Method Statement

Building Investigation Survey

BY

Infratech ASTMC Co., Ltd.
บริษัท อินฟราเทค เอสทีเอ็ม จำกัด
1032/217 Phaholyothin 18/1 Rd. Bangkok 10900
Tel.: 2-272-2474 Fax: 02-272-2475
www.i-astm.com
METHOD STATEMENT
BUILDING INVESTIGATION SURVEY

General
Building investigation survey of the surrounded buildings or structures that may be affected by underground construction or vibration from construction shall be performed prior to the commencement of the work.

The up-to-date reports will be used to determine compensation cost to the building owner within the influence zones in future.

Scope of work
The scope of work shall comprise of:
- General physical of buildings before construction and ages of building
- Strength of building structure
- Any cracks or damages appearing on building with detail of measurement
- Differential settlement of building
- Identification of building usage and malfunction
- Foundation system of building

Methodology
The method to collect information as described in the scope of work can be summarized as follows;

1. Make appointment with building owners or representatives to interview and sign of acceptance of existing building condition before construction.
   From the interview, we will collect information of building i.e., ages of building, type and length of piles, previous accident (fire or external vibration) etc.
2. Take photograph and record VDO of any existing cracks, malfunction of utility of the building.
3. Check differential settlement of the building at each corner by survey instruments and check size of existing cracks (if any).
4. Record all information use the recording form as shown in Appendix A
5. Collect all data from recording from and produce report which including AutoCAD files for plan of all the of the building within the influence zone together with all photographs and VDO clip in the digital format to produce final report.
APPENDIX

APPENDIX A – RECORDING FORM SHEET

APPENDIX B – COMPANY REFERENCES

APPENDIX C – CV OF LICENSE ENGINEER FOR BUILDING INVESTIGATION
APPENDIX-A

RECORING FORM
**General Information**

**Building / Project:**  

**Address:**  

**Type of Building**

<table>
<thead>
<tr>
<th>Width (m)</th>
<th>Length (m)</th>
<th>Age (years)</th>
</tr>
</thead>
</table>

**Usage:**  

**Type of Foundation**

- [ ] Timber
- [ ] Bore pile
- [ ] Driven pile
- [ ] Other

**Settlement**

**Cracks/Damages**

<table>
<thead>
<tr>
<th>Details (location/degree)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Crack Classification**

- [ ] **hairline** width < 0.4 mm.
- [ ] **small** width 0.4-1.6 mm.
- [ ] **moderate** width 1.6-6.0 mm.
- [ ] **big** width 6.0-12.0 mm.
- [ ] **severe** width > 12.0 mm.
APPENDIX-B

COMPANY REFERENCES
(BUILDING INVESTIGATION)
Ref. : 17/MON/MRTA-N/0001

November 25, 1997

ASTM Testing Co., Ltd.
437-439 Kampaengpet Road
Lad Yao, Jatujak, Bangkok 10900

Attention : Mr. Kamthom Likhitpongsathong

Subject : Letter of Award for Building and Structures Condition Survey
MRTA Underground Structures-North Contract

Dear Sir,

We hereby advise that ION Joint Venture accepts your quotation for Building and Structures Condition Survey dated September 30, 1997 at an estimate value of 1,488,800 baht (excluding VAT) subject to the following conditions:

1. Scope

1.1 ASTM shall undertake a Condition Survey of all structures within the zone of potential influence as shown on the attached drawings W/GE/50-001 to 008. The definition for zone of influence will be as explained in Ove Arup letter ref. 22456/0013arg, let dated September 25, 1997.

1.2 The scope of work shall be according to Ove Arup & Partners International letter ref. 22456/PAT dated October 2, 1997, and ASTM’s Proposal for Building and Structure Condition Survey.

1.3 ASTM shall be responsible for obtaining approval from building owners and relevant authorities in order to carry out the survey work.

1.4 The quotation for Building Settlement Points included in your quotation dated September 30, 1997 shall not be included in your scope of work.

