

FaContract No:
NE/2017/01

Project Title:
Tseung Kwan O – Lam Tin Tunnel
Tseung Kwan O Interchange and Associated Works



俊和-上隧-中冶聯營
CW - STEC - CMGC JV

Silt Curtain Deployment Plan

Document No: CWSTCMJV/940/CSF/1621-2020
Revision: 08
Date: 22 Jan 2020

Revision History

| Revision No. | Reason for Amendment | Amendment | Revised By | Date |
|-------------------------|--|---|-------------------|-------------|
| 00 First Submission | N/A | N/A | Clarence Yeung | 16/03/2018 |
| 01 Second Submission | N/A | N/A | Clarence Yeung | 18/04/2018 |
| 02 Third Submission | N/A | N/A | Clarence Yeung | 03/08/2018 |
| 03 Forth Submission | N/A | N/A | Clarence Yeung | 05/10/2018 |
| 04 Fifth Submission | The existing silt curtain were damaged by the typhoon Mangkhut and amendments were made to ensure the silt curtain can be removed before the adverse weather at further stage. | <ol style="list-style-type: none"> 1. Section 3, para. 1 - the deployment method of the silt curtain is revised. 2. Section 5, para. 2 - silt curtain will be removed temporarily during adverse weather. 3. Appendix B - drawing no. JV-940-SK-007 is revised and drawing no. JV-940-SK-008 is removed. 4. Appendix D - inspection item 2 (supporting frame in good condition) is removed. | Clarence Yeung | 26/10/2018 |

| Revision No. | Reason for Amendment | Amendment | Revised By | Date |
|--------------------------|--|---|-------------------|-------------|
| 05 Sixth Submission | Silt curtain arrangement for wastewater discharge during pile cap construction is added. | All the amendments are highlighted in yellow colour. 1. Section 3 - deployment methods of silt curtain for wastewater discharge are added. 2. Appendix B - drawing no. JV-940-SK-009, JV-940-SK-010 and JV-940-SK-011 are added. 3. Appendix C - specification of BONTEC SG110/110 is added. | Clarence Yeung | 04/05/2019 |
| 06 Seventh Submission | Response to EPD's comment | Please be confirmed that total 30 nos. of pile caps will be constructed under this contract. 1. Drawing no. JV-940-TKO-PIERS-001 in Appendix E is revised. | Clarence Yeung | 11/06/2019 |
| 07 Eighth Submission | Silt curtain arrangement for the rock grabbing works is added. | All the amendments are highlighted in yellow colour. 1. Section 3 - deployment method of silt curtain for rock grabbing works is added. 2. Appendix B - drawing no. JV-940-SK-012 is added. | Clarence Yeung | 26/11/2019 |

| Revision No. | Reason for Amendment | Amendment | Revised By | Date |
|------------------------|---------------------------|---|-------------------|------------|
| 08 Ninth Submission | Response to EPD's comment | <p>All the amendments are highlighted in yellow colour.</p> <ol style="list-style-type: none"> 1. Section 3 - Information for rock grabbing works is added. 2. Appendix F - Layout Plan for Bored Piles in Conflict with Sloping Seawall is provided. 3. Appendix G - Implementation Schedule and Arrangement of Silt Curtain is provided. | Clarence Yeung | 22/01/2020 |

Silt Curtain Deployment Plan

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Checked by :

| Position | Signature | Name | Date |
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| Site Agent |  | David Tung | 2020-2-17 |
| Deputy Site Agent |  | Wong Chi Hung | 2020-2-17 |
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Prepared by:

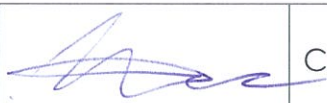
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| Environmental Officer |  | Clarence Yeung | 2020-2-17 |
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1. General

1.1 Objective

Prior to the commencement of marine works as well as the whole construction period with marine works in the sea under Contract No. NE/2017/01, CW-STEC-CMGC Joint Venture (JV) will be responsible for the installation, operation and maintenance of the silt curtain. The silt curtain act as a measure to maintain the water quality in the vicinity of the marine works. JV will also be responsible to remove the aforementioned silt curtain after the completion of the works.

This deployment plan describes in detail the design, method of installation, operation and maintenance of the proposed silt curtain.

The silt curtain deployment plan shall also comply with the following reference Specifications and Drawings:

- General Specification Sections 21 and 25
- Particular Specification Sections 21 and 25
- Environmental Permit (EP No. EP-458/2013/C) Condition 2.8
- Working Drawings Nos. 60308751/C6/C00/1000 to 1002, 1011

1.2 Construction Plants

Plant and equipment to be used for the proposed silt curtain deployment include, but not limited to, the followings:

- | | |
|-------------------|-------|
| - Split Hopper | 1 no. |
| - Derrick Lighter | 1 no. |
| - Grab Dredger | 1 no. |

Adequate resources shall be deployed to suit the construction programme.

2. Scope of Works and Construction Programme

The works to be executed under this contract involves construction of Tseung Kwan O Interchange and Associated Works.

- Construction of marine viaducts forming the Tseung Kwan O Interchange at Junk Bay;
- Construction of 7 bridges and 28 bridge piers with 30 pile caps and approx. 59 piles (Including 3 interfacing piers to CBL);

In general, silt curtain will be deployed during all the marine works. A brief programme showing the tentative commencement and completion dates of the major marine works are enclosed in **Appendix A**.

3. Silt Curtain Design

General type silt curtain consists of a layer of geotextile mounted on the temporary working platform and extended to the seabed secured by steel chain ballast. The silt curtain will surround the platform (8m*12m and 8m*18m) by tying the silt curtain to the railing of the platform. The panels can be assembled and connected by rope through a series of grommet. In between overlap sits the winching rope to adjust curtain depth whenever necessary.

As shown in **Appendix F** and Figure 1, Piers 3E, 2B and 4K in Portion III area are constructed on the sloping seawall. During the bore pile construction stage in Portion III area, armour rocks on the seabed have to be removed by grabbing to facilitate the pitching of temporary platform posts. For the rock grabbing works, silt curtain will be deployed by surrounding the grabbing zone. In case one side of the grabbing zone is covered by land, the other three sides should be deployed with silt curtain as shown in **Appendix B - drawing no.:JV-940-SK-012**.

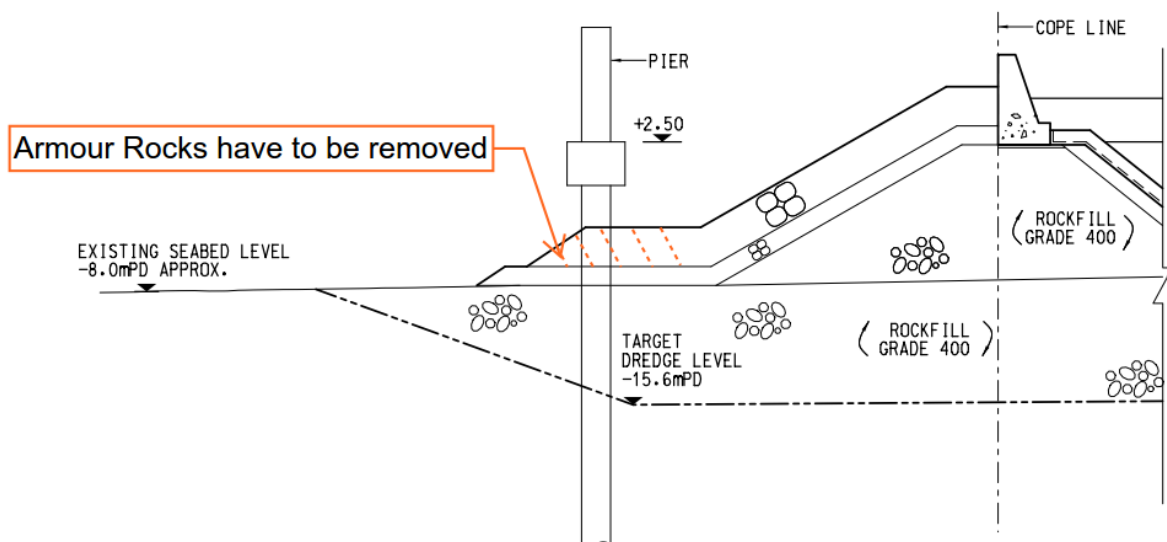


Figure 1 Armour rocks have to be removed at Piers 3E, 2B and 4K in Portion III area

Regarding the conditions of the discharge licence (WT00030716-2018), all the construction wastewater should be treated before discharge and the treated wastewater should be discharged within the silt curtain.

For the bore pile construction stage, wastewater will be generated during the drilling and piling works. The wastewater will be treated by sedimentation tank and discharged within silt curtain. The silt curtain will be deployed by surrounding the temporary platform as shown in **Appendix B - drawing no.:JV-940-SK-007**.

For the pile cap construction stage, ingress seawater needs to be pumped out from the precast pile cap shell to provide a dry condition for concreting. The effluent will be treated by sedimentation tank and discharged within silt curtain. The silt curtain will be deployed in the following ways:

- a. The silt curtain will surround two steel casings under the platform by tying the silt curtain to the railing of the platform (**Appendix B - drawing no.:JV-940-SK-009**).

- b. The silt curtain will surround the precast pile cap shell by tying the silt curtain to the railing of the precast pile cap shell (**Appendix B – drawing no.:JV-940-SK-010**).
- c. The enclosed silt curtain will be placed near the precast pile cap shell (**Appendix B – drawing no.:JV-940-SK-011**).

As for preventive measure against dropping of fresh concrete to the sea during the concreting stage at the shell, tarpaulin sheets will be provided between the barge and the shell to prevent the contamination to the seawater.

Woven geotextile will be used as the curtain fabric, heavy duty geotextile which is strong and has small pore size which consider suitable for such work. Reinforcement can be incorporated in the curtain body for strength and stiffness. Shackles will be placed as option at the reinforcement to strengthen panel connection.

Sufficient length of geotextile shall be allowed such that the silt curtain can be extended from the water surface to the seabed during high tide condition. The typical section of the proposed silt curtain is attached in **Appendix B** and the location of silt curtain is indicated in site layout attached in **Appendix E**. As the bridge piers in Portion V as shown in **Appendix E** do not belong to the scope of works of this contract, no silt curtain is proposed for them.

Product catalogue with specification and job reference of the proposed geotextile for the silt curtain is attached in **Appendix C**.

4. Silt Curtain Installation

JV will install the silt curtain as stated below:

1. Prepare the geotextile with size suitable for the specific platform size on the Derrick Lighter or Barge.
2. Tie the top end of the geotextile and connected to the reinforced belt, the bottom end with the steel chain ballast.
3. Row up the top part of the silt curtain to the specific length suitable for the lift up distance of the Derrick Lighter.
4. Lift the silt curtain up and place it above the temporary platform, make sure the bottom part of the silt curtain is surrounding the platform.
5. Lift down the silt curtain with steel chain ballast into sea and sit on seabed.
6. Workers with life jacket then tie the geotextile with the temporary platform by Steel plate.

In order to maintain the position of the silt curtain especially at location with strong current, spot check by workers will be carried out for each silt curtain before and after works every day.

JV will also conduct and submit weekly inspection with the supervisor throughout the periods of marine piling and pile cap construction to the *Project Manager* or *Supervisor* to demonstrate that the silt curtains are in good working conditions. Diver inspection would be carried out once per every three months or if necessary such as after the adverse weather and any unforeseeable condition which might damage the silt curtain physical condition to ensure the bottom of the silt curtain is well placed on the seabed level and no damage of silt curtain under water.

5. Silt Curtain Maintenance

On-board supervisors will be assigned to check the condition of the silt curtain before commencement of works every day. An inspection checklist will be prepared and filled in by the site supervisors. All checklists will be kept on site for record purpose. Refer **Appendix D** for the sample of Silt Curtain Inspection Checklist.

As the existing silt curtain were damaged by the typhoon Mangkhut, amendments were made to ensure the silt curtain can be removed before the adverse weather at further stage. For the tentative arrangement of silt curtain under adverse weather, the silt curtain will be removed temporarily during adverse weather and related works will be suspended immediately until the silt curtain is installed again.

Refuse around the silt curtains will be collected at regular intervals on a daily basis so that water behind the silt curtains will be kept free from floating debris.

Sufficient spare geotextile will be kept on site for replacing of damaged silt curtains. The spare geotextile shall be kept in place to avoid direct contact with water and sunlight.

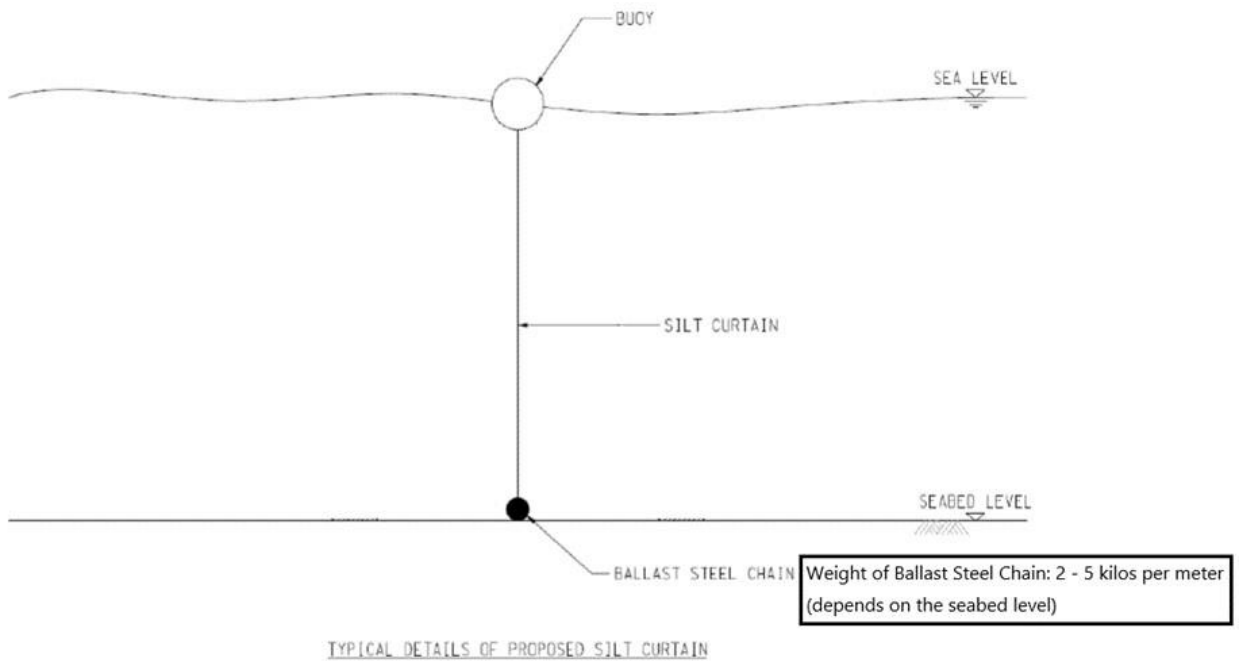


Figure 2 Typical details of proposed silt curtain

6. Silt Curtain Removal/ Repositioning

Removal of silt curtain shall be carried out by derrick lighter after completion of ground investigation and bored pile construction in order to reduce negative impact on water quality during ground investigation and bored pile construction.

Actions upon repositioning of silt curtain will be same as deployment of a new silt curtain. The condition of the silt curtain will be jointly inspected with the Supervisor before relocation to the new position. The JV will responsible to revise the SCDP if there is any amendments or changes from the original design in separate application.

NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

Appendix A – Tentative Programme for Major Marine Works

| Activity ID | Activity Name | Original Duration | Start | Finish | 2018 | | | | | | | | | | | | 2019 | | | | | | | | | | | | 2020 | | | | | | | | | | | | 2021 | | | |
|---|--|-------------------|-------------|-------------|---------------|---|---|----|---|---|----|---|---|----|----|----|------|----|----|----|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|----|----|----|----|----|------|----|----|----|
| | | | | | Q1 | | | Q2 | | | Q3 | | | Q4 | | | Q1 | | | Q2 | | | Q3 | | | Q4 | | | Q1 | Q2 | | | | | | | | | | | | | | |
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| NE/2017/01 - TKO-LTT C6 _180220 | | 1168 | 10-Jan-18 A | 22-Mar-21 | [Summary bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contract Date | | 1168 | 10-Jan-18 A | 22-Mar-21 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contract Date | | 12 | 10-Jan-18 A | 22-Jan-18 A | [Summary bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CD000001 | Contract Date | 0 | 10-Jan-18 A | | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CD000003 | Start Date | 0 | 22-Jan-18 A | | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Key Dates | | 0 | 22-Mar-21 | 22-Mar-21 | [Summary bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| KD1000110 | Completion date for the whole of the works | 0 | | 22-Mar-21* | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Planned Completion Dates | | 173 | 30-Jul-20 | 19-Jan-21 | [Summary bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preliminaries | | 1105 | 11-Jan-18 A | 19-Jan-21 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Method Statement and Shop Drawing | | 442 | 26-Feb-18 | 13-May-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contractor's Alternative Design (AD) | | 403 | 23-Jan-18 A | 01-Mar-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Procurements & Subletting | | 752 | 26-Feb-18 | 18-Mar-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Regular Submission / Issue | | 1073 | 12-Feb-18 | 19-Jan-21 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction Works | | 796 | 16-Apr-18 | 16-Dec-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temporary Platform and Ground Investigation | | 433 | 16-Apr-18 | 27-Sep-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Erect Temporary Platform | | 130 | 16-Apr-18 | 18-Sep-18 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ground Investigation Works | | 423 | 27-Apr-18 | 27-Sep-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bore Pile Construction (59nos) (Including plant mobilization) | | 442 | 03-Jul-18 | 23-Dec-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bore Pile Construction at Bridge ML | | 198 | 03-Jul-18 | 28-Feb-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bore Pile Construction at Bridge S200 | | 260 | 05-Dec-18 | 23-Oct-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bore Pile Construction at Bridge S300 | | 439 | 06-Jul-18 | 23-Dec-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bore Pile Construction at Bridge S100 | | 140 | 13-Apr-19 | 03-Oct-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pile Cap Construction | | 534 | 23-Jul-18 | 12-May-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pre-cast Shell Casting | | 390 | 23-Jul-18 | 13-Nov-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pre-cast Shell Installation (After Bore Pile Testing) | | 443 | 09-Nov-18 | 12-May-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| In-fill Pour to Pile Cap | | 418 | 24-Nov-18 | 25-Apr-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier Construction | | 358 | 04-Mar-19 | 20-May-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier Construction at Bridge S100 | | 127 | 09-Nov-19 | 16-Apr-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier Construction at Bridge S200 | | 238 | 13-Jul-19 | 02-May-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier Construction at Bridge S300 | | 358 | 04-Mar-19 | 20-May-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier Construction at Bridge ML | | 227 | 06-Mar-19 | 07-Dec-19 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier Head Segment Construction | | 344 | 26-Jun-19 | 20-Aug-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Precast Pier Head Segment Installation | | 330 | 26-Jun-19 | 04-Aug-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cast-in-situ Diaphragm | | 343 | 27-Jun-19 | 20-Aug-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Segment Erection | | 342 | 28-Aug-19 | 21-Oct-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bridge Furniture Installation | | 168 | 29-May-20 | 16-Dec-20 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Remaining works | | 142 | 31-Jul-20 | 19-Jan-21 | [Works bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



- ◆ Milestone
- Works
- Summary

**NE/2017/01 Tseung Kwan O - Lam Tin Tunnel
Tseung Kwan O Interchange and Associated Works**

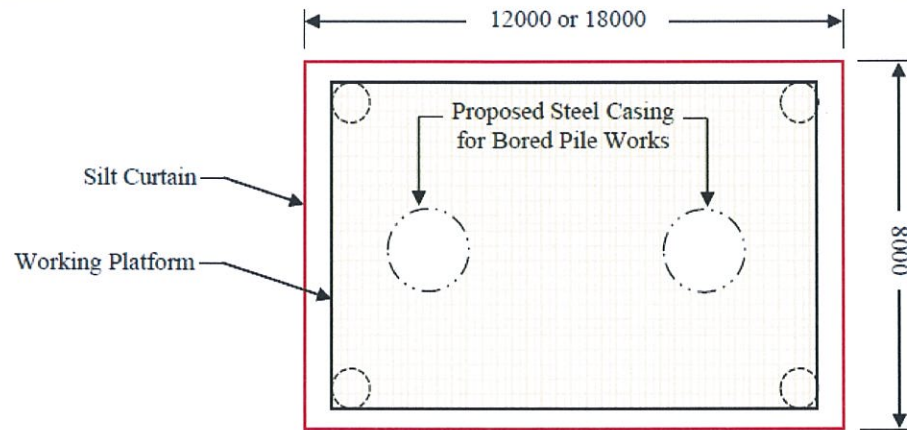
Construction Programme

NE/2017/01

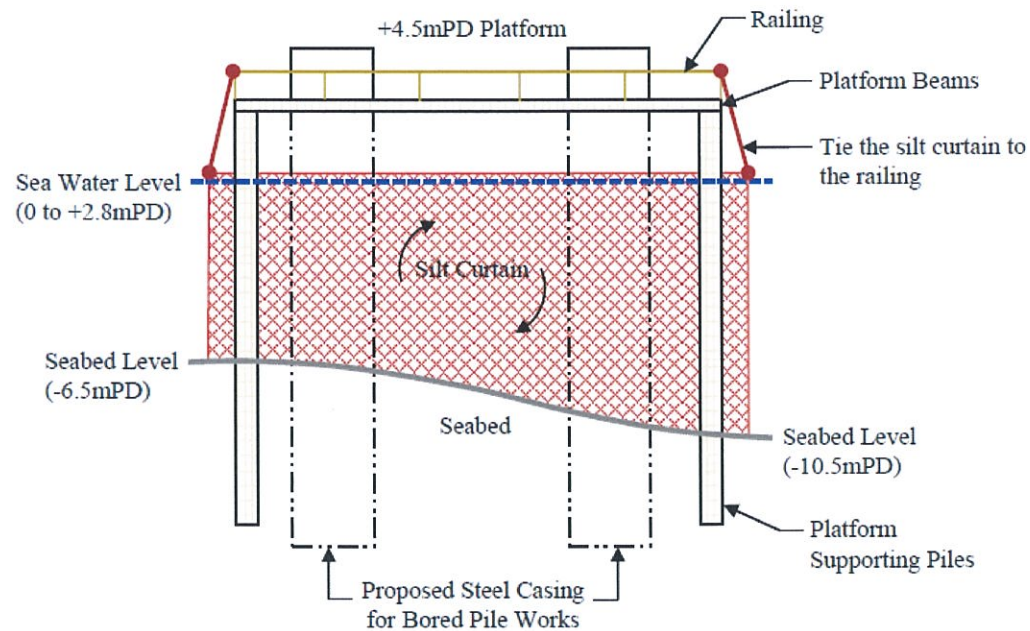
Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

Appendix B – Typical Details of Proposed Silt Curtain



PLAN



ELEVATION

PROJECT TITLE:
TSEUNG KWAN O - LAM TIN TUNNEL
TSEUNG KWAN O - INTERCHANGE AND
ASSOCIATED WORKS

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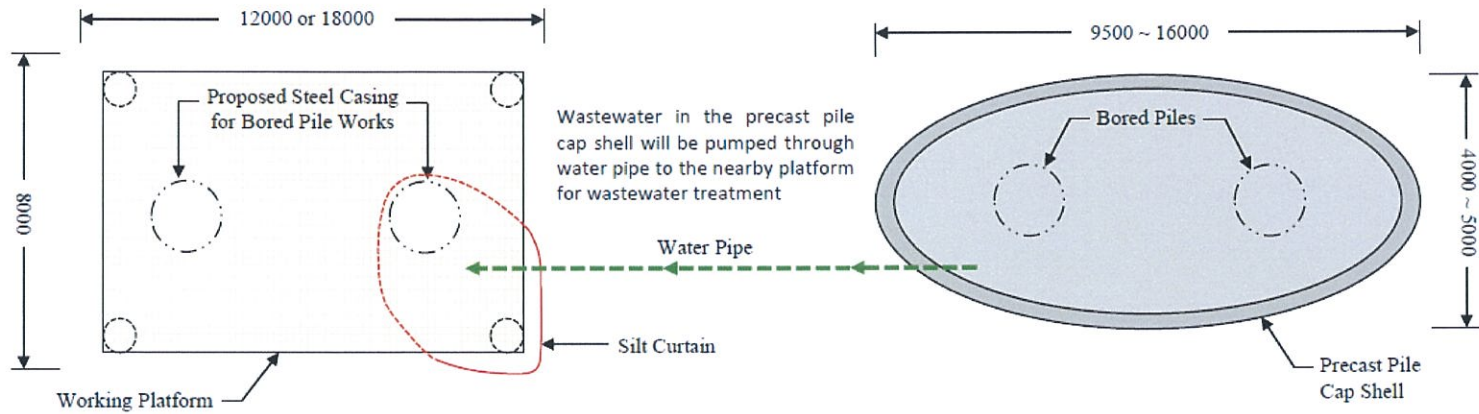
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CEDD 土木工程拓展署
Civil Engineering and
Development Department

CONSULTING ENGINEER:
AECOM

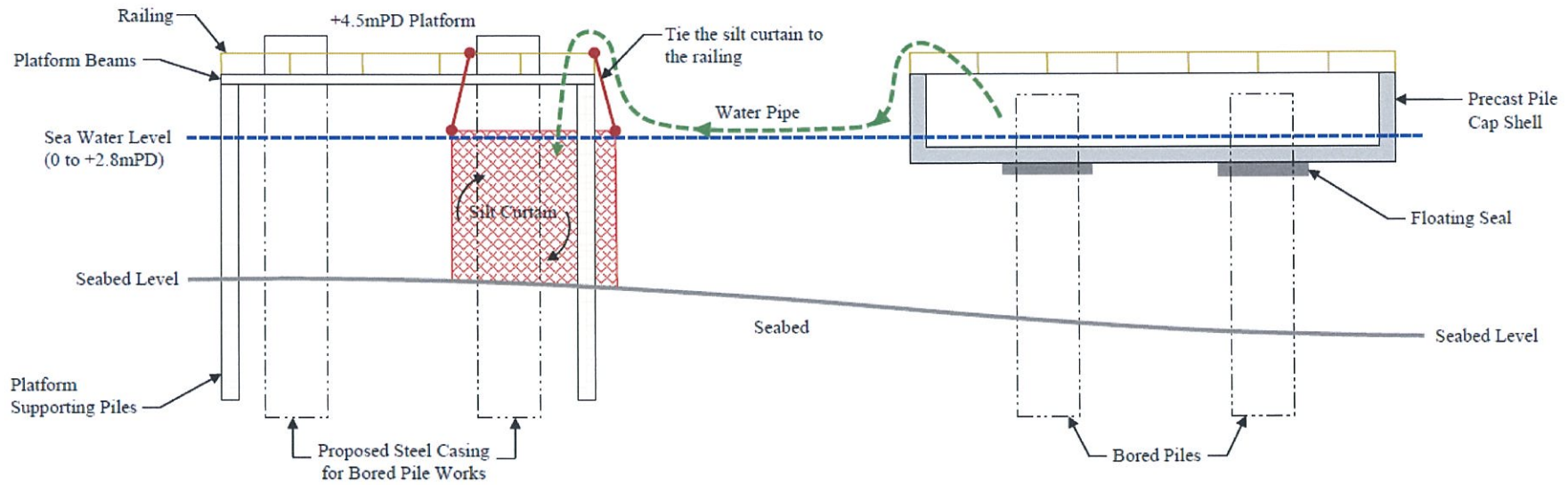
MAIN CONTRACTOR:
俊和-上隧-中冶聯營
CW - STEC - CMGC JV

DRAWING TITLE:
**SILT CURTAIN
ARRANGEMENT FOR BORE
PILE CONSTRUCTION**

SCALE: AS SHOWN DRAWING NO: JV-940-SK-007 REV: 1



PLAN



ELEVATION

PROJECT TITLE:
TSEUNG KWAN O - LAM TIN TUNNEL
TSEUNG KWAN O - INTERCHANGE AND
ASSOCIATED WORKS

DRAWING TITLE:
SILT CURTAIN ARRANGEMENT
FOR PILE CAP CONSTRUCTION
- OPTION A

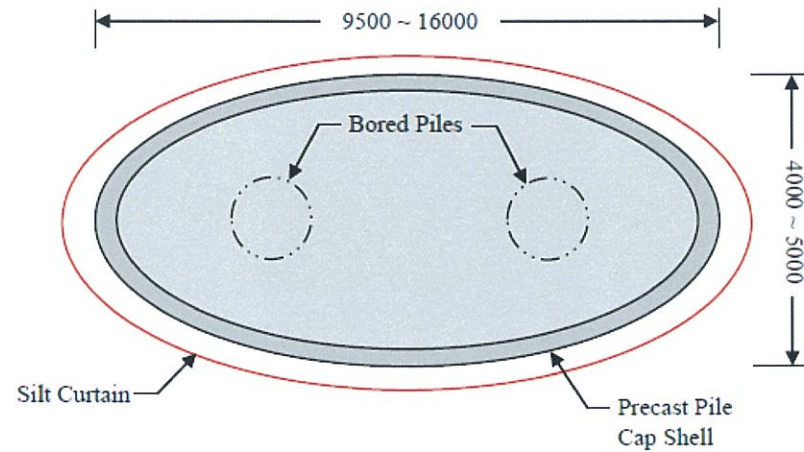
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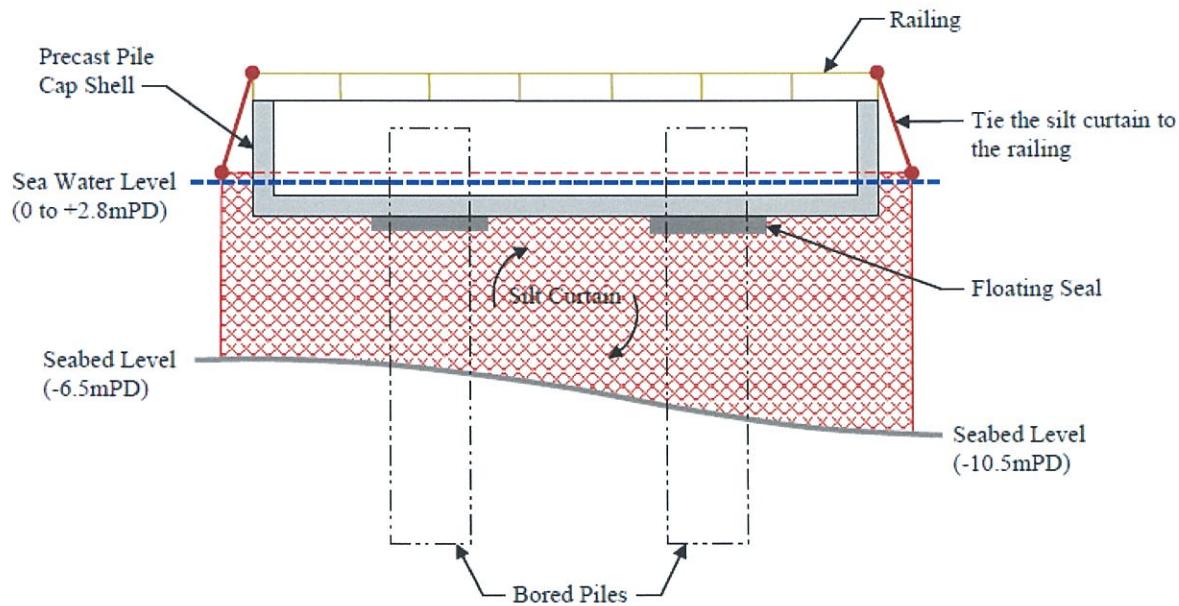
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CEDD 土木工程拓展署
Civil Engineering and
Development Department

