

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<th>EAR No.</th>
<th>Early Warning No.</th>
<th>Description</th>
<th>Status</th>
<th>Remarks</th>
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<td>C</td>
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</tbody>
</table>

**Information for NEC Contracts**

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Case 4 – Lessons Learnt

• 1. Potential early warnings were still raised during the late stage of the project indicating that some colleagues did not quite understand the purpose of PEWs

• 2. Also many early warnings were raised during the late stage of project which the responsible persons did not take timely action to close them according to the NEC procedure
3. These issues were identified during the weekly discussion of PEWs and EWs. As a result the team needed to work very hard to close them out which were not expected at the beginning of the project.

4. This is a good lesson learnt for future projects to make sure that every team member needs to have a full understanding of the purposes of PEWs and EWs and close them out on a progressive manner.
Thank You
Additional Clauses: Good Practice
Objectives

At the end of the session, you should be able to:

• To understand how and when the use of Z clauses is appropriate.
• To understand good management practice in relation to Z clauses
• To apply the step by step guide on the drafting of Z clauses to their own projects.
What are Z Clauses?

- Additional conditions of contract
  - Have the same status as core and optional clauses
  - Incorporated through the Contract Data
1 General  The *conditions of contract* are the core clauses and the clauses for main Option A, dispute resolution Option **W1** and secondary Options **X3, X4, X7, X13, X16 and Z** of the NEC3 Engineering and Construction Contract (April 2013)

If Option Z is used

- The *additional conditions of contract* are **set out in part 2 of the enquiry documents**

(source: Guidance Notes for the NEC Engineering and Construction Contract page 155)
Option Z: Additional conditions of contract

This Option should be used where the **Employer** wishes to include additional conditions. These should be carefully drafted in the same style as the core and optional clauses, using the same defined terms and other terminology. They should be carefully checked for consistency with the other conditions.

Additional conditions should be used only when absolutely necessary to accommodate special needs, such as those peculiar to the country in which the work is to be done. The flexibility of the ECC main and secondary Options minimises the need for additional conditions. Additional conditions should never be used to limit how the Contractor is to do the work in the contract as this part of the function of the Works Information.

(source: Guidance Notes for the NEC Engineering and Construction Contract page 119)
What is the purpose of a Z clause?

- Should be used where the *Employer* wishes to include additional conditions.
- Should be carefully drafted in the same style as the core and optional clauses, using the same defined terms and other terminology.
- They should be checked for consistency with other conditions.
- They are part of the flexibility of NEC contracts.
What is the purpose of a Z clause?

- Use ONLY when absolutely necessary to accommodate special needs such as those peculiar to the country in which the work is being undertaken.
- The flexibility of the ECC main and secondary Options minimises the need for additional conditions.
- Should NEVER be used to limit how the Contractor is to do the work in the contract as this is part of the function of the Works Information.
Well drafted or poorly drafted?

Well drafted Z clauses contribute to the management of the contract

Poorly drafted Z clauses detract from the management of the contract

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Z clauses

- Z1. Clause 10.1, delete the words ‘Project’ ‘Manager’ from the first sentence
- Z2. Clause 16.1, after the fourth bullet add ‘any changes in the programme’
- Z3. Delete clause 60.1(12)
- Z4. Delete clause 60.2
- Z5. Delete clause 62.6
- Z6. Delete clause 63.8
- Z7. Clause 11.2(25) after ‘and the cost of’, first bullet delete the word ‘after’ and replace with ‘before’
From Clarity to Subjectivity

Clause 60.1 (9) The *Project Manager* withholds an acceptance (other than acceptance of a quotation for acceleration or for not correcting a Defect) for a reason not stated in this contract for any reasonable reason.
Risk transfer?