1.5 The final quantity of work for each item shall be subject to remeasurement and shall be agreed by ION Joint Venture.

1.6 ION JV reserve the option to instruct the resurvey of buildings near S16 and S18 following demolition works by MRTA. The additional works will be carried out according the working schedule of ION JV and the BQ Rates in ASTM quotation dated September 30, 1997.

2. Commencement

The Date for Commencement shall be November 26, 1997. All works including submission of final report shall be completed within 4 months of the Date for Commencement.
3. Payment Terms

Payment shall be made monthly, based on progress of work. Payment will be processed by ION Joint Venture within 30 days of receipt of the contractor's invoice.

Yours faithfully,

[Signature]

Tawatchai Suthiprapha
Project Director

Encl. 1. ASTM quotation dated September 30, 1997
2. Ove Arup letter ref. 22456/PAT dated October 2, 1997
3. Drawings W/GE/50-001 to 009
27th March 1997

A.S.T.M. Testing Co., Ltd.
438, 440, 441 Kampanget Rd.
Behind Jatujak Park, Bangkok 10900

Attention: Khun Kamthorn Likhitponsathong
General Manager

Dear Sirs,

MRTA Initial System Project
Underground Structures - South
Building and Structures Condition Survey
Letter of Acceptance and Notice to Proceed.

We have pleasure in awarding the Sub-Contract to you for the subject works covering:

1. Building condition surveys to all buildings inside, or partially inside, the revised Influence Zone,

2. Structures condition surveys to all structures inside, or partially inside, the revised Influence Zone,

3. The identification, surveying and plotting of buildings and structures within the revised Influence Zone, and agreement of same with the Contractor,

4. Completing the survey forms, taking detailed record photographs, preparing accurate sketches and drawings for submission to the Contractor,

5. Preparation of progress reports, a draft report and the Final Report for the Contractor's approval,

all as defined in the Tender documents, Addenda's 1 and 2 thereto, the revised scope of work to include for the identification and surveying of buildings within the revised Influence Zone, and your revised rates and prices (where applicable) as contained in your letter dated 18th March 1997, which shall form the basis of the Sub-Contract.

The revised Tender Sum offered by yourselves is Baht 561,500.00 as given in the Consolidated Tender Documents attached (in two originals). You are requested to sign and return both documents for incorporation into the Sub-Contract.

It will be necessary to incorporate the addenda and the revised scope of works into the Sub-Contract document, and this may require some modifications to Schedule No.2 of the Sub-Contract in order to ensure proper coverage of the revised Sub-Contract Works. However, please note that unless expressly provided for in writing, as of this date, all other documents or conditions submitted by yourselves shall not be included in the Sub-Contract documents and shall not form part of the Sub-Contract.
Letter of Acceptance and Notice to Proceed

We confirm that you are to commence the Sub-Contract Works on Site by 28th March 1997, and that you are required to proceed with due diligence and without delay, and to complete the Sub-Contract Works by 27th June 1997.

In this respect, and in accordance with Clause 8 of the Conditions of Sub-Contract, please submit your Sub-Contract Programme for agreement by ourselves.

Please also submit a Sub-Contractor’s Warranty in favour of the Employer as required under Clause 7 of the Conditions of Sub-Contract (copy of format enclosed). Please also forward the power of attorney for the persons signing the Sub-Contract and the Warranty.

The Sub-Contract documents will be forwarded to you in due course in two originals, for your signature, company stamp and provision of the stamp duty.

Yours faithfully,

Sombat Kitjalisaksana
Project Manager

Ernst F. Weber
Co-Project Manager

Encl: Form of Sub-Contractor's Warranty
Consolidated Tender Document (2no. originals)

AP/sc
Underground Structures : ION Joint Venture
Building and Structural Condition Survey Works  Bill of Quantities