CONSULTING ENGINEER:
AECOM

MAIN CONTRACTOR:
俊和-上隧-中冶聯營
CW - STEC - CMGC JV



PLAN



ELEVATION

PROJECT TITLE:
TSEUNG KWAN O - LAM TIN TUNNEL
TSEUNG KWAN O - INTERCHANGE AND
ASSOCIATED WORKS

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CLIENT:
 土木工程拓展署
Civil Engineering and
Development Department

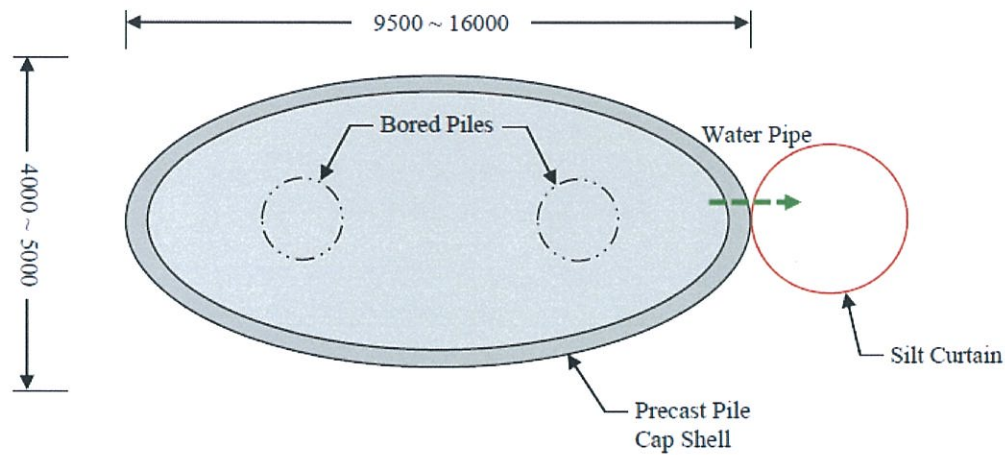
CONSULTING ENGINEER:


MAIN CONTRACTOR:

俊和-上隧-中冶聯營
CW - STEC - CMGC JV

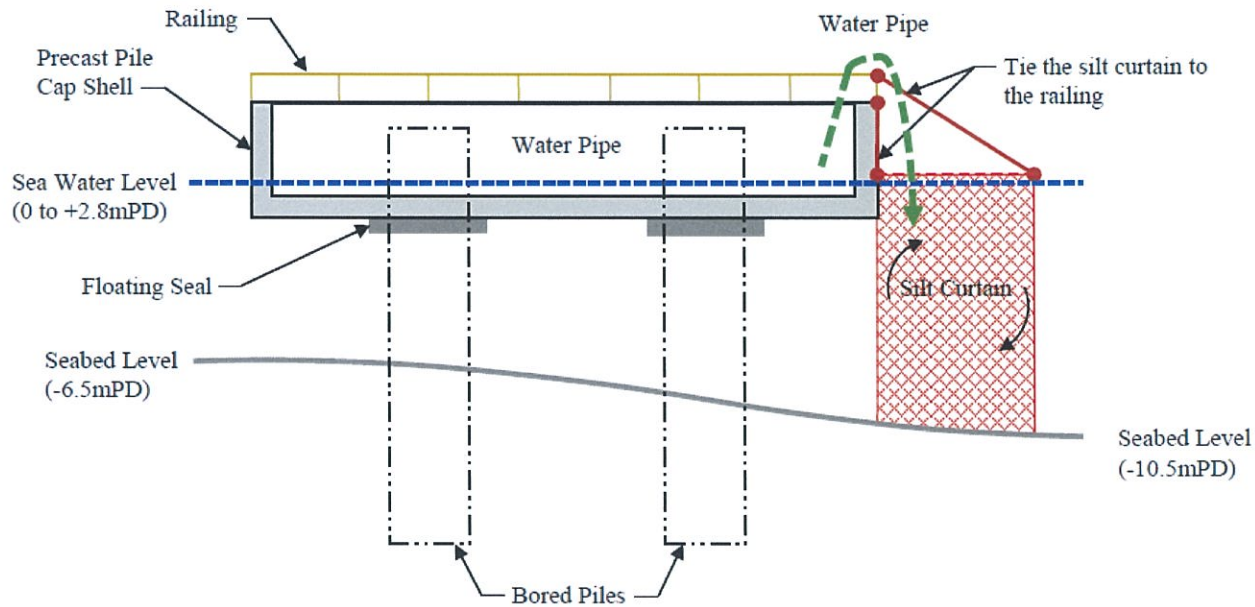
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SILT CURTAIN ARRANGEMENT
FOR PILE CAP CONSTRUCTION -
OPTION B

SCALE: AS SHOWN DRAWING NO.: JV-940-SK-010 REV.: 0



PLAN

Note:
 The enclosed silt curtain will be placed near the precast pile cap shell for wastewater treatment under below conditions:
 - there are no working platforms nearby the shell.
 - the site areas are confined to deploy the silt curtain around the shell



ELEVATION

| REV. | DATE | REVISION NOTES | DRAWN BY | CHK BY | REV. | DATE | REVISION NOTES | DRAWN BY | CHK BY |
|------|------|----------------|----------|--------|------|------|----------------|----------|--------|
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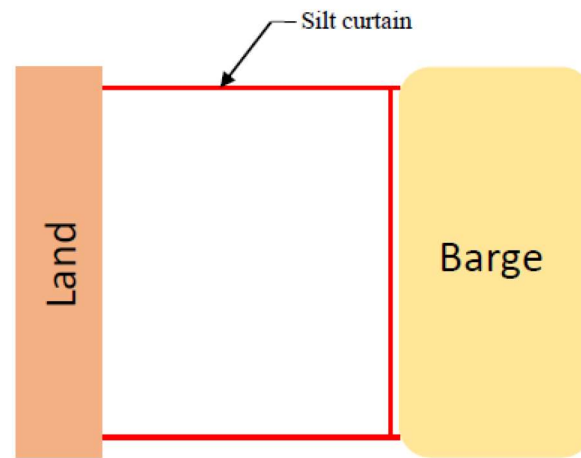
CLIENT:
 土木工程拓展署
 Civil Engineering and Development Department

CONSULTING ENGINEER:

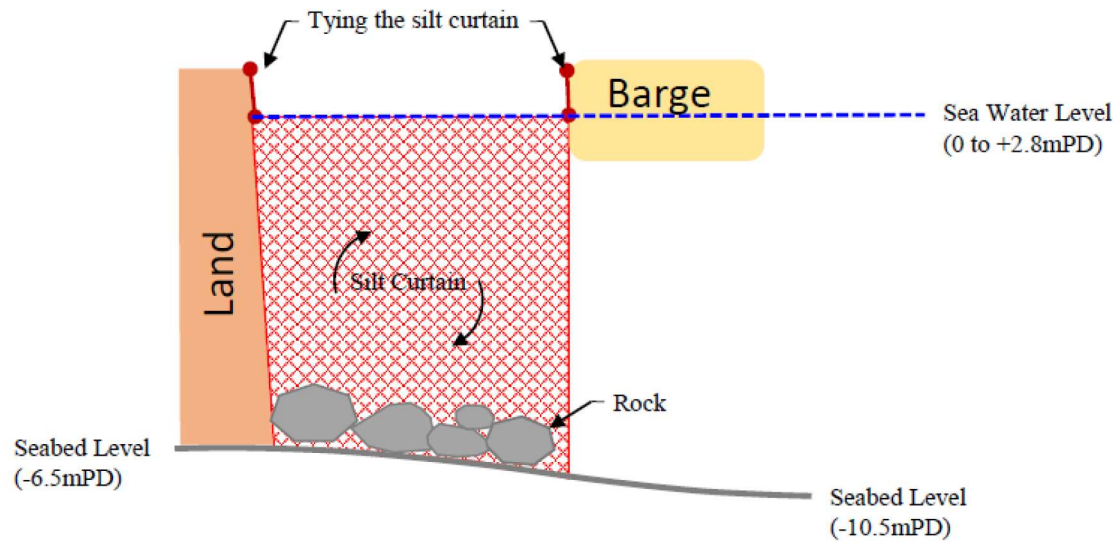

MAIN CONTRACTOR:

 俊和-上隧-中冶聯營
 CW - STEC - CMGC JV

| | | |
|--|-------------------------------|-----------|
| PROJECT TITLE: TSEUNG KWAN O - LAM TIN TUNNEL TSEUNG KWAN O - INTERCHANGE AND ASSOCIATED WORKS | | |
| DRAWING TITLE: SILT CURTAIN ARRANGEMENT FOR PILE CAP CONSTRUCTION - OPTION C | | |
| SCALE: AS SHOWN | DRAWING NO.: JV-940-SK-011 | REV: 0 |



PLAN



ELEVATION

PROJECT TITLE:
 TSEUNG KWAN O - LAM TIN TUNNEL
 TSEUNG KWAN O - INTERCHANGE AND
 ASSOCIATED WORKS

DRAWING TITLE:
 SILT CURTAIN ARRANGEMENT FOR
 ROCK GRABBING WORKS

SCALE: AS SHOWN DRAWING NO.: JV-940-SK-012 REV.: 0

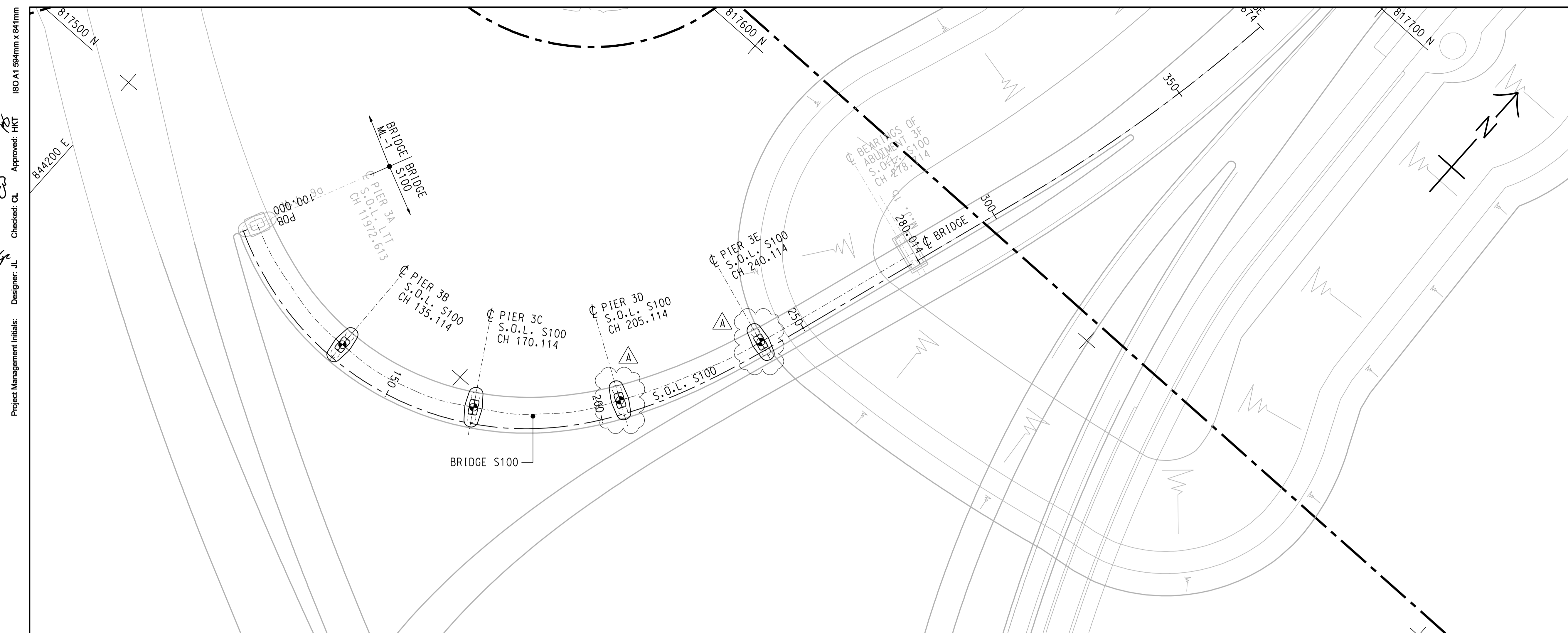
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CLIENT:
 土木工程拓展署
 Civil Engineering and
 Development Department

CONSULTING ENGINEER:


MAIN CONTRACTOR:

 俊和-上隧-中冶聯營
 CW - STEC - CMGC JV



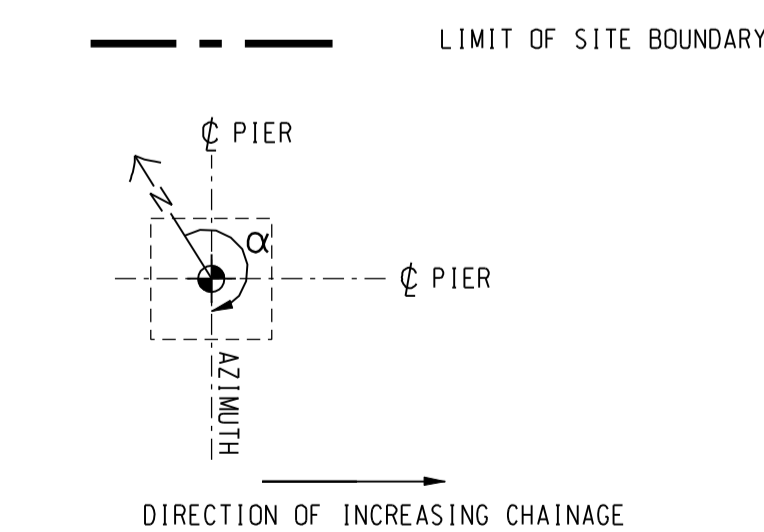
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| SUBSTRUCTURE REFERENCE NO. | TOP OF PILE CAP LEVEL (mPD) | S.O.L. | CHAINAGE | AZIMUTH OF FOUNDATION (α) | FOUNDATION TYPE | NO. OF PILES | TYPE OF PILE | PILE DIAMETER (mm) | PILE CUT OFF LEVEL (mPD) | TENTATIVE SEABED LEVEL (mPD) | TENTATIVE ROCKHEAD LEVEL (mPD) | TENTATIVE FOUNDING LEVEL (mPD) | MIN. SOCKET LENGTH (m) |
|----------------------------|-----------------------------|--------|------------|---------------------------|-----------------|--------------|--------------|--------------------|--------------------------|------------------------------|--------------------------------|--------------------------------|------------------------|
| 3B | +2.50 | S100 | CH 135.114 | 178°35'32" | A2 | 2 | BORED | 2000 | -0.40 | -7.20 | -16.0 | -20.3 | 4.00 |
| 3C | +2.50 | S100 | CH 170.114 | 149°6'6" | A2 | 2 | BORED | 2000 | -0.40 | -7.20 | -20.5 | -23.8 | 3.00 |
| 3D | +2.50 | S100 | CH 205.114 | 121°54'54" | A2 | 2 | BORED | 2000 | -0.40 | -7.20 | -21.5 | -23.8 | 2.00 |
| 3E | +2.50 | S100 | CH 240.114 | 108°45'48" | A2 | 2 | SLEEVED | 2000 | -0.40 | -6.50 | -19.0 | -23.3 | 4.00 |

NOTES:

- FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NOS. 60308751/C6/C00/2000 AND 2001.
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN mPD UNLESS OTHERWISE STATED.
- THE TENTATIVE FOUNDING LEVEL AND CUTOFF LEVEL SHOWN ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE ROCKHEAD LEVEL AND FINISH GROUND LEVEL AND SHALL AGREE WITH THE SUPERVISOR.
- ALL PILES SHALL BE SOCKETTED INTO SLIGHTLY TO MODERATELY DECOMPOSED MODERATELY STRONG ROCK OF MATERIAL WEATHERING GRADE III OR BETTER WITH A TOTAL CORE RECOVERY OF MORE THAN 85% AND A MINIMUM UNIAXIAL COMPRESSIVE STRENGTH OF NOT LESS THAN 25MPa WITH A MINIMUM SAFE BEARING CAPACITY OF 5000kPa.
- FOR TYPICAL FOUNDATION DETAILS REFER TO DRAWING NO. 60308751/C6/C00/2041.
- FOR TYPICAL BORED AND SLEEVED BORED PILE DETAILS REFER TO DRAWING NO. 60308751/C6/C00/2040.

LEGEND:



ISSUE/REVISION

| REV | DATE | DESCRIPTION | CHK. |
|-----|--------|----------------------|------|
| A | AUG.17 | TENDER ADDENDUM NO.3 | CL |
| - | JUN.17 | TENDER DRAWING | CL |

STATUS

擬定

SCALE

A1 1:500

DIMENSION UNIT

METRES

KEY PLAN

索引圖

PROJECT NO.

60308751

CONTRACT NO.

NE/2017/01

SHEET TITLE

BRIDGE S100
FOUNDATION LAYOUT

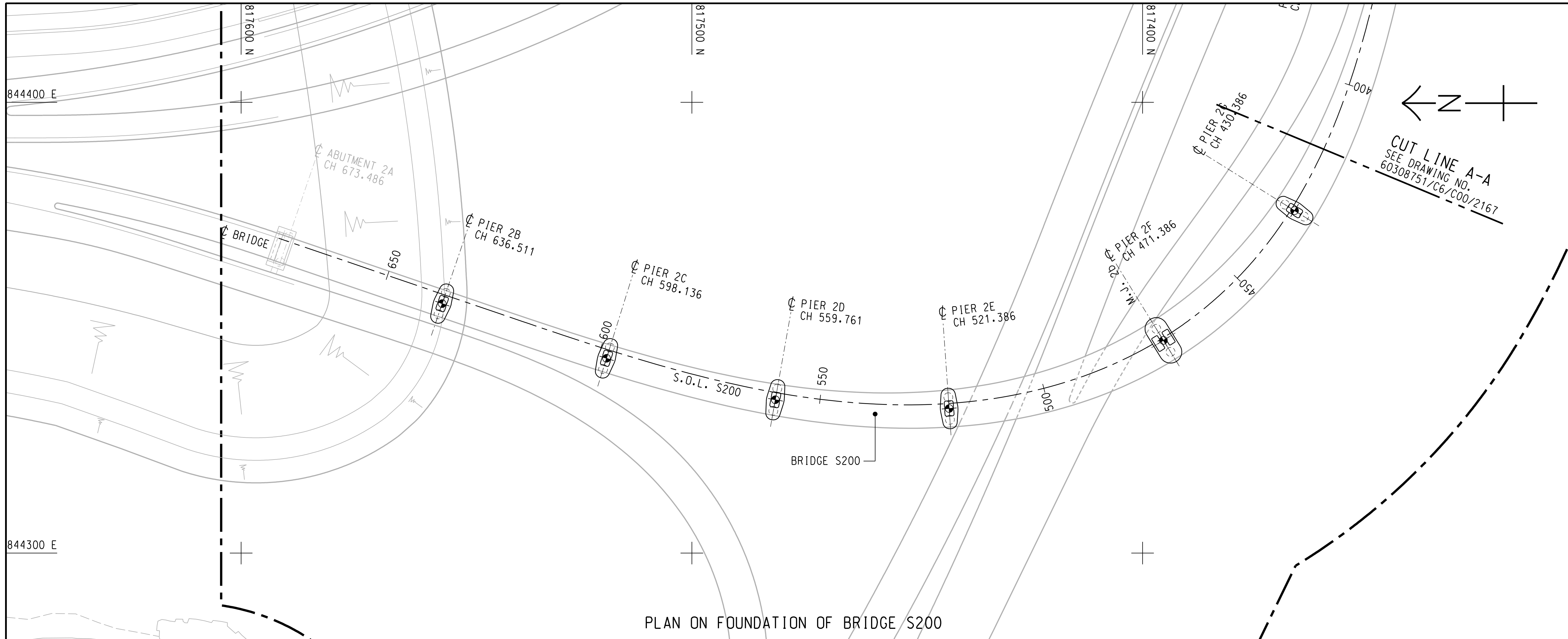
SHEET NUMBER

60308751/C6/C00/2136A

ISO A1 594mm x 841mm
Approved: HKT
Checked: CL
Designer: JL
Project Management Initials:

Plot File by: LAIQW
2017/6/15
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PLAN ON FOUNDATION OF BRIDGE S200

FOUNDATION SCHEDULE:

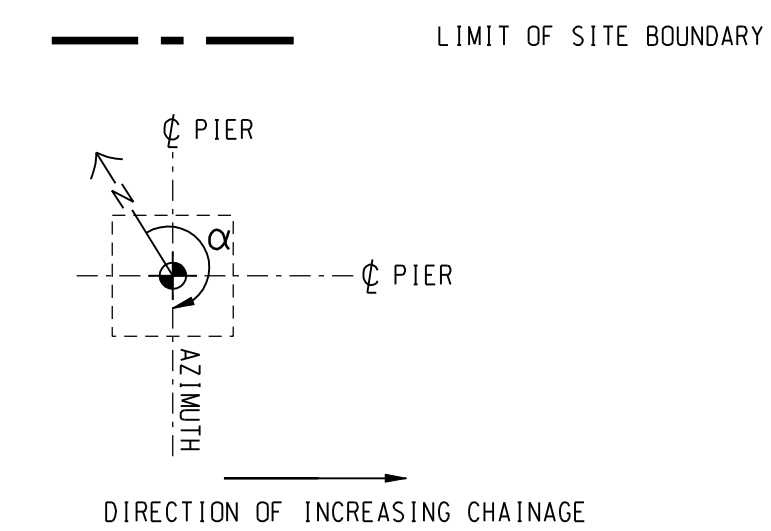
| SUBSTRUCTURE REFERENCE NO. | TOP OF PILE CAP LEVEL (mPD) | S.O.L. | CHAINAGE | AZIMUTH OF FOUNDATION (α) | FOUNDATION TYPE | NO. OF PILES | TYPE OF PILE | PILE DIAMETER (mm) | PILE CUT OFF LEVEL (mPD) | TENTATIVE SEABED LEVEL (mPD) | TENTATIVE ROCKHEAD LEVEL (mPD) | TENTATIVE FOUNDING LEVEL (mPD) | MIN. SOCKET LENGTH (m) |
|----------------------------|-----------------------------|--------|------------|---------------------------|-----------------|--------------|--------------|--------------------|--------------------------|------------------------------|--------------------------------|--------------------------------|------------------------|
| 2B | +2.50 | S200 | CH 636.511 | 108°50'17" | A2 | 2 | SLEEVED | 2000 | -0.40 | -6.50 | -15.5 | -19.3 | 3.50 |
| 2C | +2.50 | S200 | CH 598.136 | 107°23'3" | A2 | 2 | BORED | 2000 | -0.40 | -7.20 | -21.5 | -23.3 | 1.50 |
| 2D | +2.50 | S200 | CH 559.761 | 100°4'52" | A2 | 2 | BORED | 2000 | -0.40 | -7.20 | -23.5 | -25.3 | 1.50 |
| 2E | +2.50 | S200 | CH 521.386 | 85°56'2" | A2 | 2 | BORED | 2000 | -0.40 | -7.75 | -25.0 | -26.3 | 1.00 |
| 2F | +2.50 | S200 | CH 471.386 | 58°13'34" | B4 | 2 | BORED | 2000 | -0.40 | -10.20 | -33.5 | -35.8 | 2.00 |
| 2G | +2.50 | S200 | CH 430.386 | 32°0'53" | A2 | 2 | BORED | 2000 | -0.40 | -10.20 | -39.0 | -40.8 | 1.50 |

A

NOTES:

- FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NOS. 60308751/C6/COO/2000 AND 2001.
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN mPD UNLESS OTHERWISE STATED.
- THE TENTATIVE FOUNDING LEVEL AND CUTOFF LEVEL SHOWN ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE ROCKHEAD LEVEL AND FINISH GROUND LEVEL AND SHALL AGREE WITH THE SUPERVISOR.
- ALL PILES SHALL BE SOCKETTED INTO SLIGHTLY TO MODERATELY DECOMPOSED MODERATELY STRONG ROCK OF MATERIAL WEATHERING GRADE III OR BETTER WITH A TOTAL CORE RECOVERY OF MORE THAN 85% AND A MINIMUM UNIAXIAL COMPRESSIVE STRENGTH OF NOT LESS THAN 25MPa WITH A MINIMUM SAFE BEARING CAPACITY OF 5000kPa.
- FOR TYPICAL FOUNDATION DETAILS REFER TO DRAWING NOS. 60308751/C6/COO/2041.
- FOR TYPICAL BORED AND SLEEVED BORED PILE DETAILS REFER TO DRAWING NO. 60308751/C6/COO/2040.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60308751/C6/COO/2167.

LEGEND:



ISSUE/REVISION
修訂

| A/R | DATE | DESCRIPTION | CHK. |
|-----|--------|----------------------|------|
| 修訂 | 日期 | 內容摘要 | 核核 |
| A | AUG.17 | TENDER ADDENDUM NO.3 | CL |
| - | JUN.17 | TENDER DRAWING | CL |

STATUS
階段

SCALE
比例

A1 1:500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60308751

CONTRACT NO.
合約編號

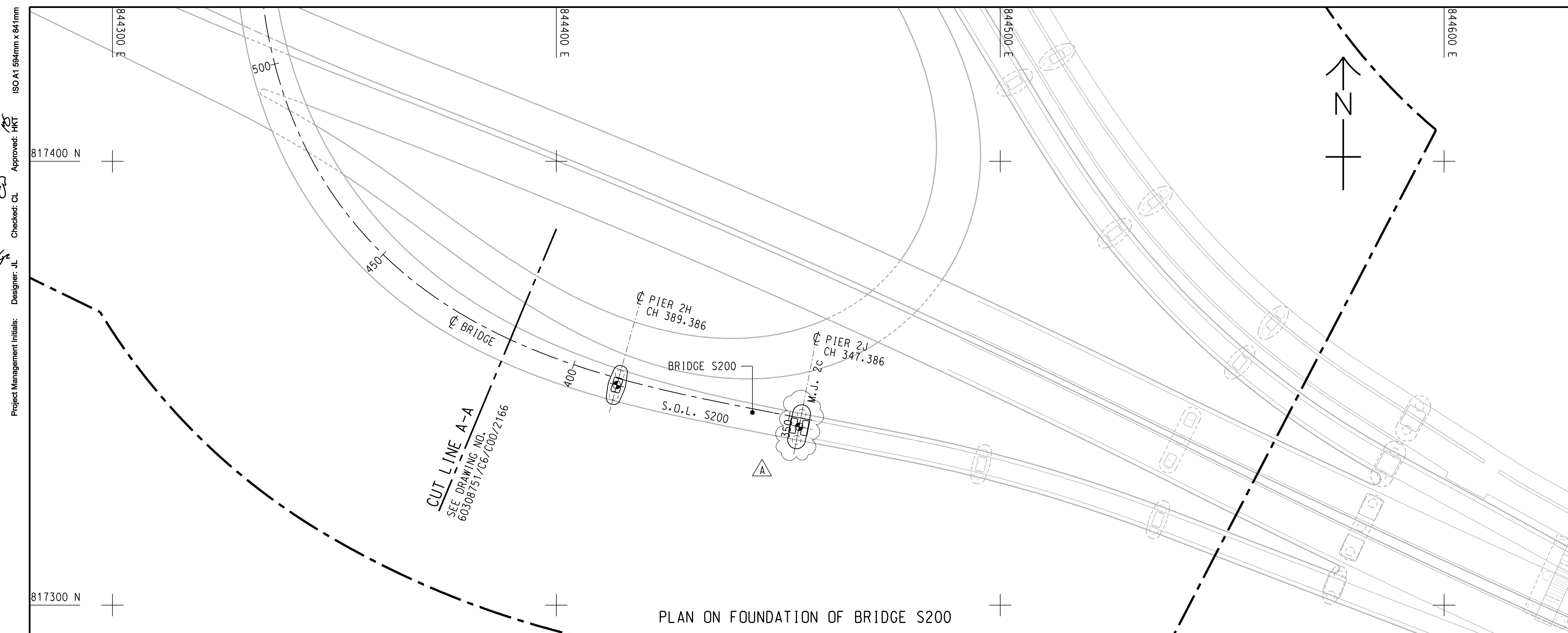
NE/2017/01

SHEET TITLE
圖紙名稱

BRIDGE S200
FOUNDATION LAYOUT

SHEET NUMBER
圖紙編號

60308751/C6/COO/2166A



FOUNDATION SCHEDULE:

| SUBSTRUCTURE REFERENCE NO. | TOP OF PILE CAP LEVEL (mPD) | S.O.L. | CHAINAGE | AZIMUTH OF FOUNDATION (α) | FOUNDATION TYPE | NO. OF PILES | TYPE OF PILE | PILE DIAMETER (mm) | PILE CUT OFF LEVEL (mPD) | TENTATIVE SEABED LEVEL (mPD) | TENTATIVE ROCKHEAD LEVEL (mPD) | TENTATIVE FOUNDING LEVEL (mPD) | MIN. SOCKET LENGTH (m) |
|----------------------------|-----------------------------|--------|------------|---------------------------|-----------------|--------------|--------------|--------------------|--------------------------|------------------------------|--------------------------------|--------------------------------|------------------------|
| 2H | +2.50 | S200 | CH 389.386 | 15°32'33" | A2 | 2 | BORED | 2000 | -0.40 | -10.50 | -47.0 | -50.8 | 1.00 |
| 2J | +2.50 | S200 | CH 347.386 | 10°58'37" | B4 | 2 | BORED | 2000 | -0.40 | -10.50 | -53.0 | -54.8 | 1.00 |

- NOTES:**
- FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 60308751/C6/C00/2166.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C6/C00/2166.