“The Contractor has had an opportunity of inspecting the physical conditions (including the sub-surface conditions) and other conditions of or affecting the site of the works and is deemed to be fully acquainted with the same before the date of this contract and to have obtained all necessary information as to risks, contingencies and all other circumstances which may influence or affect the execution of the works. No failure on the part of the Contractor to discover or foresee any such condition, risk, contingency or circumstance entitles the Contractor to any additional payment (whether by way of an addition to the Prices or otherwise) or to any change to the Completion Date.”
Poorly drafted
(5) A Defect is

• a part of the works which is not in accordance with the Works Information or

• a part of the works designed by the Contractor which is not in accordance with the applicable law or the Contractor’s design which the Project Manager has accepted

• any defect, shrinkage or other fault in the works which is due to failure of the Contractor to comply with his obligations under this contract or to frost occurring before Completion

What does this amendment add? Why add “frost occurring”?
Notwithstanding any other provision of this contract, the Contractor is not relieved from any of his obligations or liabilities under or arising out of this contract nor are such obligations or liabilities removed, restricted, limited or qualified in any way by the presence of the Employer, the Supervisor or the Project Manager or any of their agents or representatives on the Site or the carrying out of tests on the instructions of the Employer, the Project Manager or the Supervisor, nor by any instruction, direction, admission, consent, approval, acceptance, confirmation, comment, certificate, sanction, acknowledgement, advice or inspection made or given by or on behalf of the Employer, the Supervisor or the Project Manager.

What does “Notwithstanding” mean? I can’t be bothered to read the rest of the contract? Isn’t this already covered by clause 14.1? So long (115 words) lost the intent of the clause?
Early Warning (16.1)

The Contractor and the Project Manager give an early warning by notifying the other as soon as either becomes aware of any matter which could

- increase the total of the Prices
- delay Completion
- delay meeting a Key Date or
- impair the performance of the works in use
Be careful what you wish for? Are all these additional words necessary? Do they add anything?
Poor use of Z clauses

- Unnecessary clauses – eg compliance with the applicable law

- Provisions which should have been in Works Information/Service Information or Scope

- Repetition of provisions covered by existing contract clauses, thus creating conflict/ambiguity – Change to risk profile of contract
When Option C, D or E is used in a partnering arrangement it is common for the Project Manager to want more influence over the selection of a Subcontractor. This can be achieved by setting down the processes to be followed in an Option Z clause.

Especially under Option F, detailed procurement procedures should be stated clearly, preferably in a Z clause. These should include such matters as:

- minimum number of competitive tenders,
- criteria on how a Subcontractor is appointed, and
- involvement of the Project Manager in the procurement process and acceptance of Subcontractors.

(source: Guidance Notes for the NEC Engineering and Construction Contract page 45)
One method of reducing disputes on this topic is to define in the contract the boundary line between the risks carried by the Employer and Contractor, i.e. to state what tenderers should allow for in their tenders. This can be done, for example, in tunnel works or extensive foundation works by stating the boundary conditions. This should be done by using Option Z to state boundary conditions covering such matters as:

- soil characteristics,
- levels of rock/soil interface,
- groundwater levels,
- permeability limits, and
- overbreak in rock excavation.

Tenderers will then be able to tender on a common basis, knowing that they must allow in their pricing for the occurrence of physical conditions within the stated boundary conditions.

(source: Guidance Notes for the NEC Engineering and Construction Contract page 69)
Flexibility

- The Works Information identifies if the contract is to be fully *Employer* designed or fully *Contractor* designed or somewhere in between.
- A choice and range of main Options from main Option A (lump sum) to Option E (cost reimbursable).
- Risk Allocation - NEC contracts have been developed and written to provide a clear balanced approach to risk allocation between the Parties to a contract.
- Flexibility of risk allocation is achieved through the core clauses and
  - choice of main Option
  - choice of secondary Options
  - and through the use of **Z clauses**
Clarity and simplicity

- Plain English
- No legal ease
- Short sentences
- Clear language and terminology
- Every procedure has been work flowed
- No woolly words e.g. “to the satisfaction of the Project Manager”, “at the discretion of the Project Manager”
- Clear defined and identified terms
Stimulus to good management

The two principles on which the ECC is based and which impact upon the objective of stimulating good management are:

- foresight applied collaboratively mitigates problems and shrinks risk, and
- clear division of function and responsibility helps accountability and motivates people to play their part” (source: NEC3 ECC Guidance Notes page 3)

Every procedure in the NEC has been work flowed to check that the clause works correctly and does not have any unforeseen consequences.