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Rate</th>
<th>Total Baht</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A- Field Work And Report</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Field Survey and Completion of Building Condition Survey Form excluding photographs and Building Deficiency sketches to be paid under items A2 and A3, respectively. (Assuming total number of building to be surveyed 50% increase in the number of building shown in the contract drawing provided by ION JV)</td>
<td></td>
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<tr>
<td>A1.1</td>
<td>Building with total floor area less than 500 sq.m.</td>
<td>No.</td>
<td></td>
<td></td>
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<tr>
<td>A1.2</td>
<td>Building with total floor area between 500-2000 sq.m.</td>
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<td></td>
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<tr>
<td>A1.3</td>
<td>Building with total floor area between 2000-5000 sq.m.</td>
<td>No.</td>
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<tr>
<td>A1.4</td>
<td>Building with total floor area more than 5000 sq.m.</td>
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<tr>
<td>A2</td>
<td>Photographs for the Works Covered in A1</td>
<td>No.</td>
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<td></td>
<td></td>
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<tr>
<td>A3</td>
<td>Building Deficiency Sketches for buildings covered in A1 (item 'F' &amp; 'G' BCS Form)</td>
<td>No.</td>
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<tr>
<td><strong>Total For Bill A :</strong></td>
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<tr>
<td></td>
<td>Field Work &amp; Report Carried to Form of Tender</td>
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<tr>
<td><strong>B- Field Work For Structure Condition Survey</strong></td>
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<tr>
<td>B1</td>
<td>Structure Condition Survey Forms</td>
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<tr>
<td>B1.1</td>
<td>Complete Structure Condition Survey Form for the Rachada Lad Phrao Intersection Flyover</td>
<td>No.</td>
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<tr>
<td>B1.2</td>
<td>Complete Structure Condition Survey Form for the Expressway and Flyover at Pahanyothin Viphawadee intersection</td>
<td>No.</td>
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<tr>
<td>B1.3</td>
<td>Complete Structure Condition Survey Form for the Pedestrian Bridges</td>
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<tr>
<td>B1.4</td>
<td>Complete Structure Condition Survey Form for Flyover Bridge at Pahanyothin Kampangpetch intersection</td>
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<td>B1.5</td>
<td>Complete Structure Condition Survey Form for Khlong Bang Sue Bridge</td>
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<td>B1.6</td>
<td>Complete Structure Condition Survey Form for Khlong Nuam Kaew Bridge/Culvert</td>
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<td>B1.7</td>
<td>Complete Structure Condition Survey Form for Railway Track at Bang Sue</td>
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<td>B1.8</td>
<td>Complete Structure Condition Survey Form for Passageway under Railway Track at Bang Sue</td>
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<tr>
<td>Item No.</td>
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<td>Unit</td>
<td>Quantity</td>
<td>Unit Rate</td>
<td>Total Baht</td>
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<td>B2</td>
<td>Photographs for Works Covered in item B1</td>
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<tr>
<td>B2.1</td>
<td>Photographs for Works covered in item B1.1</td>
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<tr>
<td>B2.2</td>
<td>Photographs for Works covered in item B1.2</td>
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<td>Photographs for Works covered in item B1.3</td>
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<td>B2.4</td>
<td>Photographs for Works covered in item B1.4</td>
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<td>B2.5</td>
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<td>B2.7</td>
<td>Photographs for Works covered in item B1.7</td>
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<td>B2.8</td>
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<td>B3</td>
<td>Structural Deficiency Sketches</td>
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<tr>
<td>B3.1</td>
<td>Structural Deficiency Sketches for covered in item B1.1</td>
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<td>B3.2</td>
<td>Structural Deficiency Sketches for covered in item B1.2</td>
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<td>B3.3</td>
<td>Structural Deficiency Sketches for covered in item B1.3</td>
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<td>B3.4</td>
<td>Structural Deficiency Sketches for covered in item B1.4</td>
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**Total For Bill B:**

<table>
<thead>
<tr>
<th>C- Reports</th>
<th>Unit</th>
<th>Summary</th>
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<tbody>
<tr>
<td>C1 Progress Reports (weekly)</td>
<td>Sum</td>
<td>Lum Sum</td>
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<tr>
<td>C2 Draft Report (2 copies)</td>
<td>Sum</td>
<td>Lum Sum</td>
</tr>
<tr>
<td>C3 Final Report (one original and 3 copies)</td>
<td>Sum</td>
<td>Lum Sum</td>
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**Total For Bill C:**