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL
TSEUNG KWAN O INTERCHANGE AND ASSOCIATED WORKS

CLIENT
土木工務拓展署
Civil Engineering and Development Department

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分列工程顧問公司

ISSUE/REVISION

| I/R | DATE | DESCRIPTION | CHK. |
|-----|--------|----------------------|------|
| A | AUG.17 | TENDER ADDENDUM NO.3 | CL |
| - | JUN.17 | TENDER DRAWING | CL |

STATUS
圖版

SCALE
A1 1 : 500

DIMENSION UNIT
METRES

KEY PLAN

PROJECT NO.
60308751

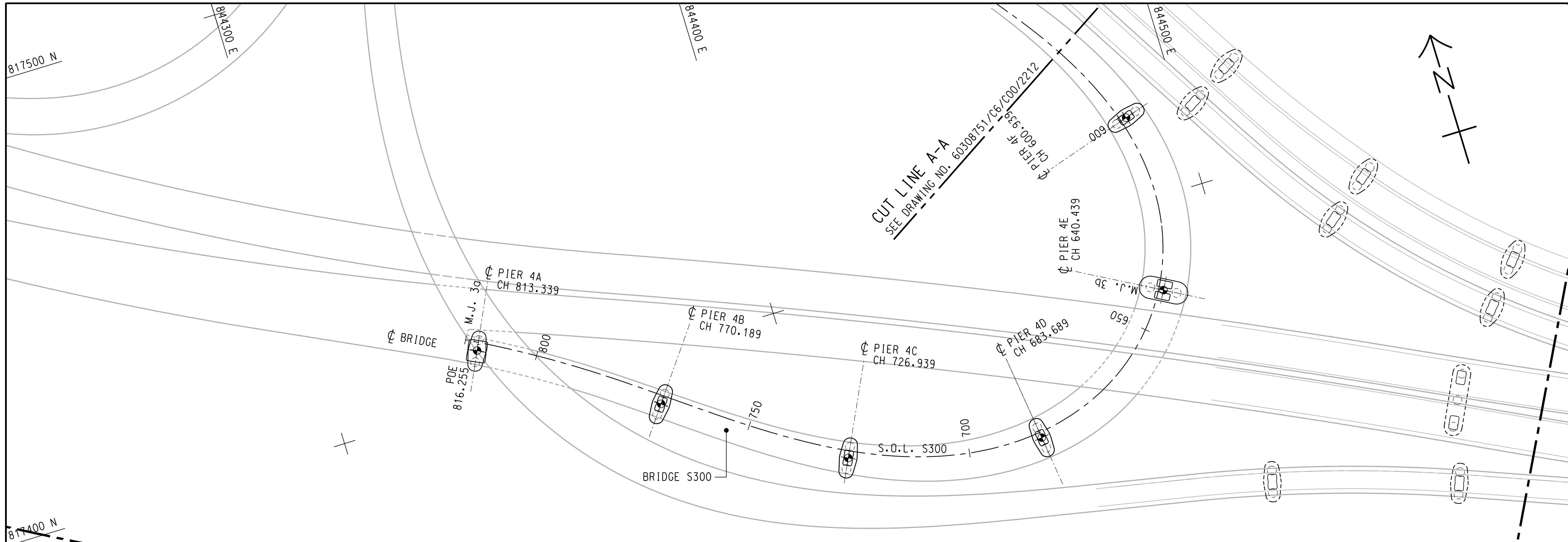
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NE/2017/01

SHEET TITLE
BRIDGE S200
FOUNDATION LAYOUT

SHEET NUMBER
60308751/C6/C00/2167A

ISO A1 594mm x 841mm
 Approved: HKT
 Checked: CL
 Designer: JL
 Project Management Initials:
 2017/06/16
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PLAN OF FOUNDATION OF BRIDGE S300

FOUNDATION SCHEDULE:

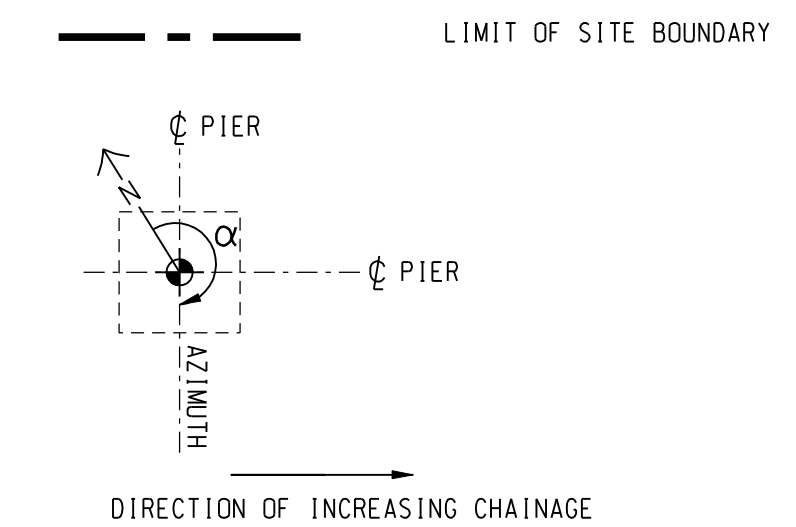
| SUBSTRUCTURE REFERENCE NO. | TOP OF PILE CAP LEVEL (mPD) | S.O.L. | CHAINAGE | AZIMUTH OF FOUNDATION (α) | FOUNDATION TYPE | NO. OF PILES | TYPE OF PILE | PILE DIAMETER (mm) | PILE CUT OFF LEVEL (mPD) | TENTATIVE SEABED LEVEL (mPD) | TENTATIVE ROCKHEAD LEVEL (mPD) | TENTATIVE FOUNDING LEVEL (mPD) | MIN. SOCKET LENGTH (m) |
|----------------------------|-----------------------------|--------|------------|---------------------------|-----------------|--------------|--------------|--------------------|--------------------------|------------------------------|--------------------------------|--------------------------------|------------------------|
| 4A | +2.50 | S300 | CH 813.339 | 25°34'26" | A2 | 2 | BORED | 2000 | -0.40 | -7.75 | -29.0 | -32.8 | 3.50 |
| 4B | +2.50 | S300 | CH 770.189 | 36°33'7" | A2 | 2 | BORED | 2000 | -0.40 | -10.20 | -35.0 | -38.3 | 3.00 |
| 4C | +2.50 | S300 | CH 726.939 | 26°1'12" | A2 | 2 | BORED | 2000 | -0.40 | -10.50 | -45.0 | -47.3 | 2.00 |
| 4D | +2.50 | S300 | CH 683.689 | 172°35'5" | A2 | 2 | BORED | 2000 | -0.40 | -10.50 | -53.0 | -54.3 | 1.00 |
| 4E | +2.50 | S300 | CH 640.439 | 118°50'18" | B4 | 2 | BORED | 2000 | -0.40 | -10.20 | -53.0 | -54.3 | 1.00 |
| 4F | +2.50 | S300 | CH 600.939 | 72°36'35" | A2 | 2 | BORED | 2000 | -0.40 | -10.20 | -45.0 | -46.3 | 1.00 |

A

NOTES:

- FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NOS. 60308751/C6/C00/2000 AND 2001.
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN mPD UNLESS OTHERWISE STATED.
- THE TENTATIVE FOUNDING LEVEL AND CUTOFF LEVEL SHOWN ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE ROCKHEAD LEVEL AND FINISH GROUND LEVEL AND SHALL AGREE WITH THE SUPERVISOR.
- ALL PILES SHALL SOCKETTED INTO SLIGHTLY TO MODERATELY DECOMPOSED MODERATELY STRONG ROCK OF MATERIAL WEATHERING GRADE III OR BETTER WITH A TOTAL CORE RECOVERY OF MORE THAN 85% AND A MINIMUM UNIAXIAL COMPRESSIVE STRENGTH OF NOT LESS THAN 25MPa WITH A MINIMUM SAFE BEARING CAPACITY OF 5000KPa.
- EXACT ROCKHEAD LEVEL SHALL BE PROPOSED BY THE CONTRACTOR AND SUBJECTED TO THE ACCEPTANCE OF THE SUPERVISOR.
- FOR TYPICAL FOUNDATION DETAILS REFER TO DRAWING NO. 60308751/C6/C00/2041.
- FOR TYPICAL BORED AND SLEEVED BORED PILE DETAILS REFER TO DRAWING NO. 60308751/C6/C00/2040.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NO. 60308751/C6/C00/2212.

LEGEND:



ISSUE/REVISION

| NO. | DATE | DESCRIPTION | CHK. |
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| - | JUN.17 | TENDER DRAWING | CL |

STATUS

Final

SCALE

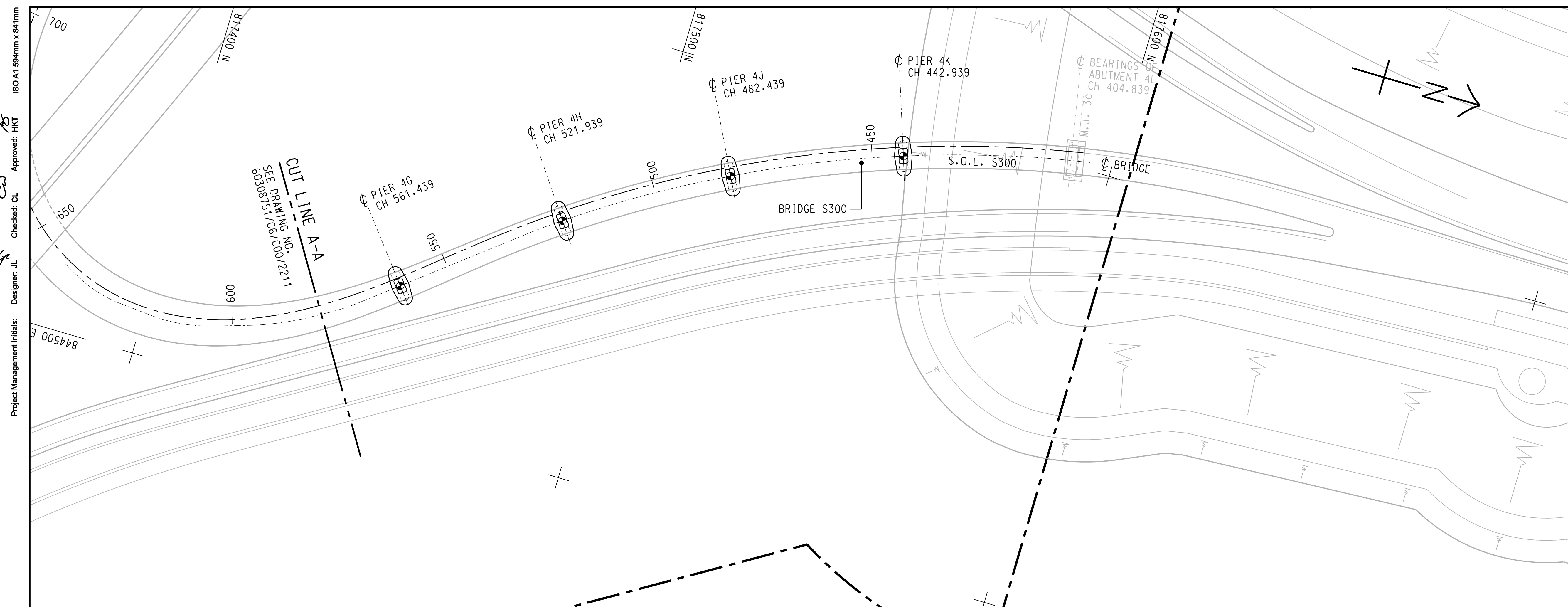
A1 1:500

DIMENSION UNIT

METRES

KEY PLAN

Not applicable



PLAN OF FOUNDATION OF BRIDGE S300

FOUNDATION SCHEDULE:

| SUBSTRUCTURE REFERENCE NO. | TOP OF PILE CAP LEVEL (mPD) | S.O.L. | CHAINAGE | AZIMUTH OF FOUNDATION (α) | FOUNDATION TYPE | NO. OF PILES | TYPE OF PILE | PILE DIAMETER (mm) | PILE CUT OFF LEVEL (mPD) | TENTATIVE SEABED LEVEL (mPD) | TENTATIVE ROCKHEAD LEVEL (mPD) | TENTATIVE FOUNDING LEVEL (mPD) | MIN. SOCKET LENGTH (m) |
|----------------------------|-----------------------------|--------|------------|---------------------------|-----------------|--------------|--------------|--------------------|--------------------------|------------------------------|--------------------------------|--------------------------------|------------------------|
| 4G | +2.50 | S300 | CH 561.439 | 231°24'56" | A2 | 2 | BORED | 2000 | -0.40 | -9.85 | -37.5 | -40.8 | 3.00 |
| 4H | +2.50 | S300 | CH 521.939 | 234°41'14" | A2 | 2 | BORED | 2000 | -0.40 | -9.85 | -32.0 | -35.3 | 3.00 |
| 4J | +2.50 | S300 | CH 482.439 | 242°56'50" | A2 | 2 | BORED | 2000 | -0.40 | -7.75 | -28.0 | -32.3 | 4.00 |
| 4K | +2.50 | S300 | CH 442.939 | 251°12'25" | A2 | 2 | SLEEVED | 2000 | -0.40 | -7.10 | -25.0 | -29.8 | 4.50 |

NOTES:

- FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 60308751/C6/C00/2211.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C6/C00/2211.

ISSUE/REVISION

| I/R | DATE | DESCRIPTION | CHK. |
|-----|--------|----------------------|------|
| A | AUG.17 | TENDER ADDENDUM NO.3 | CL |
| - | JUN.17 | TENDER DRAWING | CL |

STATUS

備註

SCALE

A1 1:500

DIMENSION UNIT

METRES

KEY PLAN

索引圖

PROJECT NO.

60308751

CONTRACT NO.

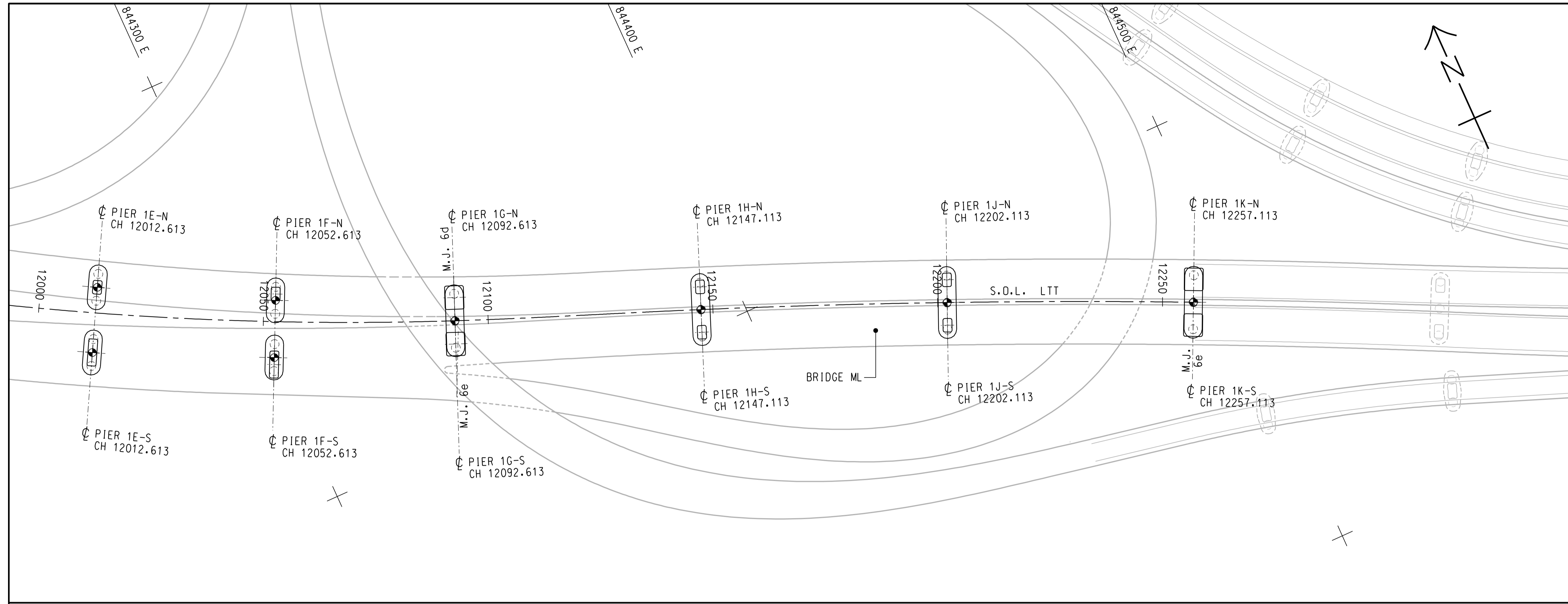
NE/2017/01

SHEET TITLE

BRIDGE S300
FOUNDATION LAYOUT

SHEET NUMBER

60308751/C6/C00/2212A



FOUNDATION SCHEDULE:

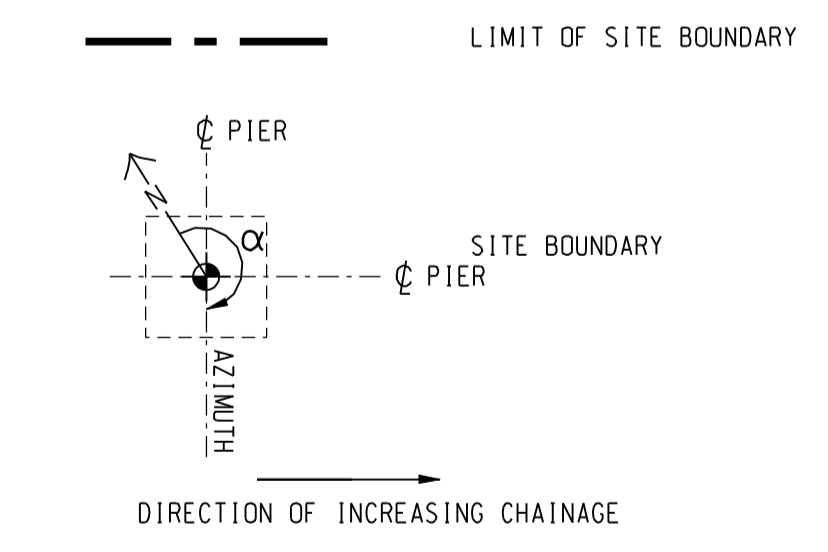
| SUBSTRUCTURE REFERENCE NO. | TOP OF PILE CAP LEVEL (mPD) | S.O.L. | CHAINAGE | AZIMUTH OF FOUNDATION (α) | FOUNDATION TYPE | NO. OF PILES | TYPE OF PILE | PILE DIAMETER (mm) | PILE CUT OFF LEVEL (mPD) | TENTATIVE SEABED LEVEL (mPD) | TENTATIVE ROCKHEAD LEVEL m(PD) | TENTATIVE FOUNDING LEVEL (mPD) | MIN. SOCKET LENGTH (m) |
|----------------------------|-----------------------------|--------|--------------|---------------------------|-----------------|--------------|--------------|--------------------|--------------------------|------------------------------|--------------------------------|--------------------------------|------------------------|
| 1E-N | +2.50 | LTT | CH 12012.613 | 208°37'47" | B1 | 2 | BORED | 2000 | -0.40 | -7.20 | -16.5 | -22.8 | 6.00 |
| 1E-S | +2.50 | LTT | CH 12012.613 | 208°37'47" | B1 | 2 | BORED | 2000 | -0.40 | -7.20 | -17.0 | -23.3 | 6.00 |
| 1F-N | +2.50 | LTT | CH 12052.613 | 205°34'26" | B1 | 2 | BORED | 2000 | -0.40 | -7.75 | -22.0 | -27.8 | 5.50 |
| 1F-S | +2.50 | LTT | CH 12052.613 | 205°34'26" | B1 | 2 | BORED | 2000 | -0.40 | -7.75 | -23.0 | -28.8 | 5.50 |
| 1G | +2.50 | LTT | CH 12092.613 | 202°31'27" | C | 3 | BORED | 2000 | -0.40 | -7.75 | -28.5 | -34.8 | 6.00 |
| 1H | +2.50 | LTT | CH 12147.113 | 201°53'37" | C | 3 | BORED | 2000 | -0.40 | -10.30 | -35.5 | -41.3 | 5.50 |
| 1J | +2.50 | LTT | CH 12202.113 | 203°28'10" | C | 3 | BORED | 2000 | -0.40 | -10.30 | -46.0 | -51.8 | 5.50 |
| 1K | +2.50 | LTT | CH 12257.113 | 205°4'34" | C | 3 | BORED | 2000 | -0.40 | -10.20 | -50.0 | -55.8 | 5.50 |

A

NOTES:

- FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NOS. 60308751/C6/C00/2000 AND 2001.
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN mPD UNLESS OTHERWISE STATED.
- THE TENTATIVE FOUNDING LEVEL SHOWN ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE ROCKHEAD LEVEL AND FOUNDING LEVEL AND SHALL AGREE WITH THE SUPERVISOR.
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- FOR TYPICAL FOUNDATION DETAILS REFER TO DRAWING NO. 60308751/C6/C00/2041.
- FOR TYPICAL BORED AND SLEEVED BORED PILE DETAILS REFER TO DRAWING NO. 60308751/C6/C00/2040.

LEGEND:



ISSUE/REVISION

| NO. | DATE | DESCRIPTION | CHK. |
|-----|--------|----------------------|------|
| A | AUG.17 | TENDER ADDENDUM NO.3 | CL |
| - | JUN.17 | TENDER DRAWING | CL |

STATUS

| |
|--|
| |
|--|

SCALE
 1:500
DIMENSION UNIT
 METRES

KEY PLAN

PROJECT NO.
 60308751
CONTRACT NO.
 NE/2017/01

SHEET TITLE
 BRIDGE ML
 FOUNDATION LAYOUT

SHEET NUMBER
 60308751/C6/C00/2311A

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NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

Appendix C – Specification of Geotextile for Silt Curtain

NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

1. DSP 15 Silt Curtain



Material Submission

Daeyoun Geotech

GEONIA Silt Protector



G AND E COMPANY LIMITED

14th Floor, Kiu Yin Commercial Building

361-363 Lockhart Road, Wanchai, HK

Tel: 2570 0103 Fax: 2570 0089 website: www.g-and-e.com

March 2018



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Daeyoun Geotech
GEONIA Silt Protector

Manufacturing Company Catalogue

COMPANY INTRODUCTION



DAEYOUN GEOTECH

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COMPANY INFORMATION

| | |
|---------------------|---|
| Company Name | DAEYOUN GEOTECH CO., LTD |
| C.E.O | Mr. Sang Ki Lee |
| Establish | 1991 |
| Employee | 35 people |
| Head office | No. 1121, Poonglim Bldg, Gongdeok-dong, Mapo-gu, Seoul, Korea |
| Main Business | PET/PP Woven Geotextiles Silt Protector / Curtain |
| Capacity | 15 million sqm / year |
| | |

HISTORY

- 2013 – Qualified for European Certification of **CE Mark** from SKZ in Germany
 - Became a member of **GMA**
 - **Built 2nd factory in Gimcheon city, Korea**
 - Attended the booth in Geosynthetics2013 in U.S.A.
- 2012 - Launched new brand "GEONIA[®]" of the geosynthetics by Daeyoun Geotech Co., Ltd.
 - Established Daeyoun Geotech Co., Ltd. **Geosynthetics's R & D Center**
 - Audit CE mark
 - IGS Membership
 - Attended the booth in Geosynthetics Asia 2012 in Bangkok, Thailand
- 2011 - Registered the certificate of Patent about the silt protector
- 2009 - Expansion of Gimcheon Plant, Korea
 - **Renewed ISO 9001, ISO 14001**
 - Assigned as a innovative company by Small and medium Business Administration
- 2008 - Completion of Gimcheon Plant
 - Annual contract with Korean Public Procurement Bureau for Woven Geotextile
- 2006 - Renamed to Daeyoun Geotech Co., Ltd.
 - Woven Geotextile business separated from Daeyoun Textech Co., Ltd.
- 1991 - Established Daeyoun Textech Co., Ltd

Factory Location

- Factory 1 (Gimcheon)**
 55-2, Dogok-ri, Jirye-myeon, Gimcheon-city,
 Gyeongsangbuk-do, Korea
 - It takes 3 hours from Seoul to Kimcheon by a Car
 - It take 1.5 hours from Seoul to Kimcheon by KTX
 - It takes 2 hours from Busan to Kimcheon factory by a Car
- Factory 2 (Gimcheon)**
 123, Apogongdan-gil, Apo-eup, Gimcheon-si,
 Gyeongsangbuk-do, Korea
- Veitnam Office (Hochiminh)**
 83 K7 ST, Ward 12, Tan Binh Dist.,
 Hochiminh city, Vietnam



DAEYOUN FACTORY 1

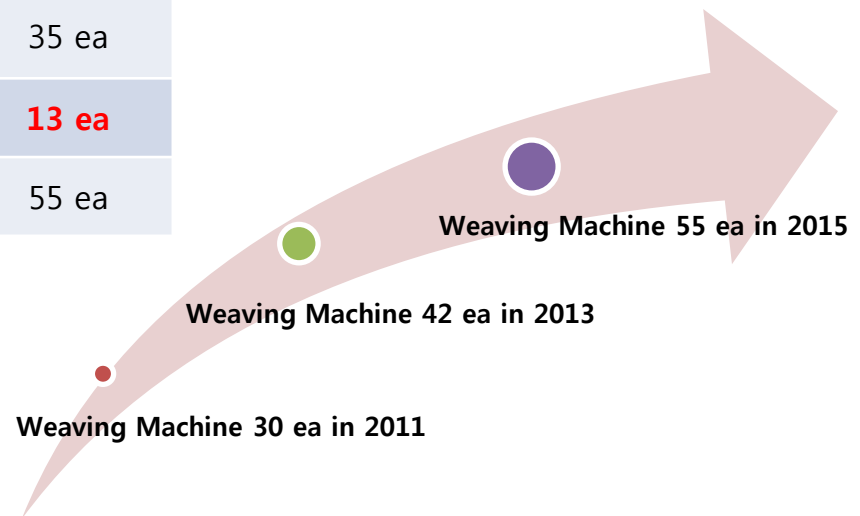


DAEYOUN FACTORY 2

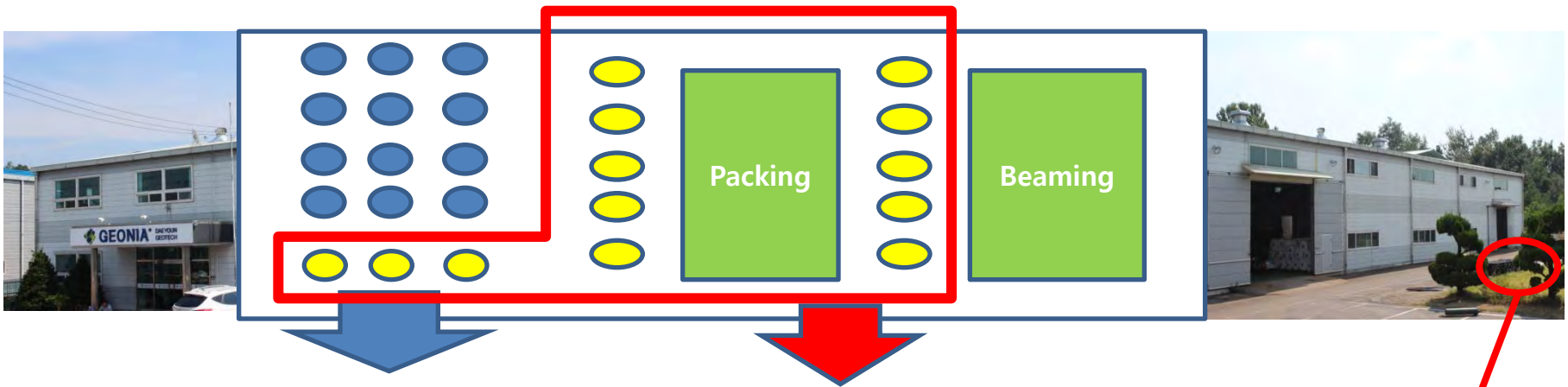


Plant Investment Plan in the Future

| Weaving Machine | Factory 1 | Factory 2 | Total |
|-----------------|-----------|--------------|--------------|
| 2,100 mm | 6 ea | 1 ea | 7 ea |
| 3,600 mm | 23 ea | 12 ea | 35 ea |
| 5,200 mm | - | 13 ea | 13 ea |
| Total | 29 ea | 26 ea | 55 ea |



Plant Investment Plan in the Future



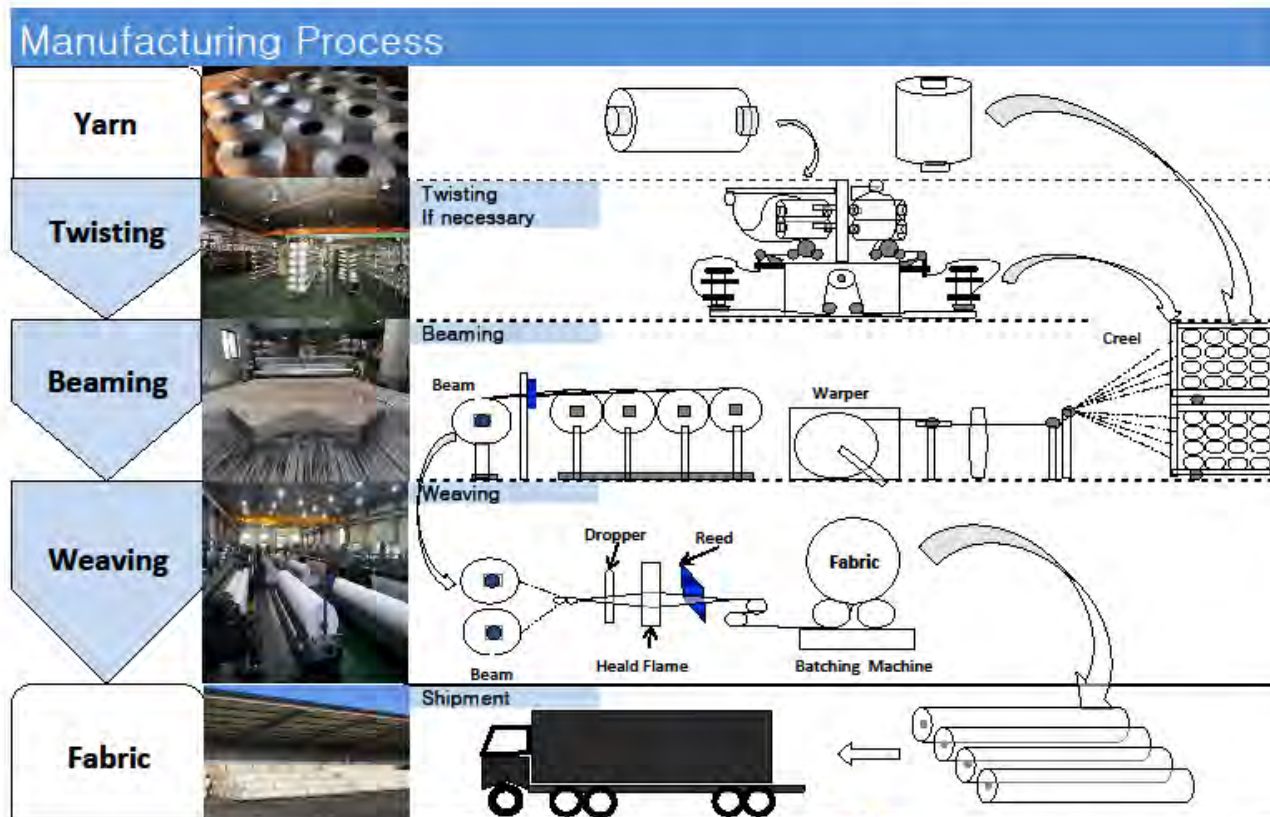
Office 12 Weaving Machines


New Plant – 13 Weaving Machines till 2015 year
and Build another new warehouse system.

New Warehouse

No. 1, Woven Geotextiles Manufacturer in Asia Market !!

MANUFACTURING PROCESS



 Daeyoun Geotech Kimcheon plant

PARTNERSHIP with Construction Company

ORDER



Performance Experience in Vietnam

ORDER

- 2012 : The Sothern Coastal Corridor-Minh Luong Project
Hanoi~Haiphong Express Way.
The Sothern Coastal Corridor-Kenh 14 Bridge
Rach Gia Giang Bypass Project
- 2011 : Hanoi~Haiphong Express Way.
Hochiminh TBO Project.
Caimep Industrial Park.
- 2010 : Hanoi~Haiphong Express Way.
Posco port for steel process factory in Phu My
Industrial Park 2nd area.
Caimep Industrial park.
National way No. 61B project.
National way Hochiminh ~Trung Luong project.
- 2009 : Hanoi~Hochiminh Express Way Cau gie-.Ninh binh project.
National way No. 51 project.
- 2008 : Hanoi~Hochiminh Express Way Cau gie-.Ninh binh project.
Hanoi Than Tri Bridge.