To encourage good management the contract provides for:

- **Objective tests** e.g. 60.1.(13) weather events
- **Reasons** for decisions – e.g. clause 31.3 reasons for not accepting a programme
- Ambiguities and inconsistencies are construed against the drafter of the document – clause 63.8
Rules for good drafting

• Add to not amend existing clauses

• Use existing NEC provisions in drafting eg use existing reason for termination, in preference to creating new reason

• Adopt NEC text when possible eg; "a reason or not accepting ... Is ...“ clause 21.2
The Z clause process

Z Clauses

Why?

What

How

NEC3 Drafting Objectives & rules for good drafting
Why?
- DEFINE THE PROBLEM
- What is mischief that necessitates a Z clause?

What
- Write down rationale for additional clause – “clause function statement” before trying to draft

How
- Refer back to the contract strategy
- What does the Employer wish to achieve?
- Flow chart changes
- Use experienced drafters
- Check with NEC3 drafting objectives
Why?

- What necessitates a Z clause?
- ‘Additional conditions should be **USED ONLY WHEN ABSOLUTELY NECESSARY** to accommodate special needs such as those peculiar to the country in which the work is to be done.’
Define the problem

• Decide what the problem is that needs an additional provision
• Recognise the effect of the new provision on the rest of the contract
• Use Works/Service Information or Scope for things within their definition. Remember – Flexibility, clarity and simplicity, stimulus to good management
• Do not change the risk allocation simply because you do not like it – use a different contract!
• The question why identifies any omission or need for addition to the contract. It requires the drafter to understand the contract as a whole and recognise any issue that needs to be dealt with differently. Is additional condition of contract needed or can this be dealt with through the Works Information/Scope?

• Write down rationale for additional clause – “clause function statement”
## Clause function statement

<table>
<thead>
<tr>
<th>Item Ref</th>
<th>Why?</th>
<th>What</th>
<th>How</th>
<th>Section of contract</th>
<th>Existing clause no</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What is mischief that necessitates a Z clause?</td>
<td>Write down rationale for additional clause – “clause function statement”</td>
<td>Refer back to contract strategy, defining what the Employer wishes to achieve, and the Risk Register, identifying risks to success, Flow chart changes to identify effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Replacement of parts of the Plant on the contract before the defects date. If a part is replaced a week before the defects date there is no extended liability period for correction.</td>
<td>In the event that a part of the Plant which has been replaced as part of a Defect that there is an extended liability period to cover this replacement part. Identify the Plant to which this requirement will apply.</td>
<td>Add additional wording to core clause 43.3 Identify the Plant to which this clause will apply in the Contract Data Identify the extended liability period in Contract Data</td>
<td>4</td>
<td>43.4</td>
</tr>
</tbody>
</table>
How

Should always refer back to:

• contract strategy - the definition of what the employer wishes to achieve,
• the risk register - identifying risks to success,
• flow chart changes to identify effects,
• drafting by people experienced in NEC Follow key NEC drafting objectives
Is the Defect a Defect in Plant which was replaced as part of a Defect before the issue of the Defects Certificate?

No

Flow Chart 43

Yes

Is it an item of Plant list in the Contract Data?

No

Finish

Yes

What is the extended liability period for the Plant stated in the CD?

Contractor corrects the Defect

Finish

© NEC Contracts
43.3 The **Supervisor** issues the Defects Certificate at the later of the *defects date* and the end of the last *defect correction period*. The **Employer**’s rights in respect of a Defect which the **Supervisor** has not found or notified are not affected by the issue of the Defects Certificate.

1. If, prior to the issue of the Defects Certificate, the correction of a Defect in the **Plant** stated in the **Contract Data** requires the replacement of part of the **Plant**, the **Contractor** corrects any further Defect in the part which has been replaced during the *extended liability period*.