Carried to Summary page
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<tr>
<th>Item No.</th>
<th>Description</th>
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<th>Quantity</th>
<th>Unit Rate</th>
<th>Total Baht</th>
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<tbody>
<tr>
<td>D1</td>
<td><strong>D- AutoCAD Works for Addition Details</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Surveying and plotting of additional building blocks and other details covering 30 m from the center line of alignment and 60 m from edge of Diaphragm Wall at the station</td>
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Total For Bill C:

Carried to Summary Page
Underground Structures : ION Joint Venture
Building and Structural Condition Survey Works  Bill of Quantities

<table>
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<th>Item No.</th>
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<th>Unit</th>
<th>Quantity</th>
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<tbody>
<tr>
<td></td>
<td><strong>Summary</strong></td>
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<tr>
<td>A</td>
<td>Field Work for Building Condition Survey</td>
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<tr>
<td>B.</td>
<td>Field Work for Structure Condition Survey</td>
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<tr>
<td>C</td>
<td>Reports</td>
<td></td>
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<tr>
<td>D</td>
<td>Autocad works for additional details</td>
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</tbody>
</table>

Total Carried to Form of Tender
APPENDIX-C

CV OF LICENSE ENGINEER
(BUILDING INSPECTION)
Thamrong Somprouks

Civil Engineer

Personal Data

Date of Birth
November 24, 1956

Citizenship
Thai

Marital Status
Married

Language
Thai, English

Educational Background

High school
The Prince Royal's College, Chiang Mai, 1975.

Bachelor Degree
Civil Engineering, Chiang Mai University, 1979.

Master Degree

Professional

- Professional Engineer Category, C.O.E., No. PE. 3882.
- Building Inspector, No. BOR. 1410 / 2551.

Training

- Quality of Control Program (Q.C.), Class 1, Civil Engineering Departments, State Railway of Thailand.

- Construction Management of Manager, Class 1, Chulalongkorn University.

- Accounting Training for Manager, SGV Accounting Academy, Chiang Mai.
Work Experiences (1979-2010)

Structural Engineer
Northern Architect and Engineer Limited Partnership. 1979

Assistant District Engineer
Lampang District, State Railway of Thailand. 1985

Civil Engineer, Queensland Railways, Australia., 1987

Project Engineer, Chiang Mai Sports Complex., 1995

Project Manager, 24th Universiade Bangkok 2007 (World University Competition).

Project Manager, 24th Sea Games, 2007 (Renovation), Nakornrjasima.

Project Manager, 2,500 seats Auditorium, North-Chiang Mai university, Chiang Mai. 2008

Project Manager, 7 Storey Building for rent, Jindasilpa Co.Ltd., Chiang Mai. 2010

Project References (1979-2010)

Siam Yamaha Building, Siam Yamaha Co., Ltd., Chiang Mai.
Vegetarian Laboratory Building, Maejo University, Chiang Mai.
Chiang Mai Guest Inn, Chiang Mai.
Toyota Building, Toyota Co., Ltd., Pitsanulok.
Rot Thip Shopping Center Building, Pitsanulok.
3 Buildings of Chinese School, Chiang Mai.
Rung Ruang Sai-Ngarm Ltd., Part. Building, Chiang Mai.
Thai Slices of Rice Factory, Pitsanulok.
Foundations for Domestic Satellite Telecommunication in 14 provinces.
Sai-Ngarm Concrete Co., Ltd. Factory, Chiang Mai.
Lanna Guest House Building, Chiang Mai.
Pickled Ginger Factory, Chiang Dao, Chiang Mai.

Ban San-paleang Real Estate, Chiang Mai.

Laboratory Building, Field of Industrial Engineering, Rajmangkala Institute of Technology, Chiang Mai.

Laboratory Building, Field of Computer, Rajmangkala Institute of Technology, Chiang Mai.

Ceramics Laboratory Building, Rajmangkala Institute of Technology, Chiang Mai.