Market Share No. 1
in Vietnam Market
In 2012 & 2013

Performance Experience in Overseas

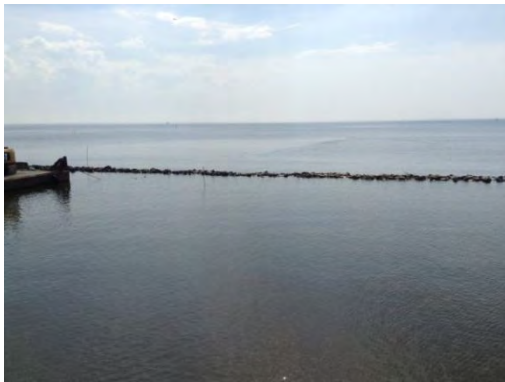
ORDER



Manila, Philippines



Manila, Philippines



Bangkok, Thailand



Korea

- Vietnam
- Philippines
- Thailand
- Malaysia
- Indonesia
- Singapore
- Colombia
- Middle East
- North Africa
- EU
- Russia

**No.1 Manufacturer for
Woven Geotextiles
in Asia**

CERTIFICATION



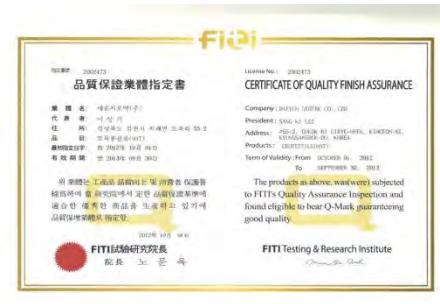
CE Mark by SKZ



ISO 9001 Certification



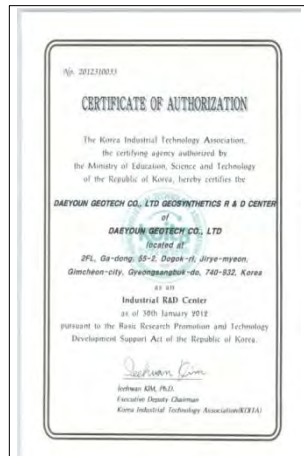
ISO 14001 Certification



Q Mark by FITI



Certificate of Patent DAEYOUN R&D CENTER



DAEYOUN R&D CENTER



Certificate of Reliability



IGS membership (International Geosynthetics Society)

THANK YOU





**Daeyoun Geotech
GEONIA Silt Protector**

Product Catalogue of Daeyoun Geotech GEONIA
Silt Protector

Geonia® is a registered trademark of DAEYOUN GEOTECH.

www.DYGEOTECH.com



GEONIA®

Silt Protector

We develop geosynthetics, under the mission of protecting environment as well as human, and supplying highly efficient and cost-effective solutions to global clients.



HEAD OFFICE (SEOUL) W 1707 Dangsang SKV1 Center, 11, Dangsang-ro 41-gil, Yeongdeungpo-gu, Seoul, 150-806, Rep. of KOREA

Tel: +82-2-539-9700 Fax: +82-2-539-9710 E-mail: overseas@egeonia.com

R&D CENTER (GIMCHEON) 55-2, Dogok-ri, Jirye-myoen, Gimcheon-si, Gyeongsangbuk-do, 740-932, Rep. of KOREA

Tel: +82-2-539-9700 Fax: +82-2-539-9710

FACTORY 1 (GIMCHEON) 55-2, Dogok-ri, Jirye-myoen, Gimcheon-si, Gyeongsangbuk-do, 740-932, Rep. of KOREA

Tel: +82-54-436-0800 Fax: +82-54-436-0550

FACTORY 2 (GIMCHEON) 123, Apogongdan-gil, Apo-eup, Gimcheon-si, Gyeongsangbuk-do, 740-862, Rep. of KOREA

Tel: +82-54-436-0800 Fax: +82-54-436-0550

VIETNAM SALES OFFICE (HOCHIMINH) 41 le trung Nghia P12 Tan Binh district Hochiminh Vietnam

Tel: +84-8-3811-2772 Fax: +84-8-3948-1920 E-mail: day0323@naver.com

JAPAN SALES OFFICE (TOKYO) Nakagawa BLDG, 4FL, 1-14-8, Nishishinbashi, Minato-ku, Tokyo, JAPAN 105-0003

Tel: +81-3-3507-9595 Fax: +81-3-5532-8624



Printed in Jun. 2015

**DAEYOUN
GEOTECH**



SILT PROTECTOR

PRODUCT

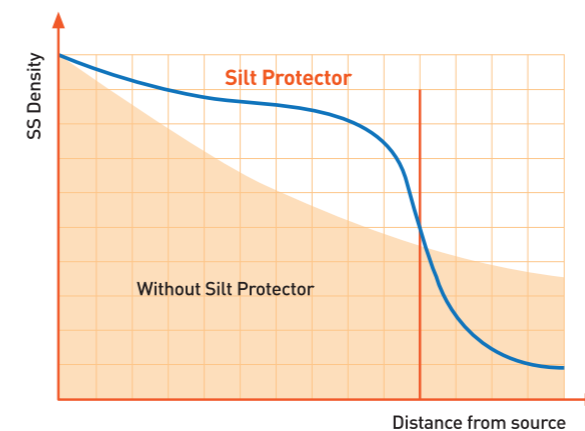
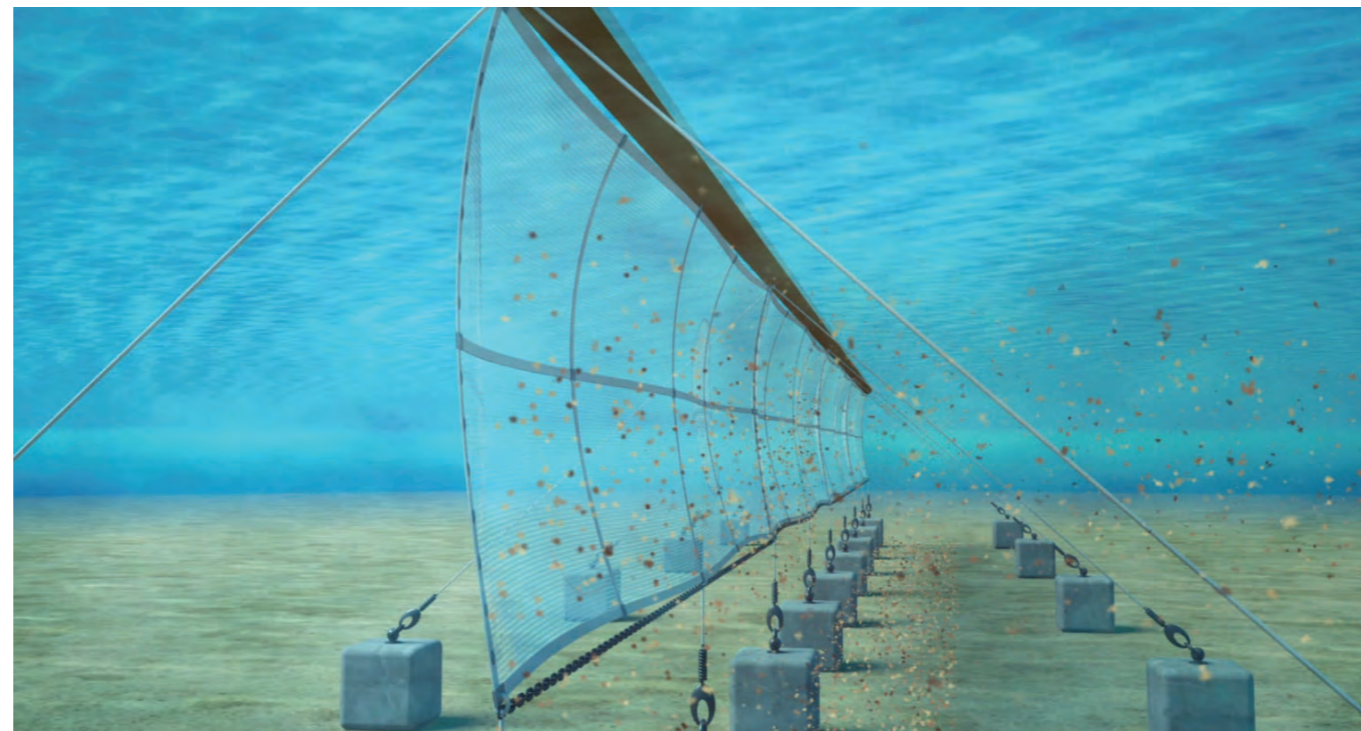
GEONIA® Silt Protector

GEONIA® Silt Protector is a silt fence installed in water for preventing spread of environmental contaminants induced by coastal and riverside construction. Leakage of silt from marine and sewage constructions has a serious influence on marine resources and natural environment of surrounding regions.

GEONIA® Silt Protector is used to preserve the natural environment and protect marine resources. By blocking a specific water zone with a special membrane composed of high strength synthetic fiber, soil particles that occur in the area are filtered and precipitated to prevent leakage and spread of silt water.

Application

- Protection of sea farming and swimming beach from nearby coastal construction
- Reclamation Protection
- Protection of revetment contamination
- Revetment of contaminant

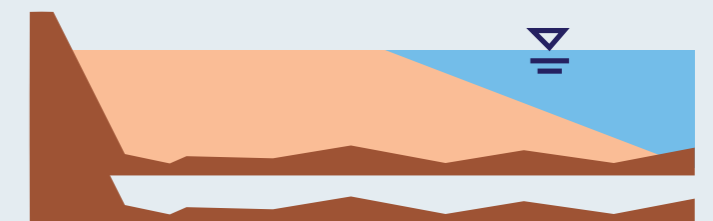


Function

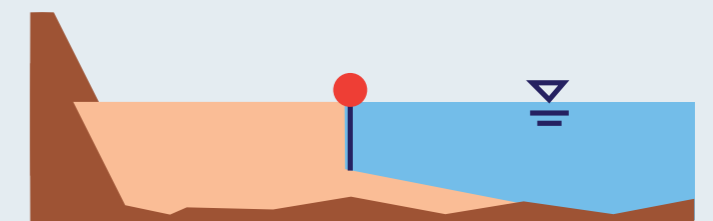
The main function of the GEONIA® Silt Protector is to enclose turbidity and to minimize the influences on outside sensitive areas. Enclosed by Silt Protector, current velocity inside is much lower than outside velocity. This means the GEONIA® Silt Protector is accelerating sedimentation of silt by reducing the flow of velocity.

- The acceleration of the settlement of silt by interference of particles – The installation of GEONIA® Silt Protector suppresses the diffusion of the pollution and make the soil particles interfere with each other to accelerate their settlement.
- The reduction of distance required to settle the silt – As shown, the installation of GEONIA® Silt Protectors narrows the settlement range, resulting in minimizing the diffusion of pollution after the unit.

Without GEONIA® Silt Protector



With GEONIA® Silt Protector

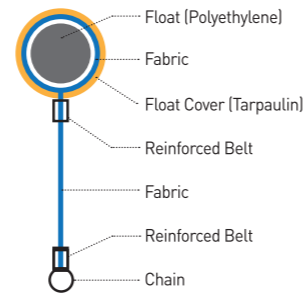
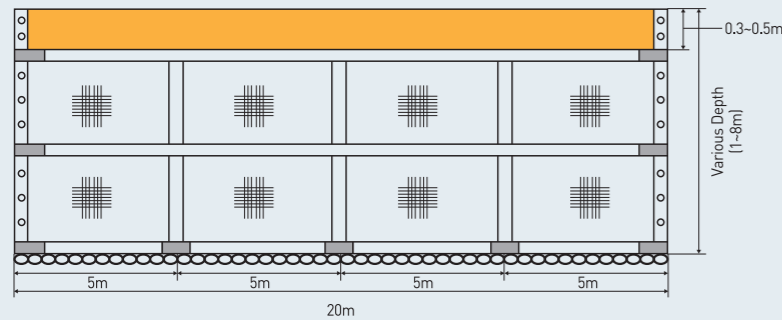


GEONIA® SILT PROTECTOR

TYPES

Tube Type

High external force of tide, wave and wind.



Durable Tube Type

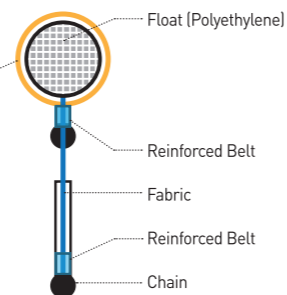
High external force of tide, wave and wind + long resistance from the sunlight



A broken PVC coated fabric in a part of the float

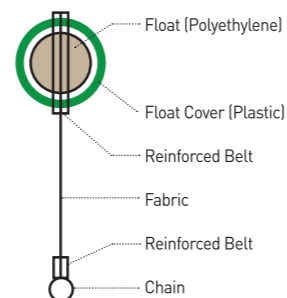
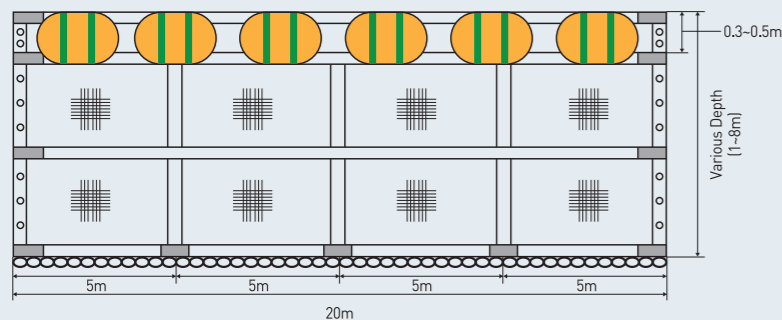
A durable fabric for the float using high tenacity colored yarn

Durable Tube Type GEONIA® Silt Protector applies a durable fabric for the float device by using high tenacity colored yarn, which was improved to solve the problem of fault construction, poor visibility caused by a damaged PVC coated fabric, and marine pollution of a broken PVC coated fabric.



Covering Head Type

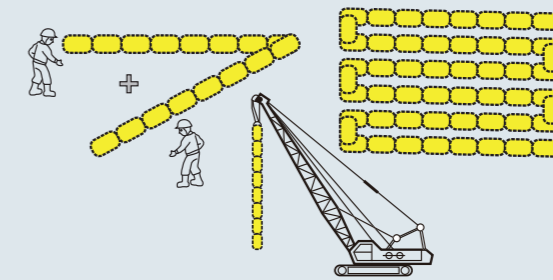
Less external force than tube type / easy to install



INSTALLATION

Installation of Tube Type GEONIA® Silt Protector

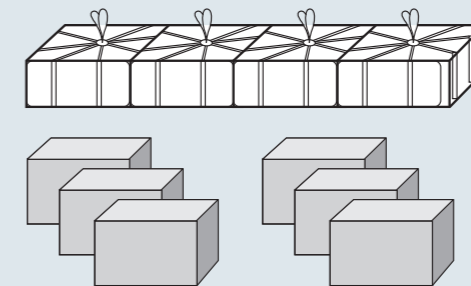
Assembly



Connect each unit of Silt Protectors (Assemble on land)



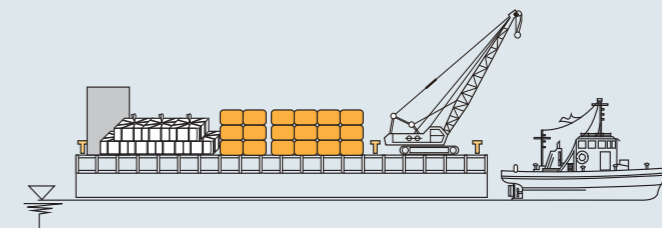
Production of Anchors



Make Ton Bag Anchors or Concrete Blocks



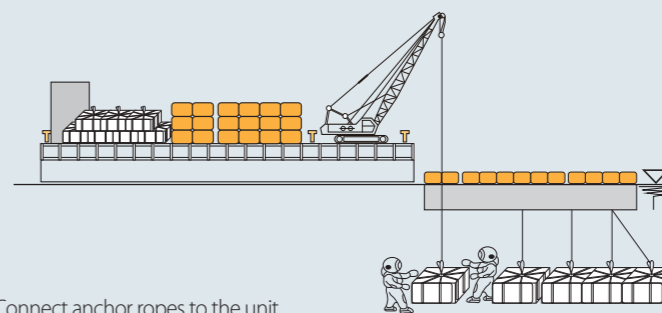
Transportation



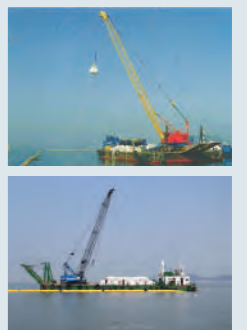
Load on to barge and move to where you want to install



Installation



Connect anchor ropes to the unit





Daeyoun Geotech
GEONIA Silt Protector

Product Specification of GEONIA Silt Protector

GEONIA® Silt Protector DSP Technical Data Sheet
 High Performance Silt Protector (Floating Curtain)

www.egeonia.com
DSP15 (150/150)

| Mechanical Properties | Test Method | | Unit | | Value |
|---|-------------|------------|-----------------------------------|---|-------|
| Physical Properties | | | | | |
| Tensile Strength | MD | ASTM D4595 | kN/m | ≥ | 150 |
| Tensile Strength | CD | ASTM D4595 | kN/m | ≥ | 150 |
| Elongation | MD | ASTM D4595 | % | ≤ | 15 |
| Elongation | CD | ASTM D4595 | % | ≤ | 15 |
| Rate of Contraction | | ISO 7771 | % | ± | 0.2 |
| Hydraulic Properties | | | | | |
| Water flow rate (h:50mm) | | ASTM D4491 | l/m ² /sec (mm/sec) | ≥ | 1.0 |
| Water Permittivity (h:50mm) | | ASTM D4491 | sec ⁻¹ | ≥ | 0.02 |
| Apparent Opening Size(O ₉₅) | | ASTM D4751 | mm | ≤ | 0.075 |

Above data sheet is our standard properties for the reference usage. DAEYOUN GEOTECH will not be responsible caused by any discrepancy with above data sheet. Please contact us if you need specified data sheet.

GEONIA® is a registered trademark of DAEYOUN GEOTECH.
MADE IN KOREA



DSP METALIC PARTS METARIAL AND COATING

2014-12-24

| ITEM | METARIAL | COATING |
|-------------------------------|--------------|-------------------------------|
| EYELET | STEEL (S20C) | PAINTING (oil based paint) |
| STEEL PLATE | STEEL (S20C) | GALVANIZED (50~80μm) |
| REINFORCED STEEL PLATE | STEEL (S20C) | HOT DIP GALVANIZE (over 80μm) |
| BOLT&NUT | STEEL (S20C) | GALVANIZED (50~80μm) |
| CHAIN | STEEL (S20C) | COAL TAR PAINTING |

* Above materials and coating methods can be changed according to manufacturer's decision.

* Any kind of change will be noticed to buyer in advance when it occurred.



Daeyoun Geotech
GEONIA Silt Protector

Certificate



Certification of Registration

DAEYOUN GEOTECH CO., LTD.

Head Office : 11, Dangsansan-ro 41-gil, Yeongdeungpo-gu, Seoul, Korea
Factory : 123, Apogongdan-gil, Apo-eup, Gimcheon-si, Gyeongsangbuk-do, Korea

STANDARDS

ISO 9001 : 2008 / KS Q ISO 9001:2009

SCOPE OF SUPPLY

**Manufacture and Servicing of Industrial Fabrics
(PET Woven Geotextile, PP Woven Geotextile, Geocomposite, Base Cloth,
Geotextiles & Geosynthetics) , Twisted Yarns, Silt Protector & Sewing**

ITS Certification Body certifies that Quality Management System of this organization is conforming to the standard and certificate scope.

Certificate Valid Date : 19-Apr-2016 ~ 30-Aug-2019

Certificate No. : ITS-KQ-00426

Date of Initial Approval : 11-Oct-2010

Initial Certificate Expiry Date : 30-Aug-2016

Recertificate Issued Date : 13-Jul-2016

13-Jul-2016

by Joon Young Park

President



INTELLIGENCE TECHNOLOGY STANDARD ASSURANCE

서울시 영등포구 63로 32 (여의도동 라이프콤비 B/D) 1302 Website: www.itscert.or.kr webmaster@itscert.or.kr



* KAB 마크는 한국인정원으로부터 품질/환경 인증기관으로 지정 (지정번호 : KAB-QC-46/KAB-EC-41) 되었음을 나타내는 인정마크입니다.

* IAF MLA 마크는 QMS/EMS에 대한 국제인증기관협력기구의 국제다자간 상호 인정협정가입인증기관에 의한 인정마크입니다.



This certificate is the property of ITS Inc. and must be returned on request by ITS Inc.
*This certificate is available by September 14 2018 in accordance with the revised 2015 version of ISO standard.

Recertification Audit Date : 2016 07.11~12

Version 1.0



Certification of Registration

DAEYOUN GEOTECH CO., LTD.

Head Office : 11, Dangsang-ro 41-gil, Yeongdeungpo-gu, Seoul, Korea
Factory : 123, Apogongdan-gil, Apo-eup, Gimcheon-si, Gyeongsangbuk-do, Korea

STANDARDS

ISO 14001 : 2004 / KS I ISO 14001:2009

SCOPE OF SUPPLY

**Manufacture and Servicing of Industrial Fabrics
(PET Woven Geotextile, PP Woven Geotextile, Geocomposite, Base Cloth,
Geotextiles & Geosynthetics) , Twisted Yarns, Silt Protector & Sewing**

ITS Certification Body certifies that Environment Management System of this organization is conforming to the standard and certificate scope.

Certificate Valid Date : 31-Aug-2016 ~ 30-Aug-2019

Certificate No. : ITS-KE-00231

Date of Initial Approval : 11-Oct-2010

Initial Certificate Expiry Date : 30-Aug-2016

Recertificate Issued Date : 13-Jul-2016

13-Jul-2016

by Joon Young Park

President



INTELLIGENCE TECHNOLOGY STANDARD ASSURANCE

서울시 영등포구 63로 32 (여의도동 라이프콤비 B/D) 1302 Website: www.itscert.or.kr webmaster@itscert.or.kr



* KAB 마크는 한국인정원으로부터 품질/환경 인증기관으로 지정 (지정번호 : KAB-QC-46/KAB-EC-41) 되었음을 나타내는 인정마크입니다.

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*This certificate is available by September 14 2018 in accordance with the revised 2015 version of ISO standard.

Recertification Audit Date : 2016 07.11~12

Version 1.0



Daeyoun Geotech
GEONIA Silt Protector

Installation, Caution & Maintenance Guideline



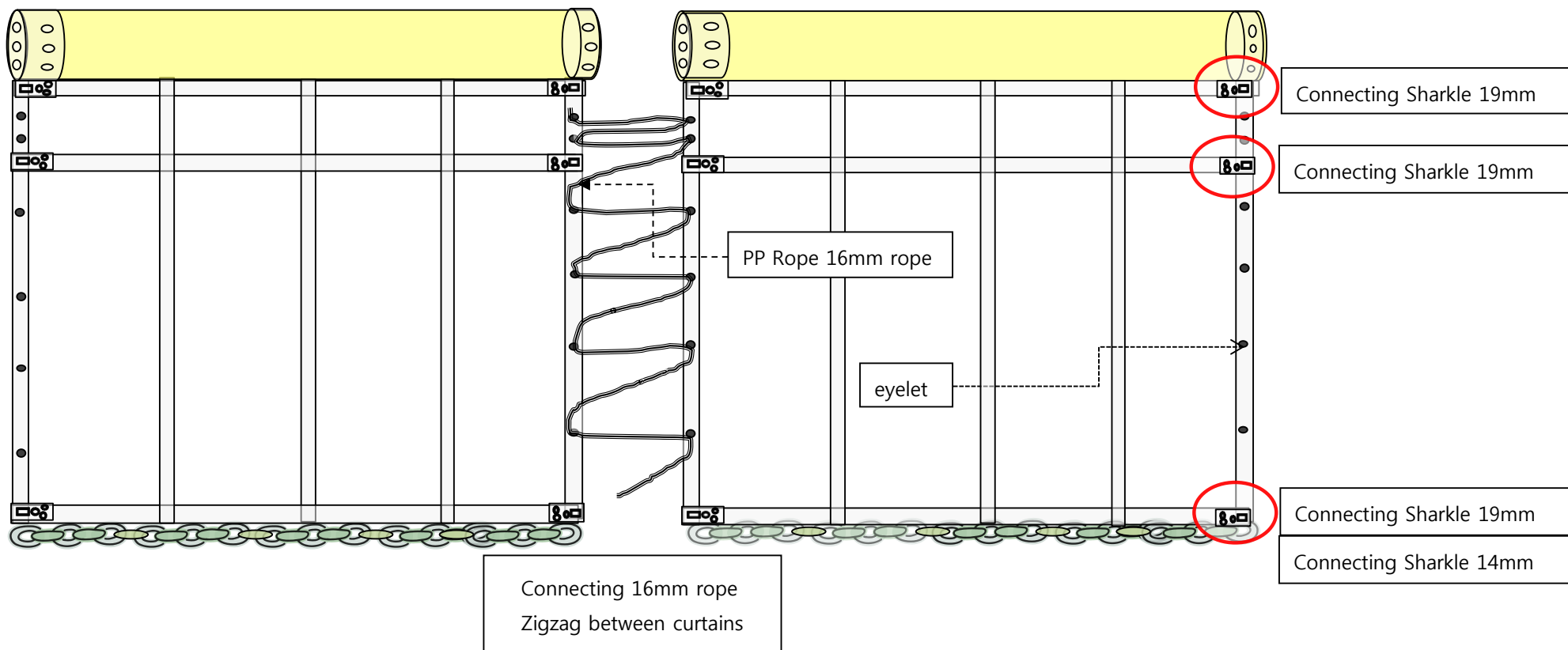
Silt Protector

Installation

Caution

Maintenance

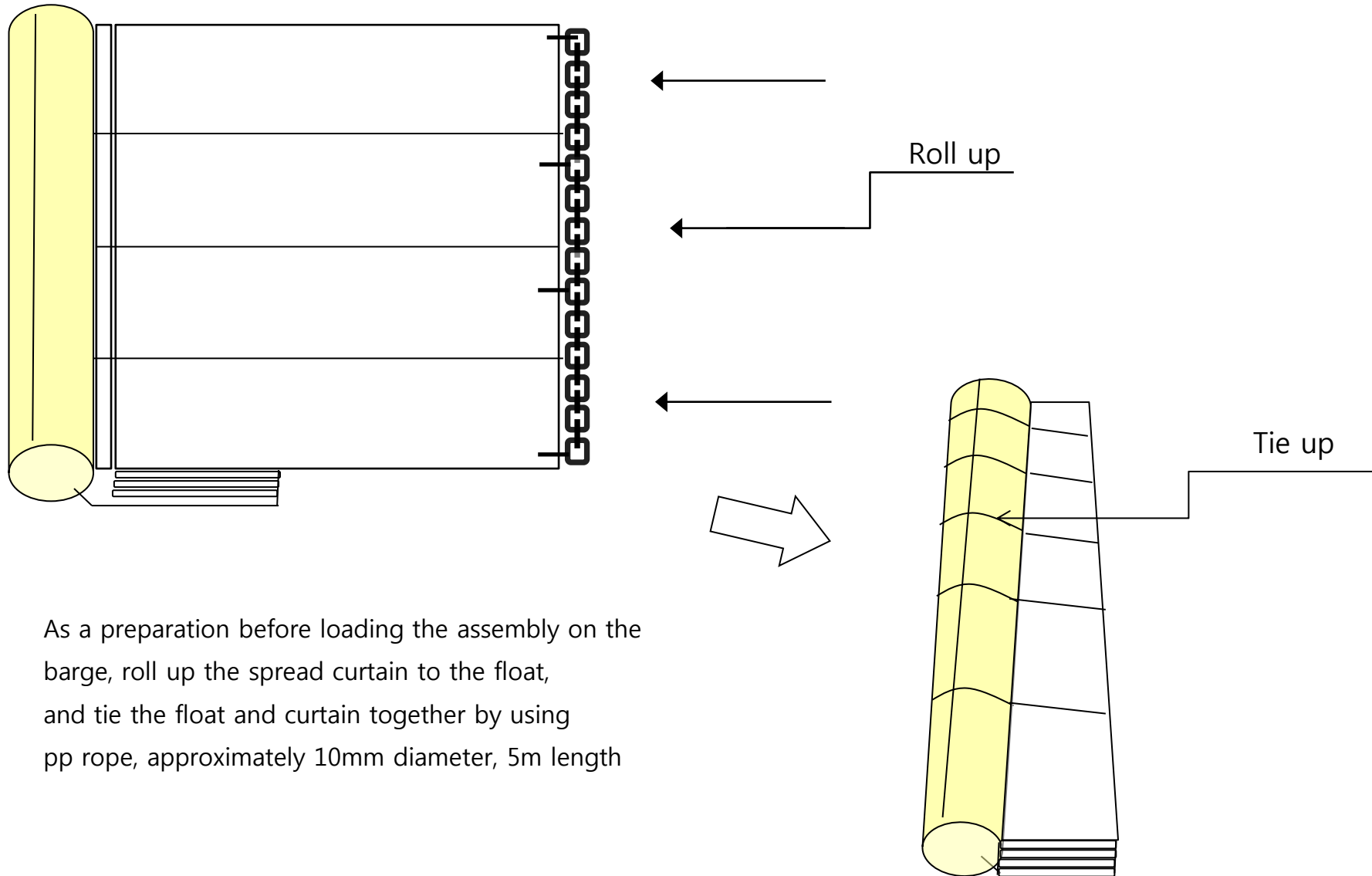
Installation Guide (Connecting curtain and curtain)



* Number of connections(between curtain and curtain)

| | 19mm sharkle | No. of eyelet |
|----------------------|--------------|---------------|
| 2m height of curtain | 3 | 6 |
| 3m height of curtain | 4 | 9 |
| 4m height of curtain | 4 | 12 |
| 5m height of curtain | 5 | 15 |
| 6m height of curtain | 5 | 18 |

Installation Guide (Temporary tying curtains)



As a preparation before loading the assembly on the barge, roll up the spread curtain to the float, and tie the float and curtain together by using pp rope, approximately 10mm diameter, 5m length

Caution

Caution

Designate a person who is in charge of management of the Silt Protector.

If an environment that exceeds the design conditions is estimated, remove the Silt Protector immediately, or the unit may be damaged. If the Silt Protector requires a repair, take necessary actions soon. If it is left without being repaired, the function of the unit may be affected adversely or the damage may expand so that it cannot be repaired.

If the Silt Protector has been dislocated from the proper position or the layout has been deformed, restore it to original position or formation immediately. Otherwise, serious accident may be caused.

Be careful not to damage the float and curtain when removing sea shells and plants from these components. The float is made of Styrofoam which is inflammable. Keep fire away from this component.

Preconditions for maintenance

Check the Silt Protector periodically, and any component that have been deteriorated due to aging must be repaired or replaced with new component.

Maintenance 1

Maintenance

Daily inspection

The Silt Protector should be visually monitored by patrol during the period it is placed in the water. The patrol is performed on the boat for the purpose of preventing ships from running against the unit and of finding abnormality in earlier phase. (once per day)

Caution: In case the Silt Protector has a serious trouble, Failure to do the daily check may cause serious trouble in addition to the loss of its normal pollution protection performance.

Periodic inspection

In addition to visual inspection on the boat, periodically dive to check the unit thoroughly. (Once per every three months)

Caution: In case the Silt Protector has been damaged, failure to do the periodical check may cause the loss of its normal pollution protection performance and a damage that cannot be repaired to occur.

Extra inspection

After typhoon or other abnormal weather, check the unit for the purpose of finding possible damages or troubles earlier. This check is performed basically on the boat, but dive to check the unit if necessary.

Caution: In case the Silt Protector has been seriously damaged, failure to do the extra check may cause the loss of its normal pollution protection performance and a damage that cannot be repaired to occur.