2. The **Contractor** carries the risk of loss or damage caused by or resulting from his work in correcting a Defect after the *defects date*.
Why?
• DEFINE THE PROBLEM
• What is mischief that necessitates a Z clause?

What
• Write down rationale for additional clause – “clause function statement” before trying to draft

How
• Refer back to the contract strategy
• What does the Employer wish to achieve?
• Flow chart changes
• Use experienced drafters
• Check with NEC3 drafting objectives
Avoiding and resolving disputes under NEC contracts
At the end of the session, you should be able to:

- Understand how the drafting of NEC3 contracts helps to avoid disputes
- Avoid disputes BEFORE the contract is made
- Avoid disputes during the work
- Manage disputes
How does the drafting help?
NEC drafting

- NEC contracts are drafted to try ensure that disputes do not arise.
- Clear plain English drafting within minimal legal jargon – written for YOU to understand not your lawyers.
- Minimised subjective phrases such as “fair”, “reasonable” or “opinion”
- Have to give reasons for rejection
NEC drafting

• Allocation of risk is clear and depends upon
  – Main Option
  – List of compensation events
  – Employer’s risks
  – Definitions of Defined Cost (and Disallowed Cost in Options C to F)
Communications

- Communications must be in a form that can be read, copied, and recorded.
- Notifications must be communicated separately.
- Replies have to be within stated period - *period for reply* (not “reasonable period”). If the *Project Manager/Employer* does not respond within the stated period, it will be a compensation event.
Identifying and managing risk

• Clear processes for identifying and managing risk.
• The Risk Register is defined in Clause 11.2(14).
• It includes a
  – description of the risk and
  – a description of the actions which are to be taken to avoid or reduce the risk
Avoiding dispute before the contract is made
Before the contract

- Too many disputes have their origins in a poorly put together contract

- Things that can make or break a contract
  - The Works Information (quality/completeness)
  - The Contract Data
  - To Z clause or not to Z clause?
  - Poor decision making from inadequate approach to risk
Avoiding dispute during the work
Avoiding disputes

- Know and understand the contract and use it rather than ignoring it!
- Remember Clause 10 “mutual trust and co-operation” is a two way street.
  - Used to set the attitude of the people
  - Do not use it to change the contract to what you want it to say!
The role of the Project Manager is vital

- Should be first and foremost good at project management!
- Must have the time to do the job
- Must understand the contract and his role in it
- NOT “the answer is no now what’s the question”!
The processes in the contract

• This is a process led contract. There are processes for everything
  – Identifying and managing risks
  – Programming
  – Payment
  – Dealing with compensation events
• JUST FOLLOW THEM!
Identifying and managing risk

- Use the Risk Register to identify and manage risk
- PM to draw it up with input from Contractor
- Regularly review it
- Change it using the early warning procedures
- Don’t be an ostrich!
• Get an Accepted Programme and keep it updated!
• Use it to help assess compensation events – even if it may not give the answer you want!
Payment

- Follow the procedure closely
- When using ECC Option C to F, understand Defined Cost and Disallowed Cost
Compensation events

• The biggest source of disputes
• Remember 80% of compensation events are changes to the Works Information
• *Contractors* – do not “keep it high”
• *Project Managers* – do not “keep it low”
• There is a procedure with tight timescales to ensure compensations events are dealt with within 6 – 9 weeks – make sure you follow it
Practical tips

• No surprises – inform each other regularly
  – Likely to cost more than indicated?
  – Problems obtaining quotes?
• Keep joint register
• Treat timescales as maximum rather than minimum
• Spend more time on major compensation events
• Work jointly on quotations
• If lots of small events, deal with in batches
Managing disputes
Dispute resolution

• If you can’t avoid disputes, there is a set process for dealing with them
• Use it regularly – don’t wait until the final account and expect all of it to be properly dealt with in 28 days
• Two dispute resolution processes
  – W1 – the preferred option
  – W2 – the option that complies with the UK HGCRA
• Choice is in Contract Data – I will look at W1.
Dispute resolution