Laboratory Building, Faculty of Social Sciences, Chiang Mai university, Chiang Mai.

Ceramics Laboratory Building, Chiang Mai university, Chiang Mai.

Milk Cow Laboratory Building, Maejo University, Chiang Mai.

Warehouse Building, Telecommunication Organization, Chiang Mai.

Warehouse Building, Northern Region Industrial Estate, Lumphun.

Cafeteria and Parking Lot, Northern Region Industrial Estate, Lumphun.

Central Library, Rajmangkala Institute of Technology, Chiang Mai.

6 Buildings of Tak Technology, Tak.

Seikoken Factory, Northern Region Industrial Estate, Lumphun.

Gymnasium 3,000 and 5,000 seats, Chiang Mai Sport Complex, Chiang Mai.
Chiang Mai Frozen Food Factory, Maejo,
Chiang Mai.

Chiang Mai Frozen Food Factory, Maejo,
Chiang Mai.

Additional of Chiang Mai Sport Complex,
Chiang Mai.

Air conditioner installation,
Chiang Mai Sport Complex, Chiang Mai.

Dormitory 200 beds,
Chiang Mai Sport Complex, Chiang Mai.

Landscape Work,
Northern Region Industrial Estate,
Lumphun.

Shooting Range,
Sports Authority of Thailand, Srisaket.

Gymnasium 4,000 seats,
Sports Authority of Thailand, Srisaket.

Cultural Institute, Faculty of Fine Arts,
Chiang Mai University.

Shooting Range,
Sports Authority of Thailand, Rayong.

Gates and Bridges,
Sports Authority of Thailand, Hua Mak.

Additional of Computer Laboratory Building,
Rajmangkala Institute of Technology,
Chiang Mai.

Chiang Mai Municipal Hospital,
Municipal Office of Chiang Mai.

5 Buildings Construction,
Royal Project-Chiang Mai,
Ministry of Agriculture.

7 Items of Buildings Renovation,
Royal Project-Chiang Mai,
Ministry of Agriculture.

4 Items of Buildings Renovation,
Royal Project-Chiang Mai,
Ministry of Agriculture.

North Chiang Mai Culinary Institute,
Chiang Mai.

Lanna Agro Industry Factory – Boiler Factory, Sarapee, Chiang Mai.

1 Storey House, Thai American Friends Co., Ltd., Chiang Mai.

4 Storey Building of Laboratory School, Kowithamrong School, Chiang Mai.

Toyota Showroom and Services, Sankampaeng, Chiang Mai.

Auditorium, North-Chiang Mai university, Chiang Mai.

5 Storey building, The Prince Royal's College, Chiang Mai.

7 Storey Building for rent, Jindasilpa Co.Ltd., Chiang Mai.

Dormitory 60 beds, Zoe International Foundation, Chiang Mai.

École française d'Extrême-Orient Library Building & Renovation, Chiang Mai.
หนังสือรับรองการขึ้นทะเบียนเป็นผู้ตรวจสอบ

นางชูรัตน์ สามพลภู

ตำแหน่ง:

ต่อ:

ลงนาม:

ที่:

วันที่:

ประกาศคณะกรรมการควบคุมอาคาร
เอกสารที่ 1

สมภาพจำพยานบัณฑิตวิศวกรรม พ.ศ. 2542

นายอภิรักษ์ สานนธิ์

ประมวลวิศวกรรมควบคุม ระดับสามัญวิศวกร

สาขาวิศวกรรมโยธา

ตั้งแต่ปีที่ 21 พฤศจิกายน 2548

ถึงปีที่ 20 ธันวาคม 2553

เลขทะเบียน 38882

เอกสารที่ 2

สมภาพจำพยานบัณฑิตวิศวกรรมควบคุม

นายวิรุฬห์ นิรัช

สาขาวิศวกรรมโยธา

ตั้งแต่ปีที่ 21 ธันวาคม 2553

ถึงปีที่ 20 ธันวาคม 2558

เลขทะเบียน 38882