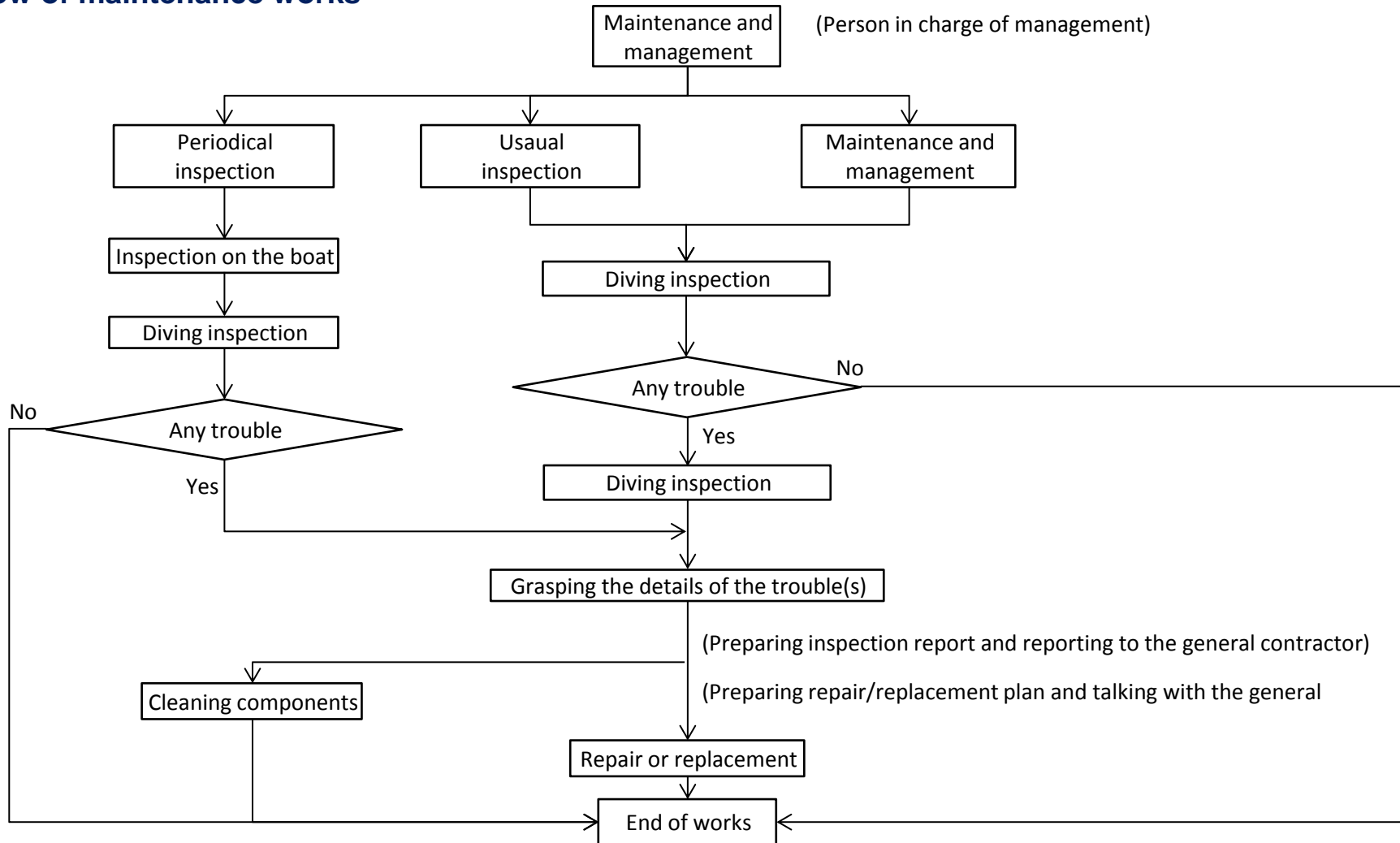
Sea shell removal

If it is found that the freeboard of the float is less than 1/2 of its diameter due to increase of the total weight with the growth of sea shells and plants on the float and curtain, dive to clean these components. It is recommended to monitor the change of the freeboard of the float. Check it at the periodical inspection, and record the growth of the sea organisms. (perform these works as necessary.)

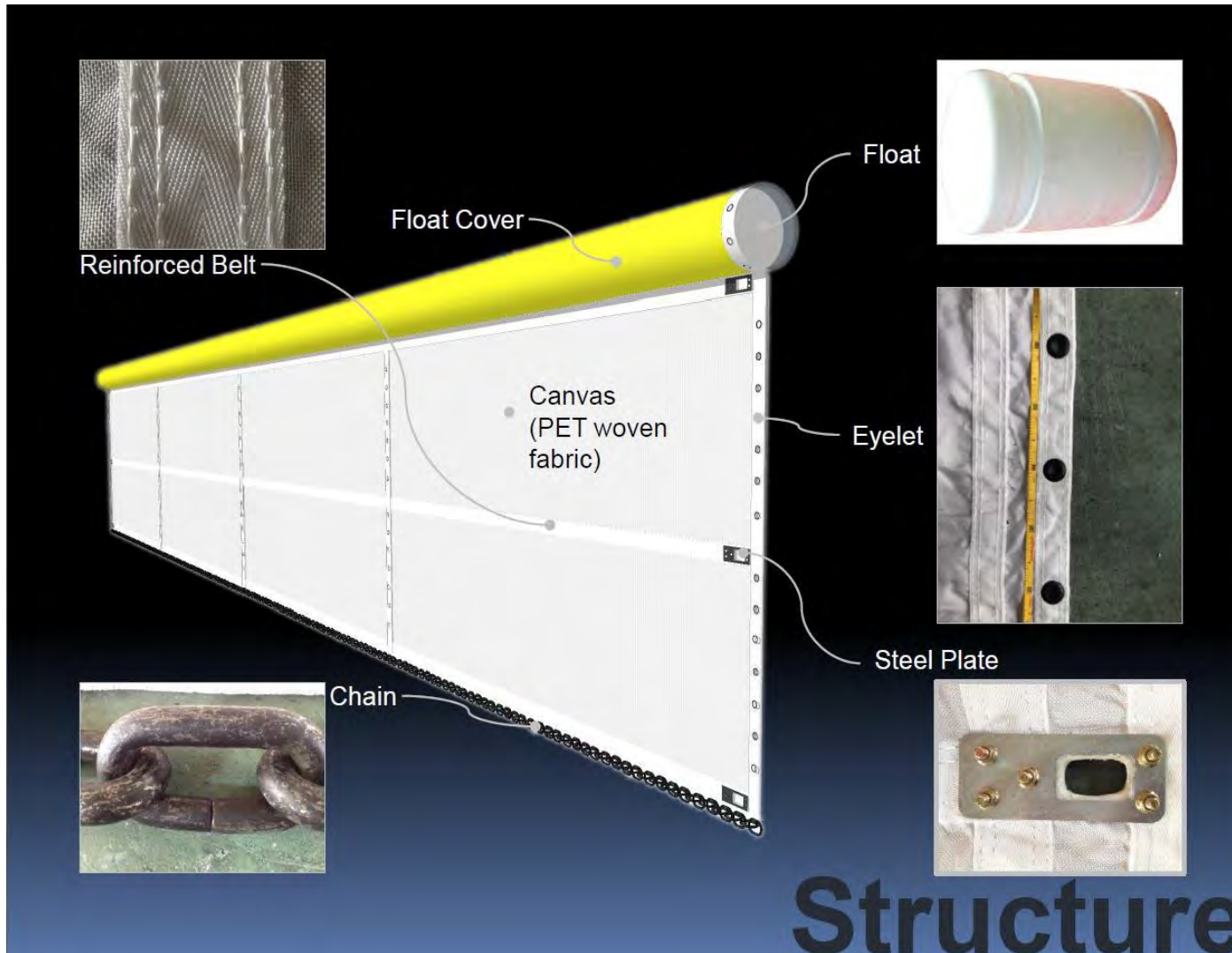
Caution: Failure to do the cleaning may increase the weight of the Silt Protector resulting in sinking it to cause loss of the function. Be careful not to damage the Silt Protector when cleaning the unit.

Maintenance 2

Flow of maintenance works



Parts



Project list of Silt Protector

We, Daeyoun Geotech, hereby certify that the following are our main project list in **Vietnam**.

| Name of Project | Contract Amount (USD) | Month/Year | Span |
|--------------------|-----------------------|------------|-----------|
| NSRP Project | 300,000 | Sep. 2013 | 150 spans |
| Lach Huyen Project | 100,000 | Sep. 2013 | 100 spans |
| Total | 400,000 | - | 250 spans |

We, Daeyoun Geotech, hereby certify that the following are our main project list in **Korea**.

| Name of Project | Contract Amount (USD) | Month/Year | Span |
|---|-----------------------|------------|------------|
| Gamcheon Port (International Fish Market) Construction | 160,000 | Nov. 2013 | 267 spans |
| Boryeong-Taeon 2 Sector | 210,000 | Oct. 2013 | 350 spans |
| Heaundae Beach | 432,000 | May. 2013 | 720 spans |
| Dangjin Thermal Power Plant Construction | 450,000 | Aug. 2013 | 750 spans |
| Incheon Port International Passenger Wharf Construction | 10,000 | Sep. 2012 | 17 spans |
| Pusan New Port Second (2-5 Step) | 10,000 | Sep. 2012 | 17 spans |
| Galsa Bay Shipbuilding Industry Construction | 100,000 | Aug. 2012 | 167 spans |
| Mokpo South-Port Government Ships Pier Construction | 50,000 | Aug. 2012 | 83 spans |
| Aewol Port Step 2 | 10,000 | Jul. 2012 | 17 spans |
| Port Mooring Facilities Construction | 15,000 | Mar. 2012 | 25 spans |
| Gogyunsan 3 Sector | 10,000 | Jan. 2012 | 17 spans |
| Gwangyang Drainage Construction | 15,000 | Jan. 2012 | 25 spans |
| Sinma Port Construction | 25,000 | Jul. 2011 | 42 spans |
| Ulsan New Port Construction | 12,000 | Jul. 2011 | 20 spans |
| Gwangyang Plant Expansion Construction | 20,000 | May. 2011 | 33 spans |
| Yeosu Oil Tank Construction | 10,000 | Apr. 2011 | 17 spans |
| Samcheong Green Power Construction | 13,000 | Feb. 2011 | 22 spans |
| Pusan Port Coast Guard Pier Construction | 10,000 | Feb. 2011 | 17 spans |
| Jeongoghang Aquarium Relocation | 10,000 | Feb. 2011 | 17 spans |
| Dangjin Thermal Power Plant Construction | 15,000 | Feb. 2011 | 25 spans |
| Kyungin-Ara Waterway Construction | 12,000 | Feb. 2011 | 20 spans |
| Seogmun 5 Sector | 10,000 | Jan. 2010 | 17 spans |
| Daewoo Tongyeong LNG Construction | 20,000 | Sep. 2009 | 33 spans |
| Total | 1,629,000 | - | 2715 spans |

SILT PROTECTOR PROJECT LIST (OVERSEAS)

We, Daeyoun Geotech, hereby certify that the following are our main overseas project list in overseas

| Name of Project | Nation | Contract (USD) | Month/Year |
|---|----------|----------------|------------|
| Pinang Island Reclamation Project | Malaysia | 11,585 | MAR. 2016 |
| Tsuen Wan West Station, TW-6 Property Development | HongKong | 898 | AUG. 2015 |
| Replacement and rehaulitaion of water mains at Peng Chau | HongKong | 3,016 | MAR. 2015 |
| Deep vemet Mixing Trial Works | HongKong | 10,186 | MAR. 2015 |
| Dual 2-lane carriageway between HZMB BCF and North Lantsu Highway | HongKong | 20,306 | APR. 2014 |
| Catbi airport | VIETNAM | 300,000 | DEC. 2013 |
| Congio Island development | VIETNAM | 100,000 | DEC. 2013 |
| Congio Island development | VIETNAM | 100,000 | DEC. 2013 |
| Pomosa Posco | VIETNAM | 300,000 | DEC. 2013 |
| Hanoi-Haiphong pkg7 GS | VIETNAM | 500,000 | DEC. 2013 |
| Pomosa Hathin Steel | VIETNAM | 200,000 | DEC. 2013 |
| Camau Road & etc | VIETNAM | 1,500,000 | DEC. 2013 |
| The Sothern Coastal Corridor-Minh Luong project | VIETNAM | 730,000 | DEC. 2012 |
| Siltprotect(NSRP Project) | VIETNAM | 300,000 | SEP. 2013 |
| Siltprotect(Lach Huyen Project) | VIETNAM | 100,000 | SEP. 2013 |
| The Sothern Coastal Corridor-Kenh 14 Bridge | VIETNAM | 100,000 | NOV. 2012 |
| Rach Gia Giang Bypass Project | VIETNAM | 250,000 | NOV. 2012 |
| Hanoi-Haiphong Express Way 5 Sector | VIETNAM | 500,000 | AUG. 2012 |
| Hanoi-Haiphong Express Way 4 Sector | VIETNAM | 1,000,000 | MAR. 2012 |
| Hanoi-Haiphong Express Way 6 Sector | VIETNAM | 520,000 | MAR. 2012 |
| Hanoi-Haiphong Express Way 2 Sector | VIETNAM | 520,000 | OCT. 2011 |
| Hanoi-Haiphong Express Way 10 Sector | VIETNAM | 520,000 | SEP. 2011 |
| Hanoi-Haiphong Express Way 3 Sector | VIETNAM | 600,000 | SEP. 2011 |
| Hanoi-Haiphong Express Way 8 Sector | VIETNAM | 600,000 | SEP. 2011 |
| Hanoi-Haiphong Express Way 7 Sector | VIETNAM | 615,000 | APR. 2011 |
| Hochiminh TBO Project | VIETNAM | 50,000 | APR. 2011 |
| Posco port for steel process factory in Phu My | VIETNAM | 150,000 | APR. 2010 |
| National way Hochiminh~Trung Luong project | VIETNAM | 200,000 | FEB. 2010 |
| Caimep Industrial Park | VIETNAM | 200,000 | JUN. 2010 |
| National way No. 61B project | VIETNAM | 200,000 | JUN. 2010 |
| National way No.51 project | VIETNAM | 300,000 | JUN. 2009 |
| Hanoi-Hochiminh Express Way Caugie-Ninh binh project | VIETNAM | 400,000 | JAN. 2008 |
| Hanoi Than Tri Bridge | VIETNAM | 300,000 | JAN. 2008 |



**Daeyoun Geotech
GEONIA Silt Protector**

Project Reference



Daeyoun Geotextile Silt Protector

| Date | Project | Client | Consultant | Model | Size (W x Lm) | No. of Span |
|--------|--|--|--|---|---|------------------------------------|
| Jul-03 | CV/2002/04 Penny's Bay Reclamation Stage 2 | Gammon Construction Ltd | Scott Wilson Ltd | | 5 x 20m 5 x 10m | 86 256 |
| May-13 | DC/2011/01 Drainage Maintenance and Construction in Mainland South Districts (2011-2015) | World Diamond Engineering Ltd | Drainage Services Department | GSP 15 | 5x20m 3x5m 3x2m 3x13m | 1 10 1 4 |
| Apr-14 | HY/2012/07 Dual 2-lane carriageway between HZMB BCF and North Lantau Highway | Gammon Construction Ltd | AECOM Asia Co Ltd | DSP15 | 6 x 20 7 x 20 9 x 20 | 24 10 10 |
| Mar-15 | 16/WSD/11 Replacement and rehabilitation of water mains at Peng Chau, Sunshine Island and Hei Ling Chau | Pipe Tech Ltd MIRDTEC HK Ltd | AECOM Asia Co Ltd | DSP 15 DSP 15 DSP 15 | 0.6 x 20 1.2 x 20 1.5 x 20 | 1 22 6 |
| Mar-15 | P552 Deep Cement Mixing Trial Works | Penta Ocean Construction Co | Atkins | DSP30 DSP30 | 8 x 20 8 x 25 | 2 6 |
| Aug-15 | Tsuen Wan West Station, TW-6 Property Development | Hip Hing Construction Co Ltd | Mannars Chan & Associates | DSP15 | 4 x 20 | 1 |
| Dec-15 | HK/2012/08 Wan Chai Development Phase II - Central Wan Chai Bypass at Wan Chai West | China State - Leader JV | AECOM Asia Co. Ltd | DSP30 DSP30 DSP15 DSP15 DSP15 | 10 x 20 5 x 10 10 x 20 9 x 20 8 x 20 | 6 6 5 5 5 |
| Mar-16 | Asia Pacific Gateway (APG) - Tseung Kwan O (Cape Collinson) | Maritime Mechanic Ltd | Environmental Resources Management | DSP15 | 14 x 12 | 20 |
| Nov-16 | Dredging works at Marina Cove | Fung Kau Kee Contractors Ltd | | DSP15 | 5 x 20 | 2 |
| Nov-16 | HY/2012/08 Tuen Mun - Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section | Crown Asia Engineering Ltd Dragages - Bouygues JV | AECOM Asia Co. Ltd | DSP15 | 8 x 20 9 x 20 10 x 20 Marker Buoy Dia: 520mm | 5 5 5 12 nos. |
| Dec-16 | C3203 3rd Runway System Project DCM Ground Improvement Works (Package 3) | Sambo E & C Co Ltd | Airport Authority | DSP 30 Barge Type | 4 x 10 2 x 10 4 x 9 1.6 x 9 2.8 x 9 1.8 x 9 2 x 9 | 46 2 246 4 2 2 2 |
| Dec-16 | C3204 3rd Runway System Project DCM Ground Improvement Works (Package 4) | CRBC-Sambo JV | Airport Authority | DSP30 | 6 x 5.3 6 x 11.3 6 x 12.3 6 x 12.8 6 x 13.8 6 x 6 | 2 2 20 4 4 30 |
| Jan-17 | C3201 3rd Runway System Project DCM Ground Improvement Works (Package 1) | Penta Ocean-China State- Dong Ah JV | Airport Authority | DSP 30 | 6 x 8 | 134 |
| Feb-17 | P560 Aviation Fuel Pipeline Diversion Works | Kat Yue Construction Engineering Ltd | Airport Authority | DSP15 | 1.5 x 20 | 8 |
| Apr-17 | HKHA20120023 Public rental housing, Shek Mun Estate | Hin Sum Engineering Co Ltd | Housing Authority | DSP / SG110 | 3 x 20 | 2 |
| Jun-17 | C3204 3rd Runway System Project DCM Ground Improvement Works (Package 4) | CRBC - Sambo JV | Airport Authority | DSP30 | 6 x 6 | 50 |
| Jul-17 | Refuse Boom at Tai O by World Wide Fund | G and E Co Ltd | | DSP15 | 0.5 x 20 | 3 |
| Aug-17 | Lyric Theater Complex and Extended Basement Project for the WKCD Authority | Gammon Construction Ltd | AECOM Asia Co. Ltd / Mott Macdonald HK | DSP15 | 8 x 20 | 6 |



G AND E COMPANY LIMITED

14/F Kiu Yin Commercial Building
361 - 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|--|
| Date | March 2016 |
| Project | Asia Pacific Gateway (APG) - Tseung Kwan O |
| Client | China Mobile International Limited |
| Consultant | Environmental Resources Management |
| Main Contractor | Maritime Mechanic Ltd |
| Works | Fiber Optic Laying Turbidity Control |
| Material | DSP15 Silt Curtain |



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| | |
|------------------------|---|
| Date | May 2014 |
| Project | HY/2012/07 Tuen Mun - Chek Lap Kok Link- Sothern Connection Viaduct Section |
| Client | Highway Department |
| Consultant | AECOM Asia Co. Ltd |
| Main Contractor | Gammon Construction Ltd |
| Material | DSP 15 Silt Curtain |
| Quantity | 6m x 20m 24 spans 7m x 20m 10 spans 9m x 20m 10 spans |



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website: www.g-and-e.com






| | |
|------------------------|---|
| Date | April 2015 |
| Project | Contract No. 16/WSD/11 Replacement and rehabilitation of water mains, stage 4 phase 2 |
| Client | Water Service Department |
| Consultant | AECOM Asia Company Limited |
| Main Contractor | Pipe Tech Ltd |
| Material | Daeyoun Geotech DSP 15 Silt Curtain |
| Quantity | 1.2 x 20m 2 spans 1.5 x 20m 4 spans |



**Daeyoun Geotech
GEONIA Silt Protector**

Approval Letter

| | | | | | |
|---|---|-------------------------|---|----------|------|
|  |  | CONTRACTOR'S SUBMISSION | CR-CPJV  | CS No. | Rev |
| | | | | CCOM No. | 1503 |
| NEC Option C | | | | | |
| CONTRACT: | Improvement of Fresh Water Supply to Cheung Chau | CONTRACT No.: | 1/WSD/13 | | |
| LETTER REF.: | CR-CPJV/1WSD/13/S210(01)/574 | ISSUE DATE: | 26-Sep-2015 | | |
| CAPTION: | Submission of Alternative Design and Material for Silt Curtain | PREVIOUS SCOMM.: | | | |
| DISCIPLINE: | N/A | REVISION No.: | | | |

Section A:

To: The Project Manager

Submission for Acceptance of:

Copies to: Mr. Stephen Cheung W/E

Period for reply:

- Drawings
- Programme
- Test Results
- Method Statement
- Others: _____



The following is submitted for your review and acceptance:-

| Copies | Date | No. | Description |
|--------|-----------|-----|--|
| 1 | 26-Sep-15 | | Submission of Alternative Design and Material for Silt Curtain |

We submit herewith the alternative design and material for silt curtain. The material is supplied by "G AND E COMPANY LIMITED". Attached please find the quotation of materials, design drawings and materials catalogue for your information and approval. the proposed materials shall be "Covering Head Type" as shown in the

Signed for Contractor:

Title: Gordon Ng
(Site Agent)

Section B: Response **COMM No.:** **Letter Ref.:**

To: The Contractor

The Submission is returned as indicated:

Copy to:

- Accepted
- Accepted as Noted
- Revise and Re-submit as Noted
- Rejected as Noted

Notes:




Contractor reply needed: Yes / No

Signed by: _____

Period for reply:

Name / Title: _____

Date: _____

| | | | | | |
|---|--|-------------------------|---|----------|------|
|  |  | CONTRACTOR'S SUBMISSION | CR-CPJV  | CS No. | Rev |
| | | | | CCOM No. | 1541 |
| | | NEC Option C | | | |
| CONTRACT: | Improvement of Fresh Water Supply to Cheung Chau | CONTRACT No.: | 1/WSD/13 | | |
| LETTER REF.: | CR-CPJV/1WSD/13/S210(01)/589 | ISSUE DATE: | 13-Oct-2015 | | |
| CAPTION: | RE: Submission of Alternative Design and Material for Silt Curtain | PREVIOUS SCOMM.: | SCOM/01448 | | |
| DISCIPLINE: | N/A | REVISION No.: | | | |

Section A:

To: The Project Manager

Copies to: Mr. Stephen Cheung W/E

Period for reply:

Submission for Acceptance of:

- Drawings
- Programme
- Test Results
- Method Statement
- Others: _____

LETTER IN
No. 1897

The following is submitted for your review and acceptance:-

| Copies | Date | No. | Description |
|--------|-----------|-----|--|
| 1 | 13-Oct-15 | | RE: Submission of Alternative Design and Material for Silt Curtain |

We refer to your letter SCOM/01448 dated 7 October 2015 regarding the captioned, we submit herewith the supplementary document in response to the comments given for your approval.

1. Confirmation letter from supplier.
2. As shown in the quotation, one span is 20m length.
3. Verification of material from ET.

RECEIVED

20 OCT 2015

BY: 

Signed for Contractor:

(Original Signed)

Title:

Gordon Ng
(Site Agent)

Section B:

Response

COMM No.: SCOM/01472

Letter Ref.:

1/WSD/13/M25/350/02655

To: The Contractor

Attn: Mr. Gordon Ng (Site Agent)

The Submission is returned as indicated:

Copy to:

- Accepted
- Revise and Re-submit as Noted
- Accepted as Noted
- Rejected as Noted

Caption: **RE: Submission of Alternative Design and Material for Silt Curtain**

Notes:

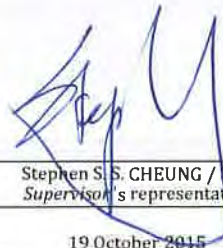
We have no adverse comment on the proposed silt curtain subject to the following:

1. Please ensure the depth of the silt curtain is longer than the water depth at the installation location as recommended by the ET in the submitted email;
2. The verification from the ET would be forwarded to the IEC accordingly and addition comments may be issued; and
3. Please detail the subcontracting arrangement for the installation, maintenance and repair as commented in our previous reply (SCOM/01503).

Signed by:

Name / Title:

Date:



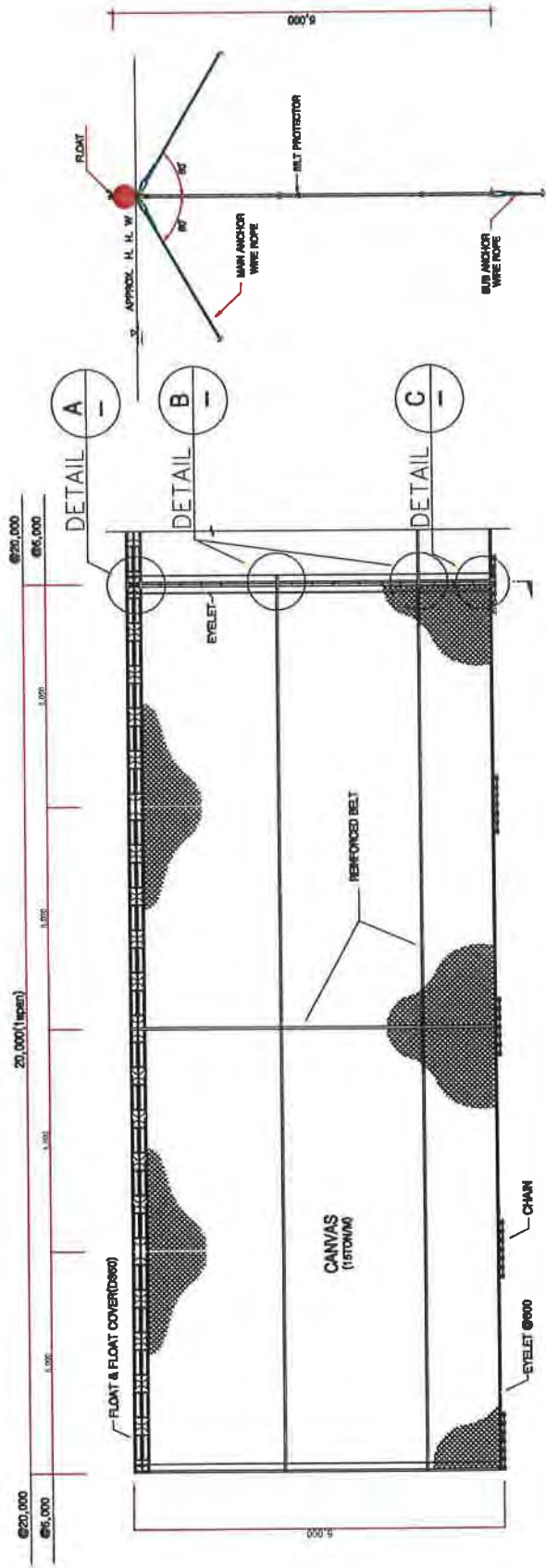
Stephen S. CHEUNG / SRE
Supervisor's representative

19 October 2015

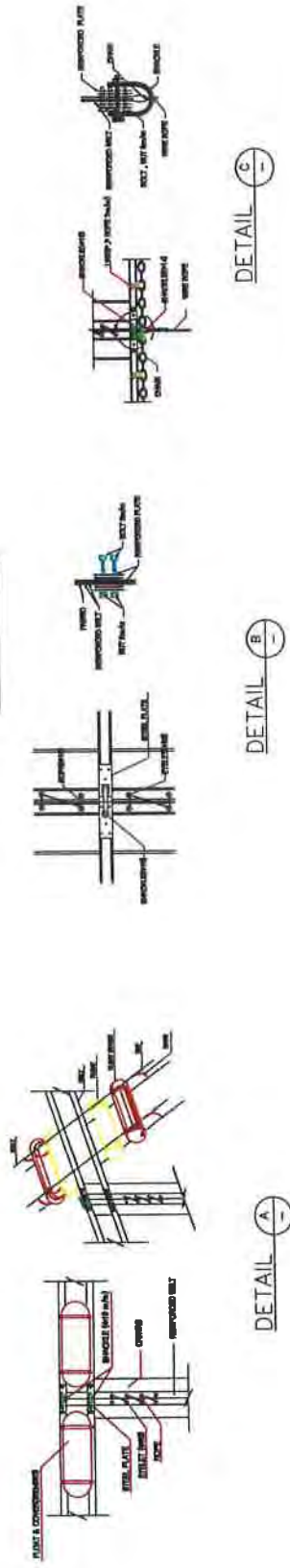
Contractor reply needed: Yes / No (for comment no. 3)

Period for reply: 21 days

SILT PROTECTOR (Cover Type)



SECTION VIEW



| | | | | | | | | | | | |
|-------|--------------------|----------------|--------------------|--|------------------|--------------------|-----------------|--------------------|------------------|-------------------|--------------------------------|
| 설 계 자 | DESIGNED BY 김 호 | CHECKED 김 호 | APPROVED BY 김 호 | DESIGN RESAL NO. SERIES SHEET NO. | PROJECT TITLE | DATE 2024.10.30 | DRAWN BY 김 호 | DATE 2024.10.30 | SHEET NO. 1/1 | TOTAL SHEETS 1 | DRAWING NO. DSP15/5X20/D350 |
|-------|--------------------|----------------|--------------------|--|------------------|--------------------|-----------------|--------------------|------------------|-------------------|--------------------------------|



**Daeyoun Geotech
GEONIA Silt Protector**

Prototype Sample

Prototype Sample



Tube Type



Coverhead Type





Daeyoun Geonia DML80
Non Woven Geotextile

Introduction to G and E Co. Ltd



G AND E COMPANY LIMITED

14/F Kiu Yin Commercial Building
361 – 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 2570 0103

Fax: 2570 0089

website: www.g-and-e.com

G and E – a Perspective

G and E, founded in 1984, is a geosynthetics specialist who distributes a wide variety of geosynthetics from a list of renowned global manufacturers. The Company also manages a competent installation contracting service. To better serve our clients, design and engineering service have also been established in our portfolio. We aspire to provide our client comprehensive engineering solutions, from technical application and design, the supply of materials and their installation, to the conformance testing and project commissioning.

G and E takes a strong vision on geosynthetics application and development by working closely with international consultants, academics, professional organizations, research institutions, testing laboratories and renowned manufacturers, a mission to broaden the versatility of geosynthetics and its innovation.



Our vast product range covers:

Geotextile, geomembrane, geodrain, geocomposite, geogrid, geocell, band drain, erosion control systems, geosynthetic clay liner, rockfall barrier, gabion, geofoam, silt curtain, concrete mattress and geotextile container, extending a very wide scope of application in most civil, geotechnical and marine engineering.

We offer our clients:

- Extensive product knowledge and installation method statement
- Comprehensive services, application, design, contracting and commissioning
- Highly attentive and superior professional work
- Superb quality products at competitive price



G and E is ISO9001:2008 quality management certified, and a VSRS registered subcontractor. G and E has a remarkably successful working relationship with a long list of clients, the Government, project owners, contractors, designers, consultant engineers, overseas distributors and trading partners. The clientele extends to Macau, Southeast Asia and Southern China.

Talk to us today and see how we can work together for cost-effective and time saving solutions. We are stepping into our 32nd year in the field and have valuable experience to share with you.

ISO9001:2008

International Geosynthetics
Society

Product Endorsement

A Registered Subcontractor



G and E is a distribution network and sourcing agent of geosynthetics, as well as a provider of professional design and installation services.