- Adjudication is binding but not necessarily final
- The final tribunal is named in the contract – either arbitration or the courts in UK
- Adjudication is obligatory. Cannot use the tribunal until after
  - referral to adjudication for W1 or
  - decision in adjudication for W2
- Parties have 4 weeks after the *Adjudicator*’s decision to notify their dissatisfaction with it otherwise it becomes final as well as binding
Choosing the *Adjudicator*

- Adjudication is supposed to be a peer review
- The *Adjudicator* can be named in the Contract Data Part 1
- Adjudicator nominating body is also named in Contract Data Part 1, for use when an *Adjudicator* is not named in the contract or the *Adjudicator* cannot act
- If named or once subsequently appointed the *Adjudicator* deals with all future disputes
Appointing the *Adjudicator*

- Referring Party issues notice of adjudication to other Party with copy to *Adjudicator* (if named or appointed)
- *Adjudicator* has 3 days to reply, either he
  - Confirms they will decide dispute
  - Confirms they cannot decide dispute, in which case they resigns as *Adjudicator*
- If no reply within 3 days either Party may act as if *Adjudicator* had resigned
Appointing the *Adjudicator*

- If there is no named *Adjudicator* or if *Adjudicator* resigns
  - Parties may choose an adjudicator jointly
  - Either Party may ask named ANB to choose an adjudicator
- ANB chooses adjudicator within 4 days – becomes the *Adjudicator*
- Parties are required to appoint the *Adjudicator* using the NEC *Adjudicator*’s Contract current at starting date
Conduct of the Adjudication

- Within 7 days of notice of adjudication the referring party
  - refers dispute to the *Adjudicator*
  - provides *Adjudicator* with information on which they rely, and
  - provides copy to other party
- Any further information either party relies upon has to be provided within 14 days (can be extended by agreement)
Conduct of the Adjudication

- Adjudicator’s powers include following
  - Review or revise any action or inaction of the Project Manager or Supervisor
  - Alter quotation treated as having been accepted – limited application to 62.6 & 64.4
  - Instruct a Party to provide further information
  - Instruct a Party to take any other action considered necessary to reach decision within stated time.
  - Subcontract dispute joinder possible, but only with agreement of subcontractor
Conduct of the Adjudication

• Time period to make decision is 28 days, which can be extended by
  – Up to 14 days by agreement of Referring Party
  – Any other additional period by agreement of both Parties
• If decision not made in time Parties and Adjudicator may agree to extend time. If not either Party may act as if Adjudicator resigned and start process all over again.
Conduct of the Adjudication

• *Adjudicator* may correct clerical mistake or ambiguity within 14 days of decision
• Decision is made in accordance with the contract
• To assess additional cost or delay to *Contractor* the *Adjudicator* must use same method as for compensation events
The NEC Adjudicator’s Contract

- Tri-party agreement – contract requires it to be used
- If the *Adjudicator* is named in the contract can sign agreement at beginning of contract, or when 1st referral made
- Becomes the *Adjudicator* for all disputes until termination
The NEC Adjudicator’s Contract

- Cannot decide dispute that is “substantially the same” as one previously decided
- Has to comply with Parties’ contract – obvious but requires use of the procedures for adjudication in W1 or W2
- May obtain help after notifying Parties. Must provide parties with copy of information or advice from others and invite comment before making decision
The NEC Adjudicator’s Contract

- Referring Party pays advanced payment (if any) stated in Contract Data
- Parties pay remainder of Adjudicator’s fees and expenses (excluding advanced payment) in equal shares unless otherwise agreed by the Parties.
- Invoice submitted after each decision and after termination
- One party will be liable to Adjudicator if other does not pay fees
The NEC **Adjudicator**’s Contract

- *Adjudicator’s* contract can be terminated
- On date in Contract Data
- When both Parties agree to terminate it
- If the *Adjudicator* decides
  - he is unable to decide dispute,
  - he cannot act because of a conflict of interest
  - an advanced payment has not been made, or
  - he has not been paid within 5 weeks of an amount becoming due
And finally …..

• A true story on how NOT to do it
• Add a Contract Data Part 3 with some of the pre-contract correspondence in it
• Make some changes to the contract, but put them in the Contract Data rather than Z clauses
• Use Option C, but include both an activity schedule and BOQ. State in Contract Data you will use BOQ to value Compensation events, but don’t delete or change clause 63.1
• Don’t have the design finished at tender stage
And it continues ……

- Named *Project Manager* never visited the site
- Delegated *Project Manager’s* actions – but didn’t notify *Contractor*
- Delegated *Project Manager* only visits site once a month
- *Supervisor* “pops in” once or twice a week
- *Project Manager* and *Supervisor* never had any NEC training
- Ignore all early warnings
- Tell the *Contractor* not to issue further programmes
- Take months to reply to compensation event quotes
- Result? – “Adjudication Notice No 1”!
Summary – we have looked at

- How the NEC is drafted to avoid disputes
- How to avoid disputes BEFORE the contract is made
- How to avoid disputes during the work
- Managing disputes
NEC Asia Pacific Users’ Group
Annual Conference 2016
Key Issues to Run “Better” Open Book Accounting

21 November 2016
Hayman Choi, Divisional Director
Agenda

• Open Book Accounting
  • Some Basics
  • Key Operational Elements
  • Key Challenges

→ Better understanding of how to put open book accounting in proper **ACTION** for payment assessment
Open Book Accounting
Some Basics
Open Book Accounting is...

• An approach to determine the contractor’s financial entitlement for procurement of work under which:
  • the contractor is reimbursed with the costs incurred
    • transparent access to records of the costs incurred is given to the client for ascertaining the reimbursement

→ More mutual trust and co-operation needed!
Open Book Accounting under NEC

- Change to the Prices due to compensation events based on Defined Cost
- Payment on cost reimbursable basis:
  - e.g. in Engineering & Construction Contract (ECC):
    - Option C – Target contract with activity schedule
    - Option D – Target contract with BQ
    - Option E – Cost reimbursable contract
    - Option F – Management contract
Amount Due

Price for Work Done to Date (PWDD)

Amount due

plus / less other amounts

plus... to be paid to Contractor

Interest on late payment

Contractor’s share (“Gain”)

etc

etc

less... to be paid by or retained from Contractor

retention (X16)

delay damages (X7)

¼ PWDD if no 1st programme (50.3)

Contractor’s share (“Pain”)

etc
in HK Pilot ECC Target Cost Contracts

PWDD

Fee = fee percentage x Defined Cost

“Est. amount to have been paid by next assessment date” – subject to trial as per DEVB ECC Practice Notes

PWDD = Total Defined Cost paid + Fee
Defined Cost – Record Keeping & Inspection

- Records to be kept by Contractor (52.2) including:
  - Accounts of payments of Defined Cost
  - Proof of payments made
  - Other records stated in Works Information
- Contractor allows PM to inspect all kept accounts and records! (52.3)
- Note: Contractor’s payment application includes “supporting documents” in HK pilot target cost contracts
Open Book Accounting

Key Operational Elements
PM’s Financial Duties

- Payment assessment and certification
- Compensation events – assessment of change to the Prices
- Financial forecasts
- Subcontract tender procurement
- Subcontract account finalization
- Stock management
- Other financial supports e.g.
  - Reduction in Prices due to acceptance of Defects
Proposed Subcontractor not accepted?

• Following a tendering exercise, Contractor has proposed to PM for acceptance of the 2\textsuperscript{nd} lowest tenderer as the proposed Subcontractor since his reputation is better than the lowest tenderer.

• PM does not accept him since it is not justified not to accept the lowest tender on the ground of reputation.
  – Contractor does not appoint him if not accepted by PM (26.2)
Why disallowed?

• In an interim payment assessment:
  
  • *PM* disallows *Contractor’s* cost incurred for the purchase of some steel reinforcing bars delivered to the site because
  
  • *PM* considers the wastage of this Material far too high.
  