Central – Wan Chai Bypass - seawall separation using heavy non-woven geotextile Bontec SNW120

The company handles a comprehensive range of geosynthetic materials:

| | |
|----------------------------|---|
| <u>GEOTEXTILE:</u> | PP, PET woven, non-woven, thermal bonded, needle punched, spun bond, special weave & composite |
| <u>GEOMEMBRANE:</u> | HDPE, LLDPE, PVC, keyed preformed, tunnel lining, concrete protection liner, gas barrier, basement waterproofing, leakage collection & effluent containment |
| <u>GEODRAIN:</u> | Geonet, geocomposite, band drain, sheet drain & roof drain |
| <u>GEOGRID:</u> | HDPE, PET, PP for reinforced slope and wall, MSEW, stabilization geogrid, special composite |
| <u>EROSION CONTROL:</u> | Erosion mat, concrete mat, coir mat, geocell, gabion, rockfall mesh, flexible rockfall fence |
| <u>MARINE ENGINEERING:</u> | Silt curtain, turbidity control, block mat, geotextile tube, trash boom, geotextile container |
| <u>GCL:</u> | Geosynthetic clay liner, bentonite liner and composite |
| <u>HDPE PIPE:</u> | Sewer pipe, dual wall pipe, submarine outfall |
| <u>TUNNELING:</u> | GFRP rebar for soft eye, tunnel support & invert drainage |
| <u>SPECIAL SERVICE:</u> | Geomembrane leak location survey, HDPE pipe welding, HDPE lining repair |

Registration Certificate

This is to certify that the Management Systems of

G & E Company Limited

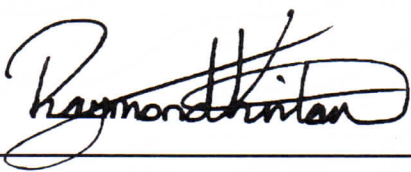
have been assessed by AJA Registrars and registered
against the requirements of

ISO 9001:2008

Certificate No. : **AJA14/17026** Date of Original Registration : **22nd January 2014**
Expiry Date : **15th September 2018** Date of Re-Registration : **16th February 2017**
Previous Expiry Date : **14th December 2016**



0059


Chief Executive - AJA Registrars Ltd



This certificate is issued in respect of the locations & scope of registration detailed in the Associated Registration Schedule.
This certificate is the property of AJA Registrars Ltd Unit 6 Gordano Court Gordano Gate Business Park Serbert Close Portishead Bristol UK BS20 7FS
and must be returned on request. A member of the AJA Group of Companies

NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

2. BONTEC SG110/110

Material Submission

BONTEC SG110/110 Woven Polypropylene Geotextile



G AND E COMPANY LIMITED

14/F., Kiu Yin Commercial Building,
361 - 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 2570 0130 Fax: 2570 0089
website: www.g-and-e.com

January 2019



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- Low & Bonar NV Company Profile

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- Low & Bonar Bontec SG Range Technical Data Sheet

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- ISO 14001:2015 Certificate
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- Recommendation on Installation

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- An Introduction to G and E Company Limited
- ISO 9001:2015 Certificate

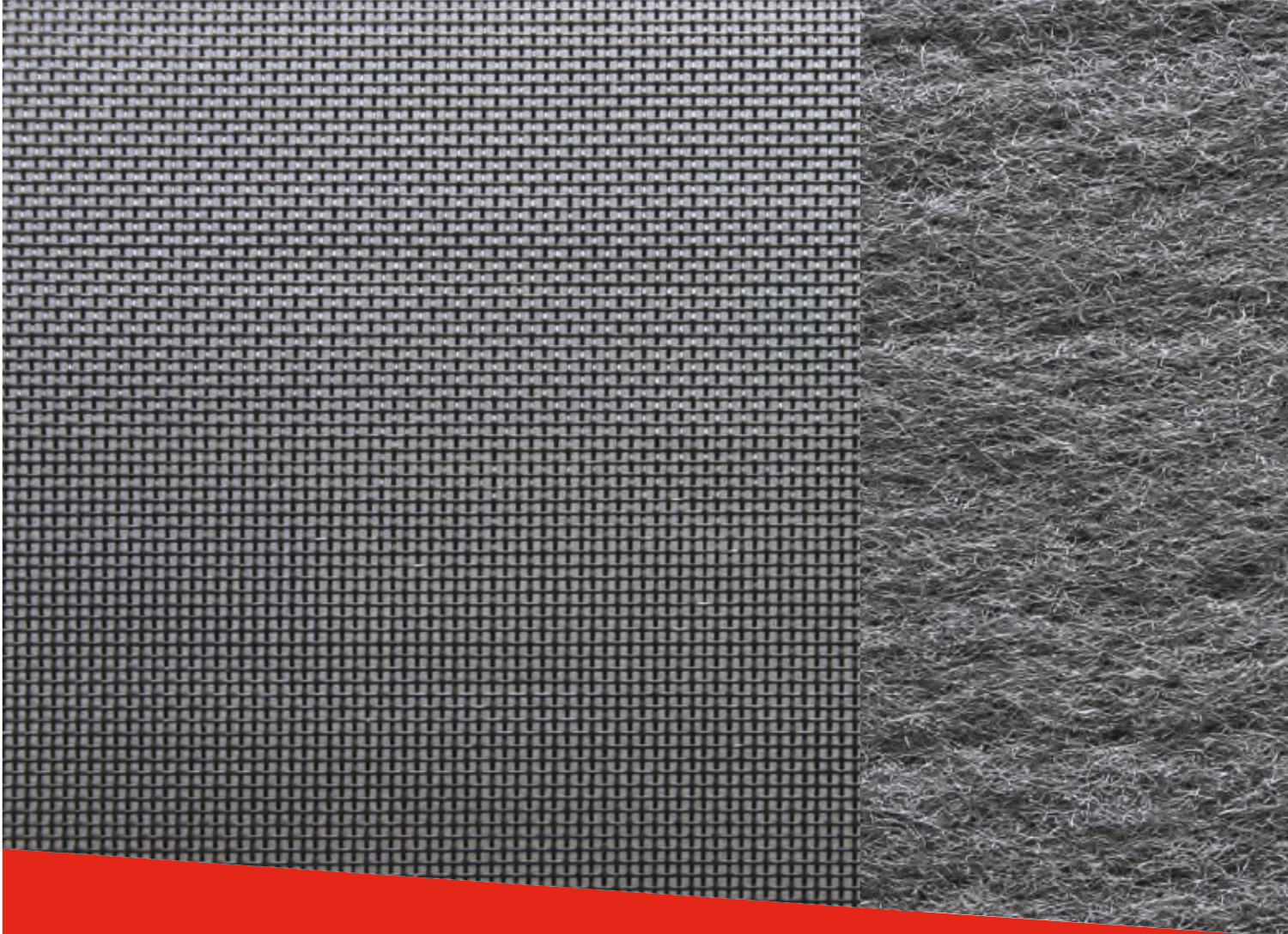


**Bontec SG110/110
Woven Geotextile**

Manufacturing Company Profile

bontec

woven and nonwoven geotextiles



GEOTEXTILE

WE UNDERCOVER
THE WORLD



Bonar
partners in performance

Bontec Geotextile

Bontec is an internationally renowned brand of geotextiles. We have earned this reputation over the past thirty years thanks to our quality, service and flexible production processes. This flexibility is a result of the vertical integration of our production. We control the entire process – from raw materials to finished product – for both our woven and nonwoven varieties.

We are therefore not dependent upon the quality or delivery time of others, and we can guarantee your success. Our Bontec brand offers state of the art woven and nonwoven geotextiles that provide answers to meet all of your challenges. Thanks to continuous research and investment in the latest technology, we provide the best solutions for all possible functions of geotextiles.

Nonwoven process Woven process

Starting with polypropylene granules,

we extrude endless synthetic filaments. After stretching and shrinking, these filaments are cut into fibres.

These fibres are then deposited in layers by a crosslapper.

By means of our own unique process we needle punch the layers into each other, after which they are thermo fixated. The result is an extremely high performance geotextile.

Starting with polypropylene granules,

we extrude an endless synthetic foil. This foil is then cut into fine tapes.

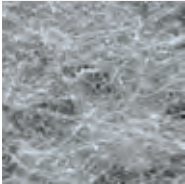
After stretching, the tapes are wound on spools that form the basis of a beam. That beam feeds the loom in the machine direction.

Subsequently the tapes are woven on a loom to a fabric with the desired specifications.



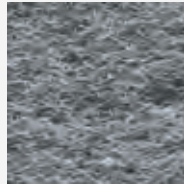
Nonwoven Geotextile

NW Thermally Bonded Nonwoven Geotextiles



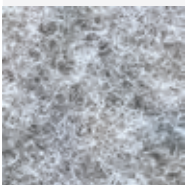
Produced by applying mechanical and thermal bonding processes. NW has the highest tensile strength of the range and is used primarily for lightweight separation and filtration. Its excellent hydraulic properties are ideal for use in filtration applications. Typical uses include the encapsulation of a trench drain.

VNW Nonwoven Needle Punched (Colored) Geotextile



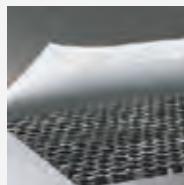
Produced by needle punching colored polypropylene fibres. The range varies from 200 to 2,000 g/m². VNW is used for protection of membranes, as a component for drainage composites, or as a component for erosion control composites.

SNW Superior Needle Punched Nonwoven Geotextiles



Produced in a manner similar to NW, SNW offers extraordinary properties for its very low weight. SNW is used primarily in circumstances that require both high tensile strength and elongation. Typical areas of application include membrane protection in reservoirs and landfills.

LG Geocomposites



For the production of LG, woven and nonwoven geotextile are needle punched together. This process combines the properties of the two types in a single layer. These products are used in situations that require a high tensile strength as well as extreme protection.

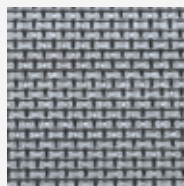
Woven Geotextile

SG Lightweight 'Standard Grade' Woven Geotextile



These lightweight, woven geotextiles from 65 to 250 g/m² are used primarily for separation. For example, SG prevents good quality sand or granules from mixing with underlying soil. It is used for the construction of roads, parking lots and airport runways.

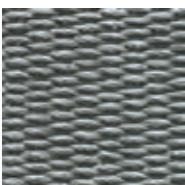
HF 'High Flow' Woven Geotextile



Thanks to their specific structure, HF geotextiles have high permeability. This quality is very important for erosion control and infiltration applications. Typical applications include:

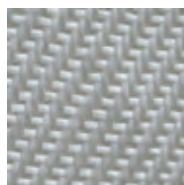
- As an under layer for concrete revetment blocks or between dissimilar layers of quick draining granular fill consisting of fine sand and rounded gravel.
- The envelopment of infiltration crates or tubes for rainwater management.

SG Heavyweight 'Standard Grade' Woven Geotextile



These heavyweight, woven geotextiles vary from 250 to 600g/m² and they possess tensile strengths up to 200 kN/m and above. Heavyweight SG is used in heavy load circumstances, such as temporary basal reinforcement, coastal reinforcement and soil stabilization.

HS 'High Strength' Woven Geotextile



The polyester wovens have a very high tensile strength of up to 600 kN /m. This strength and their very low stretch make them ideal for situations where:

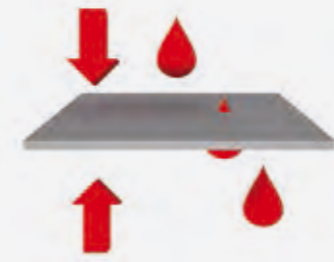
- Reinforcement of the ground is essential.
- The construction of very steep, or even vertical, slopes with different types of soil is required.

Use of Geotextiles



1 Erosion control

In erosion control, the geotextile protects soil surfaces from the tractive forces of moving water or wind and rainfall erosion.



2 Filtration

The use of geotextiles in filter applications is probably the oldest, most widely known, and most used function of geotextiles. The geotextile is used to prevent fine soil particles from moving with the water flow normal to the plane.



3 Protection

A geotextile can be used as a protective layer against mechanical damage during installation and after the completion of a particular construction project. It will help prevent the puncturing of geomembranes used in constructions such as tunnels, landfills or reservoirs.



4 Drainage

When functioning as a drain, a geotextile acts as a conduit for the movement of liquids or gasses in the plane of the geotextile. Relatively thick nonwoven geotextiles are the products most commonly used. Selection should be based on transmissivity, which is the capacity for in-plane flow.



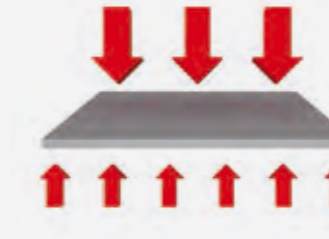
5 Stress relief

The geotextile provides a stress-relieving interlayer between the existing pavement and the overlay that reduces and retards reflective cracks under certain conditions. It also acts as a moisture barrier to prevent surface water from entering the pavement structure.



6 Reinforcement

The geotextile interacts with soil through friction or adhesion forces to resist tensile or shear forces. To provide reinforcement, a geotextile must have sufficient strength, low elongation and low creep to avoid movement of the structure.



7 Separation

Separation is the process of preventing two dissimilar materials from mixing. In this function, a geotextile is most often required to prevent the undesirable mixing of fill and natural soils or of two different types of fill.



Value chain

World player with local market presence

- Most complete product range
- Vertically integrated production - from raw material to finished stock
- Strong logistic service and stock supported key products to meet market needs
- Health and Safety from production right through delivery on site as an absolute priority
- Over 30 years of experience in a constantly evolving hi-tech market:
 - > Innovation driven
 - > Project specific engineered solutions

Advantages of Bontec Geotextiles

- Intelligent installation techniques
- Cost and energy saving
- Increased life-span of projects



PRODUCTION SITES

- Belgium - Zele & Lokeren
- China - Yizheng
- Germany - Groß Ippener & Obernburg
- Hungary - Tiszaújváros
- Saudi-Arabia - Yanbu
- The Netherlands - Arnhem & Emmen
- USA - Asheville, NC

Development Centers in the Netherlands, Belgium and USA
Sales offices in UK, France and China



PRODUCT PORTFOLIO

Geotextiles
Geocomposites
Geogrids
Geocells
Vertical Drains
Erosion Control Systems
Construction Fibres

Bonar N.V.

Industriestraat 39 / 9240 Zele
Belgium
T +32 52 45 74 11 / F +32 52 45 74 95
info@bonar.com / www.bonar.com

Bonar B.V.

P.O. Box 9600 / 6800 TC Arnhem
The Netherlands
T +31 85 744 1200 / F +31 85 744 1210
info@bonar.com / www.bonar.com

Bonar Inc.

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United States of America
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Bonar
partners in performance

www.bontec.be



**Bontec SG110/110
Woven Geotextile**

Product Specification



SG WOVEN GEOTEXTILES

we under^{cover} the world

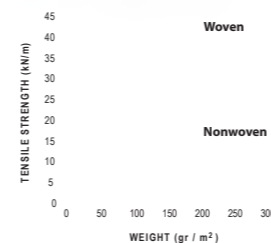
A TOTAL RANGE OF GEOTEXTILES

Headquarters:
BONAR TECHNICAL FABRICS NV/SA
 Industriestraat 39
 B-9240 Zele
 BELGIUM
 T.: +32 (0) 52 457 487
 F.: + 32 (0) 52 457 495
 E-MAIL: geotextiles@bonartf.com

For UK and Ireland:
BONAR YARNS & FABRICS Ltd
 St. Salvador Street
 Dundee Scotland
 DD3 7EU
 T.: +44 (0)1382 346102
 F.: +44 (0)1382 229238
 E-MAIL: geotextiles@bonaryarns.com

website: www.bonartf.com

bontec
 woven and nonwoven geotextiles



SEPARATION



REINFORCEMENT



Other geotextiles available within the Bontec range include Highflow, High strength Wovens and Thermally Bonded & Needle-punched Nonwovens

Visit us at our website:
www.bonartf.com

For UK and Ireland: **BONAR YARNS & FABRICS Ltd**
 St. Salvador Street | Dundee | Scotland | DD3 7EU
 T.: +44 (0)1382 346102 | F.: +44 (0)1382 229238
 E-MAIL: geotextiles@bonaryarns.com

SG Woven Geotextiles PRODUCT PROFILE

“An exciting range of Standard Grade geotextiles that offer the perfect solution to your Separation requirements. With tensile strengths ranging from 10 to 300 kN/m you can be certain that an SG fabric will be available with the performance that you are looking for.”

DAILY SEPARATION, SOIL STRENGTHENING OR GROUND REINFORCEMENT?

Bontec SG woven geotextiles are manufactured from polypropylene tapes & yarns, and exhibit an excellent chemical resistance to commonly encountered acids and alkalis at ambient temperatures. Available in a lightweight range with products from 80 to 200g/m², and a heavyweight range from 200 to 800g/m².

Bontec SG facts include:

Tensile strengths up to 300 kN per metre (kN/m) width
 CBR Puncture Strengths ranging from 1.800 N to 12.500 N

SG Mechanical Properties that offer maximum strength at minimal cost and ensure the products survivability both against installation damage and in the longer term.

Lightweight woven geotextiles typically offer greater mechanical strengths per unit weight than comparable nonwoven grades. This makes lightweight woven geotextiles the ideal choice for separation

Waterflows normal to the plane that are generally several times more than that required by design

A range of consistent opening sizes suited for use in soils ranging from clay to coarse granular fill.

SG hydraulic properties that are suited to the demands of everyday separators.

Available ex-stock in 4.5m and 5.25m wide rolls or other widths to order

Typical applications for SG woven geotextiles include:

As a general purpose separator for use under site access roads and areas of hardstanding.

As a separation and strengthening layer under new roadways, car parks, industrial units etc.

As an erosion control layer under heavy rock armour in coastal defence projects. For any separation application where there exists a need to prevent the intermixing of soft foundation soils with good clean granular fill.

SG Woven Geotextiles have been manufactured as a cost effective solution to your soil separation and stabilisation applications. They are manufactured from highly durable polypropylene polymer and have a long life expectancy when used in permanent structures.

For further product information, be it a technical data sheet or to discuss your project with one of our in-house geotextile experts please do not hesitate to contact one of our offices listed below.

Headquarters: **BONAR TECHNICAL FABRICS NV/SA**
 Industriestraat 39 | B-9240 Zele | BELGIUM
 T.: +32 (0) 52 457 487 | F.: + 32 (0) 52 457 495
 E-MAIL: geotextiles@bonartf.com



**Bontec SG110/110
Woven Geotextile**

Product Profile

Bontec® SG 110/110

Heavy weight Polypropylene Woven Geotextiles

Technical data sheet

Product description

| Polymer | Density | Melting Point | Construction |
|--------------------|-------------------------|---------------|--------------|
| 100% Polypropylene | 0,91 kg/dm ³ | 165 °C | Tapes |

Properties

| Mechanical Properties | Standard | Performance | Tolerance |
|--|--------------|-------------|-----------|
| Tensile strength - MD | EN ISO 10319 | 110 kN/m | -9,9 kN/m |
| Tensile strength - CMD | EN ISO 10319 | 110 kN/m | -9,9 kN/m |
| Elongation at maximum load - MD | EN ISO 10319 | 10 % | +/-2,3 % |
| Elongation at maximum load - CMD | EN ISO 10319 | 8 % | +/-1,8 % |
| Static puncture resistance (CBR) | EN ISO 12236 | 12,5 kN | -2,5 kN |
| Dynamic perforation resistance (cone drop) | EN ISO 13433 | 10 mm | +2,0 mm |
| Tensile strength at 2% elongation - MD | EN ISO 10319 | 15 kN/m | |
| Tensile strength at 2% elongation - CMD | EN ISO 10319 | 25 kN/m | |
| Tensile strength at 5% elongation - MD | EN ISO 10319 | 45 kN/m | |
| Tensile strength at 5% elongation - CMD | EN ISO 10319 | 60 kN/m | |

| Hydraulic Properties | Standard | Performance | Tolerance |
|--|--------------|-----------------------|-----------------------|
| Water permeability normal to the plane (Vlh50) | EN ISO 11058 | 25 l/m ² s | -8 l/m ² s |
| Characteristic Opening Size (O90) | EN ISO 12956 | 230 µm | +/-69,0 µm |

| Physical Properties | Standard | Performance | Tolerance |
|----------------------------------|-------------|----------------------|--------------------------|
| Weight | EN ISO 9864 | 464 g/m ² | +/-46,4 g/m ² |
| Length (+/- 1%) x width (+/- 1%) | | 100 x 5,25 m | |
| Truck Load Volume (+/- 10%) | | 30450 m ² | |
| Roll diameter (+/- 10%) | | 45 cm | |

| Durability | Standard | Performance | |
|---|--------------------|-------------|--|
| Predicted minimal durability in years in natural soils with 4 < pH < 9 and soil temperatures < 25°C | EN 13249 +1 : 2015 | 60 years | |

Version date : 1/11/2014

3

Version n°

The Quality Management System of Bonar has been approved to the ISO 9001 Quality Management System Standard. Certificates are available on request.



The information set forth in this data sheet reflects the best knowledge at the time of publication. The document is subject to change pursuant to new developments and findings. The same reservation applies to the properties of the products described. No liability is undertaken for results obtained by usage of the products and information.



Low & Bonar NV
Industriestraat 39, 9240 Zele, Belgium
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info@lowandbonar.com / www.bontecgeosynthetics.com



**Bontec SG110/110
Woven Geotextile**

Certification

QUALITY MANAGEMENT SYSTEM CERTIFICATE

ISO 9001 : 2015

BQA nv hereby declares that the management system of the company

Low & Bonar NV – Site at Zele and Lokeren



Progress through performance

*located at Industriestraat 39 - 9240 Zele - Belgium, has been examined on 2017-03-20
and found in conformity with the ISO 9001, edition 2015, standard for the following application field:*

Development, manufacture and sales of a standard range of (concrete) fibres and textiles such as agrotextiles, building textiles and geosynthetics, as well as similar products especially designed to customer specifications.

This certificate has been issued by BQA nv according to its quality manual concerning the certification of systems, and after concluding the contract of certification N° CER_ELA_QMS2015_21-3-2017_301_N under which the company accepts a regular control of its management system.

Certificate N° BQA_QMS019_C_2004301

Valid until 2020-03-19



BQA N° 019-QMS

A blue ink signature of D. SIMOENS.

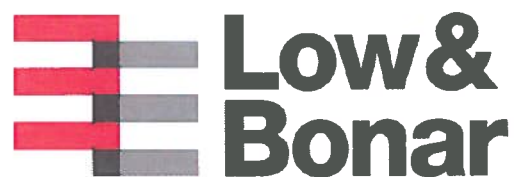
*D. SIMOENS
Directeur*



CERTIFICATE OF ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001 : 2015

BQA nv hereby declares that the environmental management system of the company

Low & Bonar NV – Site in Zele and Lokeren



Progress through performance

*located at Industriestraat 39 – 9240 Zele - Belgium, has been examined on 2017-03-20
and found in conformity with the ISO 14001, edition 2015, standard for the following application field:*

***Development, manufacture and sales of a standard range of (concrete) fibres and textiles such as agrotextiles,
building textiles and geosynthetics, as well as similar products especially designed to customer specifications.***

*This certificate has been issued by BQA nv according to its quality manual EMS concerning the certification of environmental
management systems, and after the contract of certification N° CER_ELA_EMS2015_21-3-2017_411_N
under which the company accepts a regular control of its environmental management system.*

Certificate N° BQA_EMS019_C_200402

Valid until 2020-03-19



BQA N° 019-EMS

*D. SIMOENS
Directeur*



Certificate of Conformity of the Factory Production Control 1213–CPR–5945

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product(s)

NW 5, 6, 6 UV, 7, 8, 8 D, 8/8 ABG, 8.5, 9, 10, 10 UV, 10 UV IT, 11, 12, 12 UV, 13, 130 N, 15, 15 I, 15 UV, 150 I, 16, 16 ABG, 160 N, 18, 18 UV, 19 UV, 20, 20 XUV, 200 I, 21, 21 UV, 23 P, 250 I,

GTX-N, needle punched, thermally treated; PP; used for the functions: S + F + D

25, 25 R, 26, 29, 30, 32, 32 R, 40, 40 R, 45,

GTX-N, needle punched, thermally treated; PP; used for the functions: S + F + D + P

Forte, Light, Medium, Supra, UNI, X Forte, X Light

GTX-N, needle punched, thermally treated; PP; used for the functions: S + F

SNW 100, 120, 140, 25, 25 XUV, 31, 40 UV, 46, 50, 50 SP, 55, 55 M, 55 XUV, 62, 70, 75, 75 XUV, 80, 85, 90,

GTX-N, needle punched; PP; used for the functions: S + F + D + P

14, 17, 17 T,

GTX-N, needle punched; PP; used for the functions: S + F + D

VNW 200-PP-K, 200-PP-Z, 300-PP-K, 350-PPZ30, 400-PP-K, 450-PP-K, 500-PP-K, 600-PP-K, 600-PPZ30, 700-PP-K, 800-PP-K, 1000 PP-K, 1200-PP-K, 1500-PP-K, 1800-PP-K, 2000-PP-K,

GTX-N, needle punched; PP; used for the functions: S + F + D + P

produced by or for

Bonar NV
Industriestraat 39
9240 Zele / Belgium

and produced in the manufacturing plant(s)

615

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard(s)

**EN 13249:2000/A1:2005; EN 13250:2000/A1:2005; EN 13251:2000/A1:2005;
EN 13252:2000/A1:2005; EN 13253:2000/A1:2005; EN 13254:2000/A1:2005;
EN 13255:2000/A1:2005; EN 13257:2000/A1:2005; EN 13265:2000/A1:2005**

under system 2+ for the performances set out in this certificate are applied and that the factory production control

fulfils all the prescribed requirements for these performances.

This certificate was first issued on 2014-11-04 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonised standard(s), used to assess the performance of the declared essential characteristics, do not change, and the construction product, and the manufacturing conditions in the plant are not modified significantly, unless suspended or withdrawn by the factory production control certification body.

i. V.

Certificate of Conformity of the Factory Production Control 1213–CPR–5945

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product(s)

**PROTEC 250, 250 FR, 300, 33, 400, 500, 500 SP, 600, 700, 750, 750 XUV, 800 FR,
800, 800 XUV, 1000 FR,**

GTX-N, needle punched; PP; used for the functions: S + F + D + P

X 1000, X 1200

GTX-N, needle punched; PP; used for the functions: F + D + P

TS

1, 2,

GTX-N, thermally bonded; PP; used for the functions: S + F

3, 4, 5,

GTX-N, thermally bonded; PP; used for the functions: S + F + D

produced by or for

Bonar NV
Industriestraat 39
9240 Zele / Belgium

and produced in the manufacturing plant(s)

615

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard(s)

**EN 13249:2000/A1:2005; EN 13250:2000/A1:2005; EN 13251:2000/A1:2005;
EN 13252:2000/A1:2005; EN 13253:2000/A1:2005; EN 13254:2000/A1:2005;
EN 13255:2000/A1:2005; EN 13257:2000/A1:2005; EN 13265:2000/A1:2005**

under system 2+ for the performances set out in this certificate are applied and that the factory production control

fulfils all the prescribed requirements for these performances.

This certificate was first issued on 2014-11-04 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonised standard(s), used to assess the performance of the declared essential characteristics, do not change, and the construction product, and the manufacturing conditions in the plant are not modified significantly, unless suspended or withdrawn by the factory production control certification body.

Würzburg, 04 November 2014

i. V.

Dipl.-Ing. Helmut Zanzinger
Certification Body



Ref: G&E042811(declaration SG110110)

Date: 26 April 2011

Attn: To whom it may concern

Declaration - Bontec SG 110/110 Woven Geotextile

We hereby would like to confirm that Bontec SG 110/110 woven geotextiles are made of silt film tapes. Silt film tapes are manufactured in our slit film extrusion department in Belgium, prior to being woven on Sulzer looms. The Geotextiles are being produced in accordance with:

- ISO 9001:2000 – Quality Certificate (in annex)
- ISO 14001: Environmental Certificate (in annex)

Bontec SG 110/110 woven geotextiles are:

- Resistant to all naturally occurring soil acids and alkalis;
- Resistant to biological attack;
- Resistant to deterioration caused by the effects of exposure to weather and burial; and
- Stable over the temperature range 0°C and 60°C.

The geotextiles have the following characteristics :

| | |
|--|---|
| CBR Burst Strength (EN ISO 12236) | 12,500N (*) |
| Tensile Strength (EN ISO 10319) | 110kN/m (*) |
| Volume water flow rate (VWFR) at 100mm water head (EN ISO 11058) | 25 l/m ² /s (at 50mm head) (*) 50 l/m ² /s (at 100mm head) (*) |

(*) The common tolerances around the avg which are used in the industry are applied and are stated on the CE datasheets

Should you require further information, please do not hesitate to contact us.

Thank you.

Best Regards,

Koen Van Compernelle
Bonar Technical Fabrics

BONAR TECHNICAL FABRICS
Industriestraat 39
B-9240 Zele
BTW BE 421.053.442
T: 003252457483 - F. 003252457495

Zelee, 14/01/2019

CERTIFICATION OF COMFORMANCE

The undersigned supplier LOW & BONAR NV, hereby states under his responsibility that the following product complies with the indicated technical properties:

order 247038 your order PO 190110A

| | | |
|------|-------------|----------------------------|
| Type | NW 10 525 | : 13.125,00 m ² |
| | SNW 120 525 | : 2.756,25 m ² |
| | SG 20/20 F | : 7.875,00 m ² |
| | SG 110/110 | : 10.500,00 m ² |

Delivery docs : Packing list Nr T1900388 – T1900386

Manufacturer : Low & Bonar NV, Industriestraat 39, 9240 Zelee, Belgium
Goods are of Belgian (EU) origin

LOW AND BONAR NV



LOW & BONAR NV
Industriestraat 39
B - 9240 Zelee
BTW BE 0421 053 442
T. 0032 52 457 441
F. 0032 52 457 495



**Bontec SG110/110
Woven Geotextile**

Installation Guideline



RECOMMENDATION FOR THE INSTALLATION OF GEOTEXTILES

- The **BONTEC** geotextiles shall be kept in its original packaging in order to protect it from damaging UV-rays and high temperatures.
- The **BONTEC** geotextiles shall be stored protected from wind, rain, excess moisture or sunlight.
- The **BONTEC** geotextiles shall only be unpacked just before use. The material shall be covered within 1 week
- The **BONTEC** geotextiles shall be labelled and show the following data :
 - roll number
 - quality
 - name of the manufacturer
 - roll length & width
 - roll weight
- The **BONTEC** geotextiles shall be laid with the longitudinal axis down slopes
- A minimum overlap of 500 mm between the different sheets shall be respected. Sewing of the different fabrics shall be done with a double prayer stitching technique with non deteriorating thread.
- Wherever visibility or installation of the **BONTEC** geotextile is poor an extra safety overlap of +/- 1 m shall be respected
- The surfaces to be covered with **BONTEC** geotextiles shall be smooth and free of sticks, roots, sharp objects, and all debris that may damage the fabric. The surface to be covered shall be firm and unyielding, with no sudden changes or brakes in grade.
- The compacted sub-base shall be maintained in a smooth, uniform and compacted condition during installation of the fabric.
- In area's where wind is prevalent, fabric installation shall be started at the upwind side of the project and proceed downwind. The leading edge of the fabric shall be secured at all times with sandbags or other means sufficient to hold it down during high winds. Sandbags or rubber tires may be used as required to hold the fabric in position during installation. Tires shall not have exposed steel cords or other sharp edges which may snag or cut the fabric. Materials, equipment or other items shall not be dragged across the fabric or be allowed to slide down slopes on the fabric.
- Should the fabric be damaged during any step of the installation, the damaged section shall be repaired by covering it with a piece of fabric which extends at least 0,6 meter in all directions beyond the damaged area. The fabric shall be secured as directed by the engineer.
- Smoking shall not be permitted by personnel working on the fabric.



**Bontec SG110/110
Woven Geotextile**

List of Project Reference

Bontec SG Range Woven Geotextile

| Date | Project | Client | Consultant | Product | Qty |
|--------|---|--|--|------------------------|----------------|
| Feb-05 | CV/2003/06 Stanley Waterfront Improvement Project - Construction Pier and Boardwalk | Sun Fook Kong (Civil) Ltd | Civil Engineering and Development Department | NW10 SG100/100 | 3,150 2,080 |
| Feb-05 | 99/9028 Lamma Power Station | Wai Kee (Zens) Construction & Transportation Co Ltd | Maunsell Geotechnical Services Ltd | SG100/100 | 1,040 |
| Feb-05 | CV/2004/02 Reconst. of Wong Shek & Ko Lau Wan Public Piers | Kin Shing Construction Co Ltd | Civil Engineering and Development Department | SG100/100 | 4,680 |
| Apr-05 | CV/2002/04 Penny's Bay Reclamation Stage 2 | Gammon Skanska Ltd Shun Tat Construction Engineering Ltd | Scott Wilson Ltd | SG100/100 SG100/100 | 4,160 3,150 |
| Apr-05 | HK/12/02 CED, Central Reclamation Phase III, Engineering Works | Best Leader Engineering Ltd Leighton - China State - Van Oord Joint Venture | Atkins China Ltd | SG100/100 SG100/100 | 1,040 2,615 |
| May-05 | 03/8013 Lamma Island to Cyberport | Leader- Marine Contractors Ltd Honwin Engineering Ltd | Maunsell Geotechnical Services Ltd | SG100/100 SG100/100 | 1,040 1,050 |
| Jul-05 | Shenzhen to Tai Po Twin Submarine Gas Pipeline Project | Honwin Engineering Ltd | | SG100/100 | 3,675 |
| Sep-05 | TP37/03 Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A | Leader - Wai Kee (C&T) Joint Venture | Hyder Consulting Ltd | SG100/100 | 1,040 |
| Nov-05 | HY/2002/26 Stonecutter's Bridge | Hong Kong River Engineering Co Ltd | Ove Arup & Partners HK Ltd | SG100/100 | 1,050 |
| Feb-06 | CV/2005/12 Fill Reception Facilities at Tseung Kwan O Area 137 Quarry Bay and Mui Wo | Penta-Ocean Construction Co Ltd | Civil Engineering and Development Department | SG100/100 | 525 |
| Mar-06 | Maintenance Dredging at Castle Peak Power Station (CPPS) Jetty | New Concepts Engineering Development Ltd | Civil Engineering and Development Department | SG100/100 | 525 |
| Mar-06 | CV/2004/04 Maintenance and Repairs to Government / Public Piers and Immersed Tubes of Hung Hom Cross-Harbor Tunnel | China Harbour Engineering Co. Ltd | Civil Engineering and Development Department | SG100/100 | 1,050 |
| Mar-06 | HY/2005/06 Castle Peak Road Improvement West of Tsing Lung Tau | Shun Tat Construction Engineering Limited Chun Wo Construction & Engineering Co Ltd | Mouchel Halcrow JV | SG100/100 SG100/100 | 1,050 525 |
| May-06 | 212 Main Works for the Proposed Third Golf Course Development at Kau Sai Chau, Sai Kung | China Harbour Engineering Co. Ltd | Ove Arup & Partners HK Ltd | SG100/100 | 3,150 |
| Jun-06 | Hong Kong Convention and Exhibition Centre Project - Silt Screen for Intake Pipe | Wai Kee (Zens) Construction & Transportation Co Ltd Kaden - Wai Kee (C&T) JV | NA | SG100/100 SG100/100 | 2,100 2,100 |



| | | | | | |
|--------|---|---|--|----------------------|-----------------|
| Aug-06 | EP/SP/52/06 Development of EcoPark in Tuen Mun Area 38 | Kaden Construction Limited | Scott Wilson Ltd | SG100/100 | 1,050 |
| Sep-06 | CV/2004/06 Management and Capping of Contaminated Mud Pit IV at East of Sha Chau - Phase III | Kaden - Wai Kee (C&T) Joint Venture | Civil Engineering and Development Department | SG100/100 | 1,050 |
| Oct-06 | Lamma Island Cable Landing | United Marine Co Ltd | Hong Kong Electric Co Ltd | SG100/100 | 2,100 |
| Nov-06 | CV/2004/01 Maintenance and Repairs to Seawalls, Piers and Other Port Works | Kin Shing Construction Co Ltd | Civil Engineering and Development Department | SG100/100 | 2,625 |
| Dec-06 | Private project | Friendly Benefit Engineering Ltd | NA | SG100/100 | 525 |
| Feb-07 | Prebored Socketted H-Piles at Hong Kong Convention & Exhibition Centre | Yee Hop Engineering Co Ltd | NA | SG100/100 | 3,623 |
| May-07 | HY/2005/06 Castle Peak Road Improvement - West of Tsing Lung Tau | Chun Wo Construction & Engineering Co Ltd | Mouchel-Halcrow JV | SG100/100 | 525 |
| May-07 | CV/2004/05 Maintenance Dredging | China Harbour Engineering Co Ltd | Civil Engineering and Development Department | SG100/100 | 2,100 |
| Aug-07 | Dredging Project in Lai Chi Kok Shipyard | Maritime Mechanic Ltd | NA | SG100/100 | 525 |
| Aug-07 | 6/WSD/06 Construction of Salt Water Supply System for Penny's Bay | Univic Engineering Ltd | Water Supplies Department | SG100/100 | 1,050 |
| Nov-07 | Permanent Aviation Fuel Facility Hong Kong International Airport (Contract No. H2104) | UDL Dredging Ltd | Babtie Asia Ltd | SG100/100 | 1,050 |
| Dec-07 | Seawall Modify, Tuen Mun Area 38 | Cheer Engineering Ltd | Scott Wilson Ltd | SG100/100 | 525 |
| May-08 | DC/2007/10 Design and Construction of HK West Drainage Tunnel | Tapbo Civil Engineering Co Ltd | Ove Arup & Partners HK Ltd | SG100/100 | 5,486 |
| Sep-08 | CV/2006/05 Maintenance of Seawalls and Navigation Channels | China Harbour Engineering Co Ltd | Civil Engineering and Development Department | SG100/100 | 6,825 |
| Sep-08 | Marine Works at Maldives | Kwan Sing Engineering & Construction Co Ltd | | SG100/100 | 525 |
| Nov-08 | DC/2007/06 River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River | Kwan Lee Construction Co Ltd | Maunsell Consultants Asia Ltd | SG100/100 | 10,500 |
| Mar-09 | DC/2007/01 Drainage Improvement Works in Ki Lun Tsuen, Kwu Tung, Ma Tso Lung and Sha Ling | Shanghai Urban Construction Group Corp | Mott Connell Ltd | SG100/100 SG40/40 | 7,875 71,925 |
| Jun-09 | CHEC247 Lamma Power Station - Navigation Channel Improvement | China Harbour Engineering Co Ltd | Civil Engineering and Development Department | SG100/100 | 7,350 |



| | | | | | |
|--------|---|--|--|--|------------------------------------|
| Jan-10 | Tsing Yi | Sam Woo Bore Pile Foundation Ltd | | SG110/110 | 525 |
| Feb-10 | HY/2009/11 Central - Wanchai Bypass - North Point Reclamation | China Harbour Engineering Co UDL Ship Management Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 | 21,541 1,050 |
| Mar-10 | KL/2009/01 Site formation for Kai Tak Cruise Terminal Development | Penta-Ocean Construction Co. Ltd Kwan Sing Construction Ltd Crown Asia Engineering Ltd | Scott Wilson Ltd | SG110/110 SG110/110 SG110/110 | 28,875 5,775 1,050 |
| Apr-10 | TK/2009/01 Infrastructure Works at Town Centre South and Tiu Keng Leng, Tseung Kwan O | Shun Tat Construction Engineering Ltd | Meinhardt (C&S) Ltd | SG110/110 SG40/40 | 9,450 1,050 |
| Apr-10 | Lau Fau Shan | Wang Hip Iron Works Wirks Co Ltd | | SG110/110 | 525 |
| May-10 | HK/2009/01 Wan Chai Development Phase II Central Wanchai Bypass | Leader Civil Engineering Corp Ltd Chun Wo-CRGL Joint Venture | AECOM Asia Co Ltd | SG110/110 SG110/110 | 5,250 29,400 |
| Jun-10 | 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Main Form West Kowloon to Sai Ying Pun | Shun Tat Construction Engineering Ltd | Mott Connell Ltd | SG110/110 | 10,470 |
| Oct-10 | DC/2007/12 Design and Construction of Tsuen Wan Drainage Tunnel | Shun Tat Construction Engineering Co Ltd | Hyder Consulting Ltd | SG110/110 | 2,100 |
| Oct-10 | TP/2010/02 Cycle Tracks from Sheung Shui to Ma On Shan | Richwell Machinery Engineering Ltd | Scott Wilson Ltd | SG110/110 | 525 |
| Dec-10 | CV/2010/03 Maintenance Contract for Seawalls and Navigation Channels | China Harbour Engineering Co Ltd | Civil Engineering and Development Department | SG110/110 | 12,075 |
| Dec-10 | HK/2009/02 Wan Chai Development Phase II | Tung Wo Engineering Co Ltd Chun Wo-CRGL Joint Venture Shun Tat Construction Eng Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 SG110/110 | 4,200 4,200 1,050 |
| Jan-11 | HY/2009/15 Central-Wanchai Bypass-Tunnel Causeway Bay Typhoon Shelter | Shun Tat Construction Eng Ltd China State Engineering Co Ltd Tung Wo Engineering Ltd Hong Kong River Engineering Co Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 SG110/110 SG110/110 | 50,400 2,625 1,050 10,831 |
| Jan-10 | DC/2008/09 Submarine outfall Aberdeen | Paul Y Construction Co Ltd | AECOM Asia Co Ltd | SG110/110 | 525 |
| Jan-10 | KL/2008/07 Kai Tak Development - Advance | Crown Asia Engineering Ltd | AECOM Asia Co Ltd | SG110/110 | 1,050 |
| Jan-10 | DC/2011/04 Reconstruction, improvement and rehabilitation of Kai Tak River | Leader - Sunnic JV | Scott Wilson Ltd | SG110/110 | 525 |
| Jan-11 | CV/2009/02 Handling of surplus public fill | China Harbour Engineering Co Ltd | Civil Engineering and Development Department | SG110/110 | 525 |
| Mar-11 | HK/2010/06 Wanchai Development Phase II-Central-Wanchai Bypass over MTR Tsuen Wan Line | Leader Civil Engineering Corp Ltd Gammon Construction Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 | 8,400 1,575 |
| Apr-11 | HY/2009/19 Central-Wanchai Bypass-Tunnel (North Point Section) | S W Marine Works Ltd Chun Wo Foundations Ltd Cheer Engineering Ltd | AECOM Asia Co. Ltd | SG110/110 SG110/110 SG110/110 | 4,200 19,950 525 |



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| May-11 | DC/2009/13 Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan | Leader Civil Engineering Corp Ltd | Scott Wilson CDM Joint Venture | SG110/110 | 1,575 |
| May-11 | DC/2009/22 Drainage Improvement Works in Shuen Wan, Tai Po- Contract 1 | Kwan Lee-Kuly Joint Venture | AECOM Asia Co. Ltd | SG110/110 | 2,625 |
| Jul-11 | SIL (E) 903 Stage 2 Ocean Park Station Wong Chuk Hang Station, Viaducts and Aberdeen Channel Bridge | Leighton Contractors (Asia) Ltd Cheer Engineering Ltd | Vector International Ltd | SG110/110 SG110/110 | 4,725 1,575 |
| Aug-11 | KL/2010/02 Kai Tak Approach Channel Improvement Works Stage 1 | Kwan Sing Contractors Ltd | AECOM Asia Co. Ltd | SG110/110 | 7,350 |
| Sep-11 | DC/2010/02 Drainage Improvement Works in Shuen Wan And Shek Wu Wai | Kwan Lee-Kuly Joint Venture | AECOM Asia Co. Ltd | SG110/110 | 10,500 |
| Oct-11 | DC/2007/16 Design and Construction of Lai Chi Kok Transfer Scheme | Fortress Development Ltd | Maunsell Consultants Asia Ltd | SG110/110 | 2,100 |
| Dec-11 | HY/2010/02 HK-Zhuhai-Macau Bridge - HK Boundary Crossing Facilities Reclamation Works | China Harbour Engineering Co Ltd Sharon Asia Waste Sorting Eng Ltd Chung Kong Marine Engineering Ltd | Ove Arup & Partners HK Ltd | SG110/110 SG110/110 SG110/110 | 68,775 525 10,500 |
| Jul-12 | GSPD/SP/TKW-NP/089/2011 Installation of Submarine Gas Pipeliners and Associated Facilities from to Kwa Wan to North Point | Macdow - Kaden Joint Venture | Mott Connell Limited | SG110/110 | 3,150 |
| Aug-11 | HY/2011/03 HK-Zhuhai Macau Bridge - Hong Kong Link Road - Scenic Hill and Hong Kong Boundary Crossing Facilities | China State Construction Eng (HK) Ltd Will Pak Engineering Ltd Shun Tat Construction Engineering Ltd Chun Ngai Construction Engineering Ltd | Ove Arup & Partners HK Ltd | SG110/110 SG20/20F SG110/110 SG110/110 SG20/20F | 23,100 23,625 1,575 6,825 10,500 |
| Mar-13 | 1017EM10 Kai Tak Former Runway | Crown Asia Engineering Ltd | Civil Engineering and Development Department | SG110/110 | 1,050 |
| Mar-13 | 2/WSD/09 Salt Water Supply for Northwest New Territories - Construction of Lok On Pai Salt Water Pumping Station and Associated Works | Sunrise Enterprises Ltd | Water Supplies Department | SG40/40 | 525 |
| Apr-13 | Yuen Long | Kwong Wah Electrical Co Ltd | - | SG40/40 | 525 |
| May-13 | HK/2012/08 Wan Chai Development Phase II - Central Wan Chai Bypass at Wan Chai West | Hong Kong River Engineering Co Ltd China State - Leader JV Will Pak Engineering Ltd | AECOM Asia Co. Ltd | SG110/110 SG110/110 SG110/110 | 47,250 525 525 |
| Jun-13 | SCL1111 Hung Hom North Approach Tunnels | Gammon - Kaden Joint Venture | AECOM Asia Co. Ltd | SG40/40 SG110/110 | 19,425 525 |
| Aug-13 | Near Hoi Sum Park, King Wan, Tokuawan | Hong Kong Marine Contractors Ltd | | SG110/110 | 525 |



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| Sep-13 | HY/2012/07 Tuen Mun - Chek Lap Kok Link-Sothorn Connection Viaduct Section | Gammon Construction Ltd Right Lead Construction Co Ltd | AECOM Asia Co. Ltd | SG110/110 SG110/110 | 9,450 1,050 |
| Oct-13 | Mongkok | S W Marine Works Ltd | | SG110/110 | 525 |
| Jan-14 | 2/WSD/09 Construction of Lok On Pai salt water pumping station and associated works | CPC Construction Hong Kong Ltd | Water Supplies Department | SG40/40 | 1,050 |
| Jan-14 | CV/2013/02 Maintenance contract for seawalls and navigation channels | China Harbour Engineering Co Ltd | Civil Engineering and Development Department | SG110/110 | 25,725 |
| Feb-14 | 16/WSD/11 Replacement and rehabilitation of water mains at Peng Chau, Sunshine Island and Hei Ling Chau | MIRDTEC HK Ltd. | AECOM Asia Co. Ltd | SG110/110 | 2,625 |
| Mar-14 | Remodeling of New World Centre at Salisbury Road | Kaden Construction Ltd | | SG110/110 | 1,050 |
| Apr-14 | KL/2011/01 Kai Tak Development - Reconstruction and Upgrading of Kai Tak Nullah | Chit Cheung Construction Co Ltd | AECOM Asia Co. Ltd | SG110/110 SG20/20F | 2,100 8,400 |
| Jul-14 | CV/2013/05 Construction of Cycle Parking Area near Yung Shue Ferry Pier, Lamma Island | Tak Cheong Construction Co Ltd | Civil Engineering and Development Department | SG110/110 | 525 |
| Oct-14 | MTRC SIL (E) 902 Nam Fung Tunnel and Ventilation Buildings | Nishimatsu Construction Co. Ltd | Scott Wilson Ltd | SG110/110 | 7,875 |
| Nov-14 | HY/2010/08 Central-Wanchai Bypass-Tunnel (Slip Road 8 Section) | Shun Tat Construction Eng Ltd | AECOM Asia Co Ltd | SG110/110 | 8,925 |
| Jan-15 | SCL1121 Shatin to Central Link - NSL Cross Habour Tunnel | Penta Ocean - China State JV Crown Asia Engineering Ltd | AECOM Asia Co. Ltd | SG110/110 SG20/20F SG110/110 | 25,200 525 1,050 |
| Apr-15 | KL/2013/01 Site Formation for Kai Tak Cruise Terminal Development - Remaining Works | Zhen Hua Engineering Company Limited | URS Hong Kong Ltd | SG110/110 | 15,750 |
| May-15 | Yau Tong Bay Redevelopment - Land Decontamination Works | Hong Kong River Engineering Co Ltd | AECOM Asia Co Ltd | SG110/110 | 2,100 |
| Sep-15 | MTRC810A West Kowloon Terminus Station North | Leighton - Gammon JV | AECOM-Aedas JV | SG110/110 | 11,025 |
| Oct-15 | Private job in Crooked Island | Maritime Mechanic Ltd | | SG110/110 | 1,050 |
| Nov-15 | Private job in Tung Chung | Fortress Development Ltd | | SG110/110 | 525 |
| Jan-16 | MTRC810B West Kowloon Terminus Station South | Laing O'Rourke - Hsin Chong - Paul Y. Joint Venture Tapbo Civil Engineering Co Ltd | AECOM - Aedas JV | SG110/110 SG110/110 | 1,050 2,625 |
| Jan-16 | Proposed revitalization of Avenue of Star and east TST Promenade Waterfront | Kaden Construction Ltd | New World Development | SG110/110 | 1,575 |



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| Feb-16 | HY/2013/01 HKZMB - Construction of Passenger Clearance Building | Leighton-Chun Wo Joint Venture S W marine Works Ltd Cheer Engineering Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 SG110/110 | 2,625 2,100 2,100 |
| Mar-16 | KL/2014/01 Kai Tak Development - Stage 2 Infrastructure Works for Developments at Southern Part of the Former Runway | CEC-CCC Joint Venture Cheer Engineering Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 | 10,500 525 |
| Mar-16 | 1/WSD/15 Term Contract for Waterworks District E - New Territories East | Yick Sing Civil Engineering Ltd | Water Services Department | SG110/110 | 2,625 |
| Mar-16 | Fill Bank at Tuen Mun Area 38 | Fortress Development Ltd | CH2M Hill (China) Limited | SG110/110 | 525 |
| May-16 | SCL 1128 Causeway Bay Typhoon Shelter to Admiralty Tunnels | Dragages-Bouygues J.V. Tapbo Civil Engineering Co Ltd VSL | Intrafor | SG110/110 SG110/110 | 1,575 525 |
| Jun-16 | Silt Curtain Repair | Hong Kong Marine Contractors Ltd | | SG110/110 | 5,250 |
| Jul-16 | EP/SP/10/91 SENT Landfill, Tseung Kwan O | Green Valley Landfill, Limited | Rust Asia Pacific Ltd | SG40/40F | 5,250 |
| Sep-16 | NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works | CRBC-Build King Joint Venture Hong Kong River Engineering Shun Tat Construction Engineering | AECOM Asia Co Ltd | SG110/110 SG110/110 | 28,875 23,625 |
| Nov-16 | CC/2016/3B/045 Main Contract for the Park at West Kowloon Cultural Center | Sun Fook Kong Construction Ltd Chung Kong Marine Engineering Ltd | ACLA | SG110/110 | 525 |
| Dec-16 | HY/2011/03 HK-Zhuhai Macau Bridge - Hong Kong Link Road - Scenic Hill and Hong Kong Boundary Crossing Facilities | China State Construction Engineering (HK) Ltd Sun Rise Civil Engineering Ltd | Ove Arup & Partners HK Ltd | SG110/110 SG20/20F SG20/20F | 2,625 1,050 2,625 |
| Dec-16 | C3206 Three Runway System - Main Reclamation Works | Chung Kong Marine Engineering Ltd WinSino Engineering Co China Dredging Co ZHEC-CCCC-CDC JV | Airport Authority | SG110/110 SG110/110 SG110/110 SG110/110 | 4,725 11,025 1,575 2,625 |
| Feb-17 | NE/2015/01 TKO - Lam Tin Tunnel - Main tunnel and associated works | Leighton - China State JV Shun Tat Construction Engineering Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 | 5,250 4,725 |
| Mar-17 | C3205 3rd Runway System Project DCM Ground Improvement Works (Package 5) | Bachy Soletanche -Sambo Joint Venture Tapbo Civil Engineering Co Ltd Crown Asia Engineering Ltd | Airport Authority | SG110/110 SG110/110 | 3,675 1,050 |
| May-17 | CV/2016/05 Reconstruction of Sharp Island Pier | Sze Fung Engineering Ltd | Civil Engineering and Development Department | SG110/110 | 2,625 |
| Jun-17 | SJC Hong Kong Shore-End Installation, Chung Hom Kok | Hong Kong Marine Contractors Ltd | | SG110/110 | 1,575 |
| Jul-17 | CV/2016/01 Maintenance Contract for Seawalls and Navigation Channels | Chung Kong Marine Engineering Ltd China Harbor Engineering Co Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 | 1,050 3,675 |
| Aug-17 | CV/2012/05 Bathing Beach at Lung Mei, Tai Po | Welcome Construction Co Ltd Shun Tat Construction Engineering Ltd Hugh Loyal Management Ltd | Civil Engineering and Development Department | SG110/110 SG110/110 SG110/110 | 2,625 9,450 525 |
| Sep-17 | C3202 3rd Runway System Project DCM Ground Improvement Works (Package 2) | Samsung - Build King Joint Venture Shun Tat Construction Engineering Ltd | Fugro Hong Kong Ltd | SG110/110 SG110/110 | 2,100 1,050 |



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| Jan-18 | KL/2015/02 Kai Tak development - Stage 5A, Infrastructure at Former North apron Area | Peako - Wo Hing Joint Venture | AECOM Asia Co Ltd | SG110/110 | 1,050 |
| Jan-18 | SCL1123 Exchange and Western Approach Tunnel | Leighton - China State Joint Venture Shun Tat Construction Engineering Ltd | Ove Arup & Partners HK Ltd | SG110/110 | 3,150 |
| Jan-18 | CHEC311 Marine dredging works (2017-2020) for Hong Kong Electric | China Harbour Engineering Co. Ltd | Hong Kong Electric | SG110/110 | 4,725 |
| Jan-18 | Pacific Light Cable Network - Deep Water Bay | Hong Kong Marine Contractors Ltd | Environmental Resources Management | SG110/110 | 525 |
| Mar-18 | HY/2012/08 Tuen Mun - Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section | Dragages - Bouygues JV | AECOM Asia Co. Ltd | SG110/110 | 4,725 |
| Apr-18 | MTRC1121 Shatin to Central Link - NSL Cross Harbour Tunnels | Penta-Ocean - China State JV Crown Asia Engineering Ltd | AECOM Asia Co Ltd | SG110/110 | 1,050 |
| May-18 | Kowloon Inland Lot No. 11251 Design and Construction of Piling Foundation at Pine Street / Oat Street, Tai Kok Tsui | Yau Lee Construction Management Limited K. H. Foundation Ltd | David S. K. Au & Associates | SG110/110 | 1,050 |
| May-18 | NL/2017/03 Tung Chung New Town Extension - Reclamation and Advance Works | Build King - SCT JV Tapbo Civil Engineering Co Ltd Leader Marine - Yoon & Plac JV | AECOM Asia Co Ltd | SG110/110 SG110/110 SG110/110 | 1,050 2,100 2,100 |
| May-18 | KL/2014/03 Kai Tak Development - Stage 3, Infrastructure Works for Development at the Southern Part of the Former Runway | Hong Kong River Engineering Co Ltd | Hyder - Meinhardt JV | SG110/110 | 525 |
| May-18 | EP/SP/66/12 Integrated Waste Management Facilities Phase 1 | Chung Kong Marine Engineering Ltd Shun Tat Construction Engineering Ltd | AECOM Asia Co Ltd | SG110/110 SG110/110 | 6,300 2,100 |
| Jun-18 | DC/2016/02 Building and Civil Maintenance and Minor Works to DSD Plants and Facilities | Paul Y. Construction Co Ltd World Diamond Engineering Ltd | Drainage Services Department | SG110/110 | 1,050 |
| Aug-18 | HY/2013/02 HZMB BCF - Infrastructure Works Stage 1 (Western Portion) | China Harbour Engineering Co. Ltd | AECOM Asia Co Ltd | SG110/110 | 525 |
| Aug-18 | Hong Kong Shipyard | Works of Diving Hong Kong Co Ltd | | SG110/110 | 525 |
| Sep-18 | HY/2014/16 Hiram's Highway Improvement Stage 1 - Between Clearwater Bay Road and Marina Cove | China State Construction Engineering (HK) Ltd | Meinhart Infrastructure and Environmental Ltd | SG110/110 | 525 |
| Sep-18 | Private project in Lung Kwu Tan | S W Marine Works Ltd | | SG110/110 | 1,575 |
| Sep-18 | P575 NCD Main Infrastructure Works | China State Construction Engineering (Hong Kong) Ltd Will Pak Engineering Ltd | Hong Kong Airport Authority | SG110/110 | 1,050 |
| Oct-18 | EP/SP/66/12 Integrated Waste Management Facilities Phase 1 | Keppel Seghers - Zhen Hua Joint Venture Shun Tat Construction Engineering Ltd Denson Engineering Ltd | AECOM Asia Co Ltd | SG110/110 | 6,825 |



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| Oct-18 | NE/2017/07 Cross Bay Link, Tseung Kwan O - Main Bridge and Associated Works | Hong Kong River Engineering Co Ltd | AECOM Asia Co Ltd | SG110/110 | 1,050 |
| Oct-18 | Yau Ma Tei project | Max Team Engineering Ltd | | SG110/110 | 525 |



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| Date | June 2018 |
| Project | Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works |
| Client | Civil Engineering and Development Department |
| Consultant | AECOM Asia Company Limited |
| Main Contractor | CRBC-Build King Joint Venture Shun Tat Construction Engineering |
| Works | Site Boundary Silt Curtain |
| Material | Bontec SG110/110 Geotextile fabric |
| Quantity | 60,375 sqm |



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|------------------------|--|
| Date | June 2014 |
| Project | Contract No. HY/2012/08 Tuen Mun - Chek Lap Kok Link Northern Connection Sub-sea Tunnel Section |
| Client | Highway Department |
| Consultant | AECOM Asia Co. Ltd |
| Main Contractor | Dragages Bouygues Joint Venture |
| Works | Seawall Construction |
| Material | Bontec SG110/110 |
| Quantity | 4,725 sqm |



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| Date | August 2017 |
| Project | Contract No. CV/2012/05 Bathing Beach at Lung Mei, Tai Po |
| Client | Civil Engineering and Development Department |
| Consultant | Civil Engineering and Development Department |
| Main Contractor | Welcome Construction Co Ltd Shun Tat Construction Engineering Ltd |
| Works | Silt Curtain |
| Material | Woven Geotextile Bontec SG110/110 |
| Quantity | 12,600 sqm |



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|------------------------|---|
| Date | Jan 2016 |
| Project | Proposed revitalization of Avenue of Star and east TST Promenade Waterfront |
| Client | New World Development |
| Main Contractor | Kaden Construction Ltd |
| Works | Silt Protector |
| Material | Woven Geotextile Bontec SG110/110 |
| Quantity | 1,050 sqm |



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|------------------------|---|
| Date | May 2014 |
| Project | HY/2012/07 Tuen Mun - Chek Lap Kok Link- Sothern Connection Viaduct Section |
| Client | Highway Department |
| Consultant | AECOM Asia Co. Ltd |
| Main Contractor | Gammon Construction Ltd |
| Material | Woven geotextile Bontec SG110/110 |
| Works | Silt Protector |
| Quantity | 8,925 sqm |



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|------------------------|---|
| Date | Nov 2014 |
| Project | Contract No. HY/2010/08 Central-Wanchai Bypass - Tunnel (Slip Road 8 Section) |
| Client | Highway Department |
| Consultant | AECOM Asia Co Ltd |
| Main Contractor | China State Construction Engineering (HK) Ltd |
| Works | Silt Curtain |
| Material | Woven Geotextile Bontec SG110/110 |
| Quantity | 1,575 sqm |



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| Date | May 2013 |
| Project | Contract No. HK/2012/08 Wan Chai Development Phase II - Central Wan Chai Bypass at Wan Chai West |
| Client | Civil Engineering and Development Department |
| Consultant | AECOM Asia Co. Ltd |
| Main Contractor | China State Construction Engineering Co. Ltd Hong Kong River Engineering Co Ltd |
| Works | Silt Curtain |
| Material | Woven Geotextile SG110/110 |
| Quantity | 47,250 sqm |



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| Date | June 2013 |
| Project | Contract No: HY/2011/03 HK-Zhuhai Macau Bridge Hong Kong Link Road - Scenic Hill and Hong Kong Boundary Crossing Facilities |
| Client | Highway Department |
| Consultant | Ove Arup & Partners HK Ltd |
| Main Contractor | China State Construction Engineering |
| Works | Tailor-made Silt Protector |
| Material | Woven Geotextile Bontec SG110/110 |
| Quantity | 37,275 sqm |



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| Date | January 2015 |
| Project | Contract No. SCL1121 Shatin to Central Link - NSL Cross Harbour Tunnel |
| Client | MTR Corporation |
| Consultant | AECOM Asia Co. Ltd |
| Main Contractor | Penta Ocean - China State JV |
| Works | Silt Curtain |
| Material | Woven Geotextile Bontec SG110/110 |
| Quantity | 26,250 sqm |



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| Date | Jan 2014 |
| Project | Contract No. CV/2013/02 Maintenance contract for seawalls and navigation channels |
| Client | CEDD |
| Consultant | CEDD |
| Main Contractor | China Harbour Engineering Co Ltd |
| Works | Silt Protector |
| Material | Woven Geotextile Bontec SG110/110 |



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|------------------------|--|
| Date | Feb 2014 |
| Project | Contract No. DC/2011/04 Reconstruction, improvement and rehabilitation of Kai Tak River from Wong Tai Sin Police Station to Tung Tau II Estate |
| Client | Drainage Service Department |
| Consultant | Scott Wilson Limited |
| Main Contractor | Leader - Sunnic JV |
| Works | Silt Curtain to Kai Tak Nullah |
| Material | Woven Geotextile Bontec SG110/110 |
| Quantity | 525 sqm |



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| Date | June 2014 |
| Project | Contract No. HY/2010/02 HK-Zhuhai-Macau Bridge - HK Boundary Crossing Facilities Reclamation Works |
| Client | Highway Department |
| Consultant | Ove Arup & Partners HK Ltd |
| Main Contractor | China Harbour Engineering Co Ltd |
| Works | Tailor-made Silt Protector |
| Material | Woven Geotextile Bontec SG110/110 |
| Quantity | 79,800 sqm |



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| Date | November 2005 |
| Project | Contract No. HY/2002/26 Stonecutters Bridge |
| Client | Highway Department |
| Consultant | Ove Arup and Partners HK Ltd |
| Main Contractor | Hong Kong River Engineering Co Ltd Maeda - Hitachi - Yokogawa - Hsing Chong Joint Venture |
| Material | Woven geotextile Bontec SG110/110 |
| Works | Tailor-made Silt Curtain |
| Size | 1,050 sqm |



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| Date | May 2011 |
| Project | Contract No. DC/2009/22 Drainage Improvement Works in Shuen Wan, Tai Po |
| Client | Drainage Service Department |
| Consultant | AECOM (Asia) Ltd |
| Main Contractor | Kwan Lee - Kuly Joint Venture |
| Works | Separation |
| Material | Woven geotextile SG110/110 |
| Quantity | 2,625 sqm |



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| Date | June 2013 |
| Project | Contract No. HY/2009/15 Central-Wanchai Bypass-Tunnel (Causeway Bay Typhoon Shelter Section) |
| Client | Highway Department |
| Consultant | AECOM Asia Co. Ltd |
| Main Contractor | China State Construction Engineering (HK) Limited |
| Works | Tailor-made Silt Curtain |
| Material | Woven Geotextile Bontec SG110/110 |