  • ….Materials not to Provide the Works (after allowing for reasonable wastage) unless due to change to Works Information → Disallowed Cost (11.2(25) 8th bullet)
In another interim payment assessment:

- **PM** disallows part of the rental charge paid for a backhoe which **Contractor** has brought to the site for Providing the Works because:
  - **PM** considers the backhoe has considerably been under-utilized with idling on the site
  - ….resources not to Provide the Works (after allowing for reasonable availability and utilization)...... → Disallowed Cost (11.2(25) 9th bullet)
Could we handle this better?

• In the final payment assessment:
  
  • *PM* disallows some of the payment already released to a Subcontractor by *Contractor* following their agreement of final subcontract sum because
    
    • *PM* considers some items included in such sum should not have been paid in accordance with the terms of Subcontract (11.2(25) 2\textsuperscript{nd} bullet)
PM’s Financial Duties

- Payment assessment and certification
- Compensation events – assessment of change to the Prices
- Financial forecasts
- Subcontract tender procurement
- Subcontract account finalization
- Stock management
- Other financial supports e.g.
  - Risk reduction process
Subcontract Tender Procurement

• ECC requirements - *PM*’s acceptance for:
  • Proposed Subcontractor + Subcontract Conditions
• In HK pilot target cost contracts - *PM*’s further acceptance for:
  • *Contractor*’s subletting procedures
  • Pre-tender estimates & list of proposed tenderers
  • No. of tenderers if < required minimum no.
  • Recommended tender if not lowest conforming tender
→ *PM*’s involvement to promote competitiveness and better understanding of Subcontractors
Subcontract Account Finalization

- ECC requirements:
  - Not specified but reflected from coverage of Disallowed Cost for Subcontract under Options C to F
  - Checking of subcontract interim and final payments as Defined Cost
    - Workdone
    - Rates
  - Proof of payment ≠ Proof of Defined Cost

→ PM’s involvement to ascertain all paid amounts as Defined Cost
Stock Management

• ECC requirements:
  • Not specified but reflected from coverage of Disallowed Cost under Options C, D & E (ECC 11.2(25))
  • Checking of:
    • Reasonable wastage of Materials and Plant
    • Reasonable availability & utilization of resources
    • Disposal of unused resources and purchased Equipment

→ PM’s involvement to ascertain all paid amounts as Defined Cost
So 2 Key Elements........

- Systems
- People
Good Practice to have systems for....

- Defined Cost assessment
- Financial controls including forecasts on PWDD, target cost & pain-gain share
- Procedural and financial audits
- Stock management
- Participation in subcontract tender procurement and subcontract accounts
- Timely decision making
- Training for technical and “soft” skills
An example of systematic approach....

- **Systems**
  - Guidelines & Directives
    - Financial Audit & Control Manual
    - Tender Procurement Procedures
  - Problem Solving
    - Management Support & Involvement
  - Performance Enhancement
    - Audits
    - Training

- Other services:
  - Payment checking
  - Stock management
  - Subcontract account vetting
  - Financial Control
  - Conditions of contract
  - Accepted Contractor’s Procurement Procedures
  - PM’s Delegation
  - Management Meetings
  - Procedural Audits
  - Financial Audits
  - NEC Application
  - Partnering
Open Book Accounting
Key Challenges
Some Key Challenges...

- Unfamiliarity with or misunderstanding of open book accounting approach
- Assessment and auditing of Defined Costs are time-consuming and contentious
- Need joint efforts not only in payment assessment but tender procurement, stock management, subcontract administration and…….
- People factor – with requisite mind-set and skills
Two Key Issues....... 

- Systems 
- People 

Runs Better Open Book Accounting!
Thank You

Any questions…

hayman.choi@mottmac.com
CLP NEC TSC Contracts

NEC APUG Seminar
21 November 2016

S.M. Ho
Director, Contracts & Procurement

Information Classification: PROPRIETARY
Business Needs

Common Business drivers

– Safety performance
– Operational Excellence
– Cost management

Specific Business Drivers for Power Stations

– Adequate & stable workforces
– Seasonal maintenance and refurbishment works
– Specialised trades
Mix of CLP & different contractors in maintenance, high worker turnover complicating safety and quality control

Less Critical Systems undertaken by Partnering Contracts; CLP resources on critical systems, alongside with asset management and engineering
Contract Packages

- 7 x Major Assets Auxiliaries
- 3 x Ancillaries & Common Services
Gathered Partnering Contracting practices of power utilities

Committed to pilot run of NEC partnering contract

Established two pilot contracts

Concluded pilot satisfactory and committed full roll-out
**Contract Framework**

**Long Term Contracts:** 5 years FC

- **Partnering in nature,** with 1 TSC Option C as Package Order for each year. This allows:
  - Comprehensive review of scope, performance, and price
  - Annual work plan with flexibility to change
  - Encourage collaboration and innovation

- **Performance driven:**
  - Clearly define Safety & Technical KPIs
  - Closely monitor cost expenditure vs Target Cost
  - Pain/Gain linked to Safety and Technical KPI’s
Choosing NEC Partners

Pre-qualification process

Expression of Interest: Assess contractor’s company and financial background.

Credentials Presentation: Assess contractor’s safety and technical capabilities.

Relationship Workshop: Evaluate contractor’s partnering intent.

Tendering: Holistic tender evaluation on safety, technical, and economic aspects.

Information Classification: PROPRIETARY
Build Teamwork and Commitment

• Big launch with all contractors

• Co-location – partnering building

• Dedicated team to coordinate all contracts

• Regular face-to-face review with top management

  – *Show support by acting to address concerns*
Well-defined roles and responsibilities

- **NEC Management Team** provides strategic direction and leadership

- **Partnering CRO** (PCRO) collaborates with NEC Partner to set performance targets, monitor performance achievements, and drive for continuous improvement.

- **Departmental CRO** (DCRO) is the key departmental representative, who consolidates the departmental needs and monitors the departmental performance. DCRO also supports and deputizes PCRO’s duties

- **RO** monitors NEC Partner’s performance in safety, technical, cost and quality for his/her task.
Tailored process supported by IT system

**Internal Procedures:**

- Outline operational process, e.g. Target Cost setting, Compensation Event, pain/gain sharing
- Align with the requirements stipulated in CLP’s policies and procedures
- Define governance organisation, individual’s roles and responsibilities.

**Partnering Contract IT System:**

- Captures all cost elements under the contract
- Interfaces with other IT systems, such as work management, purchase-to-pay systems and contractor’s entry system
Managing Delivery

- Measure the performances and review monthly with PCRO and quarterly with Mgt Team
- Escalate to Champion and Mgt Team if adverse performance

- Compensation Event (CE) as a NEC tools to cater any risk
- Provide channel, i.e. PCRO and Champion for any early warning
- Contract Audit to provide further verification

- Keep “Defined Cost” component in the IT System as an “Open Book” approach.
- RO to review the work reasonableness
- PCRO to keep the overall process control

Quarterly survey to measure Partnering Behavior attributes such as mutual objective, problem solving, open & transparency, continuous improvement and innovation

Information Classification: PROPRIETARY
Overall Review

Achieved objectives
- Safety
- Performance
- Cost

Challenges
- Administration efforts for actual cost
- Takes time to mature – process and performance, then cost and innovations
- Need strong drive from top management of Owners
- Process compliance and efficiency

- Stable and competent workforce
- Tap expertise of contractors
- Rigorous drive to reduce costs
- Regular performance review with incentive/penalty
**Comments & Recommendations**

**NEC an effective tool to drive business objectives**

Invest efforts in:

- People culture: employer & contractors
- Customised process and IT system
- Training for NEC and technical
- Drive costs & innovations to sustain improvements
- Follow through partners’ concerns
- Conduct review after initial launch
- Top management involvement

- Be prepared that it takes time, a couple of years to mature
- Continuous efforts to deliver sustainable benefits
- Focus in improving your business needs
“Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning.”

Winston Churchill