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|------------------------|---|
| Date | March 2014 |
| Project | Contract No. HK/2009/02 Wan Chai Development Phase II Central - Wan Chai Bypass Wan Chai East |
| Client | Civil Engineering and Development Department |
| Consultant | AECOM (Asia) Ltd |
| Main Contractor | Chun Wo Construction & Engineering Co.Ltd |
| Application | Silt Protector |
| Material | Woven Geotextile SG110/110 |
| Quantity | 9,450 sqm |



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| Date | March 2010 |
| Project | Contract No. HK/2009/01 Wan Chai Development Phase II -Central - Wanchai Bypass at Hong Kong Convention and Exhibition Centre |
| Client | Civil Engineering and Development Department |
| Consultant | AECOM Asia Co. Ltd |
| Main Contractor | Chun Wo - Leader Joint Venture |
| Works | Intake Silt Curtain |
| Materials | Woven Geotextile SG110/110 |
| Size | 34,125 sqm |



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|------------------------|---|
| Date | March 2010 |
| Project | KL/2009/01 Site formation for Kai Tak Cruise Terminal Development |
| Client | CEDD |
| Consultant | Scott Wilson Ltd |
| Main Contractor | Penta-Ocean Construction Co. Ltd |
| Materials | SG110/110 |
| Size | 1,050 sqm |



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|------------------------|---|
| Date | March 2010 |
| Project | Contract No. DC/2007/01 Drainage Improvement Works in Ki Lun Tsuen, Kwu Tung, Ma Tso Lung and Sha Ling |
| Client | Drainage Services Department |
| Consultant | Mott MacDonald |
| Main Contractor | Shanghai Urban Construction (Group) Corporation |
| Works | Soil filter |
| Material | Woven Geotextile Bontec SG110/110 Woven Geotextile Bontec SG40/40 |
| Quantity | SG110/110 - 7,875 sqm SG40/40 - 71,925 sqm |



G AND E COMPANY LIMITED

14th Floor, Kiu Yin Commercial Building
361-363 Lockhart Road
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|--|
| Date | April 2011 |
| Project | Contract No. HY/2009/11 Central - Wanchai Bypass - North Point Reclamation |
| Client | Highways Department |
| Consultant | AECOM Asia Ltd |
| Main Contractor | China Harbour Engineering Company |
| Works | Tailor-made Silt Curtain |
| Materials | Woven Geotextile SG110/110 |
| Quantity | 22,066 sqm |



G AND E COMPANY LIMITED

14/F Kiu Yin Commercial Building
361 - 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|--|
| Date | May 2004 |
| Project | Contract No. CV/2001/12 Reconstruction of Cheung Chau and Wu Kai Sha Public Piers |
| Client | Civil Engineering and Development Department |
| Engineer | Civil Engineering and Development Department |
| Main Contractor | Hong Kong and Macau Scent On Engineering & Construction Ltd |
| Works | Tailor-made Silt Curtain |
| Material | Woven Geotextile Bontec SG110/110 |



G AND E COMPANY LIMITED

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361-363 Lockhart Road,
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|----------------------------|
| Date | October 2006 |
| Project | Lamma Island Cable Landing |
| Client | Hong Kong Electric Co Ltd |
| Consultant | Hong Kong Electric Co Ltd |
| Main Contractor | United Marine Co Ltd |
| Works | Tailor-made Silt Curtain |
| Material | Woven Geotextile SG110/110 |
| Quantity | 2,100 sqm |



G AND E COMPANY LIMITED

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Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|---|
| Date | March 2006 |
| Project | Contract No. HY/2005/06 Castle Peak Road Improvement West of Tsing Lung Tau |
| Client | Highway Department |
| Consultant | Mouchel Halcrow JV |
| Main Contractor | Chun Wo Construction & Engineering Co., Ltd. |
| Material | Woven Geotextile Bontec SG110/110 |
| Works | Tailor-made Silt Curtain |
| Quantity | 1,050 sqm |



G AND E COMPANY LIMITED

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361-363 Lockhart Road
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|--|
| Date | February 2005 |
| Project | Contract No. CV/2003/06 Stanley Waterfront Improvement Project - Construction Pier & |
| Client | Civil Engineering and Development Department |
| Consultant | Civil Engineering and Development Department |
| Main Contractor | Sun Fook Kong (Civil) Ltd |
| Works | Silt Curtain - SG110/110 |
| Quantity | 2,080 sqm |



G AND E COMPANY LIMITED

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361 - 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|--|
| Date | May 2011 |
| Project | Contract No. DC/2009/13 Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan |
| Client | Drainage Service Department |
| Consultant | Scott Wilson CDM Joint Venture |
| Main Contractor | Leader Civil Engineering Corp Ltd |
| Material | Bontec SG110/110 woven geotextile |
| Works | Silt Curtain |
| Quantity | 1,575 sqm |



G AND E COMPANY LIMITED

14/F Kiu Yin Commercial Building
361 - 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|---|
| Date | Jan 2005 |
| Project | Contract No. HK/12/02 Central Reclamation Phase III Engineering Works |
| Client | Civil Engineering and Development Department |
| Consultant | Atkins China Ltd |
| Main Contractor | Leighton - China State - Van Oord JV |
| Material | Woven Geotextile Bontec SG110/110 |
| Works | Silt Curtain |
| Quantity | 3,655 sqm |



G AND E COMPANY LIMITED

14/F, Kiu Yin Commercial Building,
361 - 363 Lockhart Road
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|---|
| Date | January 2010 |
| Project | KL/2008/07 Kai Tak Development-Infrastructure works at Southern part of former runway, Stage 1 |
| Client | CEDD |
| Consultant | AECOM |
| Main Contractor | Friendly Benefit Engineering Ltd |
| Works | Fabrication of Silt Curtain |
| Materials | SG110/110 |



G AND E COMPANY LIMITED

14/F Kiu Yin Commercial Building
361 - 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 852-2570 0103 Fax: 852-2570 0089
website: www.g-and-e.com



| | |
|------------------------|--|
| Date | March 2013 |
| Project | Contract No. 1017EM10 Seawall Modification Work at Outfall Area at Kai Tak Development |
| Client | Civil Engineering and Development Department |
| Consultant | AECOM |
| Main Contractor | Crown Asia Engineering Ltd |
| Works | Silt Curtain |
| Material | Woven geotextile Bontec SG110/110 |
| Quantity | 1,050 sqm |



**Bontec SG110/110
Woven Geotextile**

Approval Letters

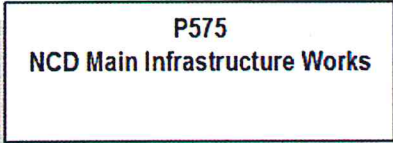
Karen Yip
CHINA STATE CONSTRUCTION ENGINEERING (HK)...

CSECEL/P575/M/00193C - Material Submission f... 2018-10-08
文件传送 CSECEL-TRANSMIT-000287

已回复

Bill Mar
AIRPORT AUTHORITY

Re: CSECEL/P575/M/00193C - Material Submissi... 下午3点13分
文件传送 AAHK-TRANSMIT-000306



邮件类型
文件传送
参考号
CSECEL-TRANSMIT-000287

邮件编号
AAHK-TRANSMIT-000306

Re: CSECEL/P575/M/00193C - Material Submission for Geotextile Type 1 for Seawall Modification and Box Culvert for Outfall 8A

发件人 Mr Bill Mar - Airport Authority
收件人 (2) Mr Bill Mar - Airport Authority (+1 更多...)
抄送收件人 (15) Mr Henry Chan - Airport Authority (+14 更多...)
已发送 2018年10月19日 星期五 3:13:56 PM HKT (GMT +08:00)
状态 不适用

详情

Discipline Civil
Area Outfall 8A
Submission number CSECEL/P575/M/00193C
Submission Response (AA reply) A -Notice of No-Objections

消息

PROJECT MANAGER'S REPLY TO CONTRACTOR'S SUBMISSION

TITLE OF SUBMISSION: Material Submission for Geotextile Type 1 for Seawall Modification and Box Culvert for Outfall 8A
SUBMISSION NUMBER: CSECEL/P575/M/00193C

RESPONSE:
Submission for Review
(Ref. GS 18.4)

A -Notice of No-Objections

A

| | | |
|---|---|--|
| Submission for Permission or Consent (Ref GS 18.5) | B1- No-Objection subj. to comments,resub | |
| | B2- Subj. to comments,resub not required | |
| | C -Notice of Objection, please resubmit | |
| | D -Notification of Permission or Consent | |
| | E -Notification of Permission or Consent subject to compliance with conditions; please confirm acceptance of conditions | |
| | F -Permission or Consent withheld | |
| Submission for information | R -Submission acknowledged | |

COMMENTS:

We have no objection to your proposed use of Geotextile Type 1 "Bontec SG 110/110 Woven Polypropylene Geotextile".

| | | | | |
|-------------------------------|--------|------|---------------------------|--------------------|
| AA DISTRIBUTION: File Ref: | | | From: PM's Representative | Contractor's Stamp |
| Name | Action | Info | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | Name: | |
| | | | Signature: | |
| | | | Date: | |

CONTRACTOR'S SUBMISSION

TITLE OF SUBMISSION : CSECEL/P575/M/00193C - MATERIAL SUBMISSION FOR GEOTEXTILE TYPE 1 FOR SEAWALL MODIFICATION AND BOX CULVERT FOR OUTFALL 8A

CSCS SUBMISSION REF. NO. : CSHK/CDP/A.3/7.23/2018/00713

SUBMISSION NUMBER : CSECEL/P575/M/00193C

SPECIFICATION REFERENCE : PS / F / A14/ 1.17

DRAWING REFERENCE :PBA/P273/BDC/6532, PBA/P273/BDC/6533 & PBA/P273/BDC/6534

DESCRIPTION OF CONTENTS :

As per your comments given on AAHK-TRANSMIT-000256 dated 23 July 2018, we are pleased to submit herewith Geotextile Type 1 "Bontec SG 110/110 Woven Geotextile" information for review and approval.

Appendix A: Test report by Precision – TRI Geosynthetic Laboratory Int.

Appendix B: Certificate of Precision – TRI Geosynthetic Laboratory Int. by Geosynthetic Accreditation Institute.

Appendix C: Method of Sewing Seam.

| | |
|------------------|-----------------|
| Remarks : | AA Distribution |
|------------------|-----------------|

| To.: Cc.: Discipline: Area: Submission No.: CSECEL/P575/ Submission Response (AA reply): | File Ref.: 15.00/CFR <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Name :</th> <th style="width: 25%;">Action</th> <th style="width: 25%;">Comments</th> <th style="width: 25%;">Info</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> | Name : | Action | Comments | Info | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|----------|--------|----------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Name : | Action | Comments | Info | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| From: CSCE's Representative Name : Thomas Lui Signature : (N/A FOR ELECTRONIC SUBMISSION) Date: | Contractor's Name CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LTD. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

KYW/GY/WSC/ky

Key to "Document Type" in Submission No. D - Permanent Works or Plants Design; T - Temporary Works Design; S - Survey and Setting Out; O - Other Q - Quality Control/Quality Assurance; P - Progress and Programme; M - Materials; Z - General Construction

This mail has been approved for release by K Yip on 2018-10-08 11:17:11 HKT

此邮件已由J Law 准备



Your Ref : KSZHJV/OUT/2018/05/01.11/000513
Our Ref : IWMF/(EP/SP/66/12)/R20/820/B00076

7 June 2018

Keppel Seghers-Zhen Hua Joint Venture
19/F, China Harbour Building
370-374, King's Road
North Point
Hong Kong

Attn: Mr. Chung Tai Tung, Peter

Dear Sir,

Contract No. EP/SP/66/12
Integrated Waste Management Facilities Phase 1

Material Submission – Geotextile for Silt Curtain (Bontex SG110/110)

We refer to your letter ref No. KSZHJV/OUT/2018/05/01.11/000513 dated 1 June 2018 and our discussion on 1 June 2018 where you clarified the typo of "Bontex SC110/110" that the description should be "Bontex SG110/110" as per the manufacturer's information sheets.

We have no objection in principle to your proposed use of Geotextile Bontex SG110/110 for Silt Curtain, provided that the material shall be used and stored in strict compliance with the Specification and the manufacturer's recommendations.

Please also be reminded that, pursuant to Clause 3.3 of Condition of Contract, any of our comments on your submission, or any areas of the subject of your submission we have not provided comments on, shall not in any way operate to relieve any of your duties, responsibilities, obligations or liabilities under the Contract.

Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.

Henry Chan
Chief Resident Engineer

c.c. PEPO(SFG),EPD - Attn: Mr. Yu Wang Pong
AACL - Attn: Mr. Bevis Mak

By Fax (3529 2991) only

HC/EW/CW/ml



Your Ref : KSZHJV/OUT/2018/05/01.11/000513
Our Ref : IWMF/(EP/SP/66/12)/R20/820/B00076

7 June 2018

Keppel Seghers-Zhen Hua Joint Venture
19/F, China Harbour Building
370-374, King's Road
North Point
Hong Kong

Attn: Mr. Chung Tai Tung, Peter

Dear Sir,

Contract No. EP/SP/66/12
Integrated Waste Management Facilities Phase 1

Material Submission – Geotextile for Silt Curtain (Bontex SG110/110)

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Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.

Henry Chan
Chief Resident Engineer

c.c. PEPO(SFG),EPD - Attn: Mr. Yu Wang Pong
AACL - Attn: Mr. Bevis Mak

By Fax (3529 2991) only

HC/EW/CW/ml

RESPONSE TO CONTRACTOR'S SUBMISSION

Our Ref. : C2/(HY/2012/08)/M25/110/B017642

To : DBJV

Attn. : Mr. Ivan Chau

| | | |
|---|------------------------------------|--------------------|
| Location : Southern Landfall - Outfall | CSF No. : TMCLKL8/MAS/SAA/001173/A | |
| Title of Submission : Geotextile for Seawall Reinstatement (Originated in Outfall Construction - Bontec from DBJV) SG110/110 | Rev.: A | Date: 3 April 2018 |

The Supervising Officer's Representative's Comment(s) :

I refer to the captioned material submission dated 3 April 2018 proposing the Geotextile - Bontec SG110/110, supplied by G and E Company Limited to be used for the reinstatement of seawall at the drainage outfalls in the Southern Landfall.

I have no objection in principle to the proposed material subject to the method of jointing the geotextile attached in your submission should be strictly followed.

20224 18 APR 8:10:45 AM

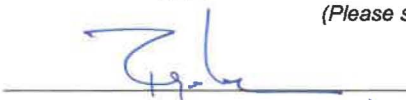
| Project : TMCLKL8 | | | | | | | |
|--------------------|------|-----|------|-------------|------|-----|------|
| Date : 09 APR 2018 | | | | | | | |
| Reg No. : 030224 | | | | | | | |
| Dept | Name | Act | Info | Dept | Name | Act | Info |
| MGT | FGUE | | | Ext/Civil | DLA | | |
| | ICH | | | -NVS/NVB | WAM | | |
| Comm | PAT | | | -NAR/REC | WAM | | |
| -Contract | LaC | | | -BoxCulv | WAM | | |
| | NWc | | | -SLF | CDc | | |
| | LCK | | | -SVS/SVB | MaH | | |
| -Subcon | JDo | | | -MHS(Tun) | MaH | | |
| Safety | TYC | | | -MHS(Cat) | PiM | | |
| Q&E | ERe | | | Tun/Pla | DLA | | |
| Technical | ASc | | | -Surface | KWc | | |
| -Design | BSh | | | -Int Struc | KWc | | |
| -Method | Eca | | | -FP | PCh | | |
| -Geo | CCh | | | -Precast | RKw | | |
| Planning | WYu | | | -Plant(N/S) | CY | | |
| Survey | CWL | | | -Plant(S) | AM | | |
| AGP | FOI | | | -Purch | AKw | | |
| -Cost/Est | EYI | | | TBM | FDe | | |
| -Admin | CSu | | | CrossP | FRg | | |
| -PR | CSc | | | BYTP | | | |
| Board | | | | OAP | | | |
| WJ | | | | GUD | | | |
| MBN | | | | ATK | | | |
| ACD | | | | Instructor | | | |

AOK

Status : Approved; Not approved and resubmission required;

Approved subject to condition(s) as stated / further required information as stated.

Approval not required. Others _____
(Please specify)

The Supervising Officer's Representative :  Date of Response : 7 April 2018

Roger Man

c.c. File No. - C20/670

 AJW/AGX/EY/RKFL/ac

**ENGINEER'S OFFICE
BLACK & VEATCH
HONG KONG LTD.**
25th Floor, Millennium City 6
392 Kwun Tong Road, Kowloon, Hong Kong.
Tel : 2601 1000
Fax : 2601 3988



**ENGINEER'S
REPRESENTATIVE'S
OFFICE**
Butterfly Valley Fresh Water Primary Service Reservoir
Kowloon, Hong Kong
(Not a postal address)

Your ref. : C9103/BVSR/WF/0076/10/13
Our ref. : 4991/(4/WSD/11)/M25/120/L100071

Date: 22 October 2013

Contract: 4/WSD/11 Project Office
c/o China Geo – Engineering Corporation
Rooms 2421-2425, 24/F, Sun Hung Kai Centre
30 Harbour Road
Wan Chai
Hong Kong

By Hand

Attn: Mr. Wong Fai (Site Agent)

Dear Sirs,

**Agreement No. CE 55/2008 (WS)
Contract No. 4/WSD/11
Construction of Butterfly Valley Fresh Water Primary Service Reservoir Extension and
Associated Mainlaying
Material Submission – Geotextile Filter**

We refer to your letter of 10 October 2013 supplementing the additional information for your proposal to use the following material:

| <i>Item</i> | <i>Material</i> | <i>Manufacturer</i> | <i>Supplier</i> |
|-------------|-------------------|-------------------------|-----------------|
| 1. | Geotextile Filter | Bonar Technical Fabrics | G & E Co. Ltd. |

Please be advised that we have no objection in principle to your proposal, provided that the application of such materials shall be in full compliance with the manufacturer's recommendations and the Contract Specification.

You are reminded, pursuant to PS Clause 7.196S(3)(d), to provide the sieve size of the base soil upon collection of soil sample on Site for our information.

Yours faithfully,

Peter K H Ng
Engineer's Representative

PNg/AC/JT/dt



Drainage Services Department
Drainage Projects Division
44/F, Revenue Tower, 5 Gloucester Road,
Wan Chai, Hong Kong

渠務署
排水工程部
香港灣仔告士打道5號
稅務大樓44樓

來函編號 Your Ref: KLKJV/DC201002/T40/0173

本署編號 Our Ref: () in DP/8/4109CD/DC1002/30

電話 Tel: (852) 2435 7031

傳真 Fax: (852) 2827 8700

By fax and post
(Fax No. 2674 6688)

29 August 2011

Kwan Lee - Kuly Joint Venture
Unit 6, 16/F Yuen Long Trading Centre,
33 Wang Yip Street West,
Yuen Long, N.T.

(Attention: Mr. CHAN Wing-kai - Project Manager)

Dear Sirs,

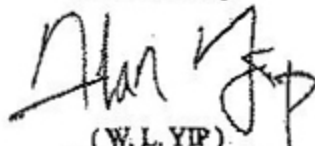
Contract No. DC/2010/02
Drainage Improvement Works in Shuen Wan and Shek Wu Wai

Material Submission - Type B Geotextile

I refer to your above quoted letter dated 19 August 2011 and the attached email dated 29 August 2011 enclosing further information in response to the comments given in my letter dated 25 August 2011 regarding the captioned subject.

Please be advised that I have no objection to your proposal of using "Bontec SG110/110 Woven Polypropylene Type B Geotextile" manufactured by "Bonar Technical Fabrics" and supplied by "G and E Company Limited" as the geotextile filter Type B / Geotextile Type 2 for this Contract subject to its satisfactory performance on site.

Yours faithfully,


(W. L. YIP)
Engineer's Representative
Drainage Projects Division
Drainage Services Department

Encl.

cc.

DC/2010/02 Site Office

Internal (to note in file):

E/D19

WLY/

D1045

RECEIVED
08 JUN 2011

BY:

Your Ref. : KLKJV/DC200922/M60/1498
Our Ref. : (DC/2009/22)/R20/106(0019)

8 June 2011

Kwan Lee – Kuly Joint Venture
Unit 6, 16/F, Yuen Long Trading Centre
33 Wang Yip Street West, Yuen Long
New Territories, Hong KongShuen Wan RE's Office
Fo Chun Road, Pak Shek Kok, Tai Po, H.K.
T +852 2603 6933
F +852 2603 7998Attn : Mr. WONG Ching Lung (Site Agent)

Dear Sirs

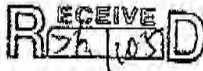
Contract No. DC/2009/22
Drainage Improvement Works in Shuen Wan, Tai Po – Contract 1**Material Submission – Type B Geotextile**

I refer to your above referenced letter dated 31 May 2011 enclosing further information in response to the comments given in my letter ref. (0017) in the same series dated 27 May 2011 on the captioned material submission for my approval.

Please be advised that I have no objection to your proposal of using "Bontec SG 110/110" manufactured by "Bonar Technical Fabrics Company" and supplied by "G & E Company Limited" "as the geotextile filter Type B / Geotextile Type 2 for this Contract subject to its satisfactory performance on site.

You are reminded to strictly follow the manufacturer's guidelines on storage, handling and installation procedures for application of the material.

Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.
Eddie LUK
Resident Engineer
Water & Urban Developmentcc AECOM - Attn : Mr. Joseph HO
M/FEL/VH/pc
✓、



土木工程處
Civil Engineering Office

Web site 網址 : <http://www.cedd.gov.hk>
E-mail 電子郵件 :
Telephone 電話 : (852) 2760 3737
Facsimile 傳真 : (852) 2714 2054
Our reference 本署檔號 : () in PW WC/CV0402/R20/340 Pt.1
Your reference 來函檔號 : KS330/2005

香港九龍公主道101號
土木工程拓展署大樓四樓
4/F, Civil Engineering and Development Building,
101 Princess Margaret Road,
Kowloon, Hong Kong

Kin Shing Construction Company Limited
1/F,
27 Yin Chong Street,
Mong Kok
Kowloon
(Attn.: Mr. Patrick P K Chau - Site Agent)

24 January 2005

BY MAIL & FAX No. 2780 2085

Dear Sirs,

Contract No. CV/2004/02
Reconstruction of Wong Shek and Ko Lau Wan Public Piers

Material Submission - Geotextile for Silt Curtain

I refer to your letter of 14.1.2005 enclosing the particulars of the geotextile for fabrication of silt curtain.

In accordance with PS Clause 26.08(2), the proposed "SG 100/100" woven geotextile manufactured by Bonar Technical Fabrics is approved to be used under the captioned Contract.

Pursuant to PS Clause 26.08(1), you are required to submit details of the silt curtains 3 weeks before their deployment.

| Contract No. | Post | Initial | Copy | Action |
|--------------|----------|---------|------|--------|
| CV/2004/02 | CM | W | | |
| | PM | W | | |
| | SA | | | |
| | Sub-A | W | | |
| | Eng. (1) | W | | |
| | Eng. (2) | | | |
| | G.F. | | | |
| | Foreman | | | |
| | Q.S. | W | | |
| | Safety | W | | |
| | Material | W | | |
| | Survey | | | |
| | | | | |
| | | | | |

Yours faithfully,

(W H LEE)
Engineer's Representative
Port Works Division
Civil Engineering and Development Department

c.c.
SIOW/P2B - Site Copy

cls

24-FEB-2005 18:57 FROM SFK

TO 25700089

P.01/01

10:47:10

土木工程拓展署
CEDD Civil Engineering and Development Department

Web site 網址 : <http://www.cedd.gov.hk>
 E-mail 電子郵件 :
 Telephone 電話 : (852) 2762 5035
 Facsimile 傳真 : (852) 2714 2054
 Our reference 本署編號 : (15) in PW WC/CV0306/R20/340 Pt.01
 Your reference 來函編號 : CIV:002091/1.2/HW/SY/CC/me(S0087), CIV:002091/1.2/HW/SY/CC/me(S0118)

土木工程處
 Civil Engineering Office

112

香港九龍公主道 101 號
 土木工程拓展署大樓 4 樓
 4/F, Civil Engineering and Development Building,
 101 Princess Margaret Road,
 Kowloon, Hong Kong

18 February 2005

Sun Fook Kong (Civil) Limited
 Rms. 3207-10,
 Great Eagle Centre,
 23 Harbour Road,
 Wan Chai,
 Hong Kong
 (Attn: Mr. Howard KONG - Fax No.2827 6275)

Dear Sirs,

Contract No. CV/2003/06
Stanley Waterfront Improvement Project -
Construction of Pier and Boardwalk

Fabric for Silt Curtain

I refer to your above letters dated 21.1.2005 and 15.2.2005 proposing the SG100/100 fabric supplied by "Bonar Technical Fabrics" for silt curtain.

I have no objection to your proposed material for silt curtain.

Yours faithfully,

Paul Y K MA
 (Paul Y K MA)

Engineer's Representative
 Port Works Division
 Civil Engineering and Development Department

c.c.
 Site Office (Attn: SLOW/PIA)
 CEG/PIA

File PW WC/CV0306/M10/300

YKM/olam

| | | | |
|-------------------|-----------------|---------|---------------|
| Post-It® Fax Note | 7671 | Date | 24/2/05 |
| To | MR. STANLEY WAN | From | CHANG SEE-FAU |
| Co./Dept. | G&E | Co. | SFK |
| Phone # | 25700028 | Phone # | 60347709 |
| Fax # | 25700089 | Fax # | |

Maunsell Consultants Asia Ltd

8/F Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, N.T., Hong Kong

茂盛(亞洲)工程顧問有限公司

香港新界沙田鄉事會路 138 號新城市中央廣場第 2 座 8 樓

T +852 2605 6262 F +852 2691 2649 www.maunsell.aecom.com

SRE's Office T +852 2669 0708 F +852 2631 2889 E sre@ltriw.com.hk

Your Ref. : DC0706/M1.2/1512 & 1529

Our Ref. : (DC/2007/06)/R20/106(0023)

RECEIVED
13 NOV 2008

BY:

Chiu Hing Construction & Transportation Co. Ltd.

Room 201, 2/F Fuk Shing Commercial Building

28 On Lok Mun Street

On Lok Tsuen, Fanling

New Territories, Hong Kong

Attn : Mr. Roger Lau (Site Agent)

13 November 2008

Dear Sir,

Contract No. DC/2007/06

River Improvement Works in Upper Lam Tsuen River,

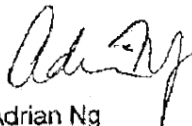
She Shan River and Upper Tai Po River

Proposed Geotextile at Gabion Wall in She Shan River and Upper Tai Po River

I refer to your letter dated 7 November 2008 and 12 November 2008 respectively.

Please be advised that since the water flow rate of the proposed geotextile model Bontec SG100/100 meets the requirements in accordance with P.S. Clause 7.150, I have no further objections to your proposed use of woven geotextile model Bontec SG100/100, supplied by "G and E Company Ltd." at gabion wall in She Shan River and Tai Po River, subject to its satisfactory performance on site.

Yours faithfully,



Adrian Ng
Resident Engineer

cc MCAL - Attn : Mr. Conder Yan
Chiu Hing H.O.

AN/BC/ek



**Bontec SG110/110
Woven Geotextile**

G and E Company Introduction



G AND E COMPANY LIMITED

14/F Kiu Yin Commercial Building
361 – 363 Lockhart Road,
Wanchai, Hong Kong
Tel: 2570 0103

Fax: 2570 0089

website: www.g-and-e.com

G and E – a Perspective

G and E, founded in 1984, is a geosynthetics specialist who distributes a wide variety of geosynthetics from a list of renowned global manufacturers. The Company also manages a competent installation contracting service. To better serve our clients, design and engineering service have also been established in our portfolio. We aspire to provide our client comprehensive engineering solutions, from application and design, supply of materials and their installation, to conformance testing and project commissioning.

G and E takes a strong vision in geosynthetics application and development by working closely with consultants, academics, professional organizations, research institutions, testing laboratories and manufacturers, a mission to broaden the versatility of geosynthetics and its innovation.



Our vast product range covers:

Geotextile, geomembrane, geodrain, geocomposite, geogrid, geocell, band drain, erosion control systems, geosynthetic clay liner, cementitious liner, rockfall barrier, gabion, geofoam, silt curtain, concrete mattress and geotextile container, extending a wide scope of application in most civil, geotechnical and marine engineering construction.

We offer our clients:

- Extensive product knowledge and installation method statement
- Comprehensive application, design, contracting and commissioning services
- High integrity and superior professional attention
- Superb quality products at competitive price



G and E is ISO 9001:2015 quality management certified and a VSRS registered contractor, with a remarkably successful working relationship with a long list of clients, the Government, project owners, contractors, designers, consultant engineers, overseas distributors and trading partners. The clientele extends to Macau, Southeast Asia and Southern China.

Talk to us today and see how we can work together for cost-effective and time saving solutions. We are into our 35th year in the industry, we have a library of experience to share and to support your project.

ISO9001:2015



IGAI



International Geosynthetics Society



Product Endorsement



Registered Subcontractor



G and E runs a distribution network and sourcing agent of geosynthetics, as well as a provider of professional design and installation services.



TKO - Lam Tin Tunnel - Main tunnel and associated works using DSP silt curtain

The company handles a comprehensive range of geosynthetic materials:

GEOTEXTILE: Woven, non-woven, thermal bonded, needle punched, spun bond, special weave & composite

GEOMEMBRANE: HDPE, LLDPE and PVC membrane, keyed preformed, tunnel, conductive and concrete protection liner, gas barrier, basement waterproofing, leakage collection & effluent containment

GEODRAIN: Geonet, geocomposite, band drain, sheet drain and miradrain

GEOGRID: Uni, mono direction and composite geogrid

EROSION CONTROL: Erosion mat, concrete mat, coir mat, geocell, gabion, rockfall mesh, flexible rockfall fence, cementitious liner

MARINE: Silt curtain, turbidity control, block mat, geotextile tube, oil & trash boom, geotextile bag & container

GEOSYNTHETIC CLAY LINER: Bentonite liner and composite

TUNNEL: Tunnel support & invert drainage void former

LANDSCAPING : Geotextile filter, root barrier and drainage mat and roof drain

SPECIAL SERVICE: Geomembrane leak location survey, HDPE pipe welding, HDPE lining repair and Dust Control

Registration Certificate

This is to certify that the Management Systems of

G & E Company Limited

have been assessed by AJA Registrars and registered
against the requirements of

ISO 9001:2015

Certificate No. : **AJA14/17026**

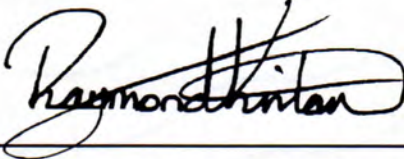
Date of Original Registration : **22nd January 2014**

Expiry Date : **27th March 2021**

Date of Re-Registration : **27th March 2018**



0059


Chief Executive - AJA Registrars Ltd



This certificate is issued in respect of the locations & scope of registration detailed in the Associated Registration Schedule.
This certificate is the property of AJA Registrars Ltd Unit 6 Gordano Court Gordano Gate Business Park Serbert Close Portishead Bristol UK BS20 7FS
and must be returned on request. A member of the AJA Group of Companies

NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

Appendix D – Silt Curtain Inspection Checklist



Contract No: NE/2017/01
 Project Title: Tseung Kwan O - Lam Tin Tunnel -
 Tseung Kwan O Interchange and Associated Works

Ref. no.: _____
 Date: _____

Daily Silt Curtain Inspection List (for JV internal use)

| Item | Description | Condition | | Immediate Action Required? * | | Target Rectification Date | Remark |
|------|--|-----------|----|------------------------------|----|---------------------------|--------|
| | | Yes | No | Yes | No | | |
| 1 | Any floating debris/ refuse within silt screen/ curtain? | | | | | | |
| 2 | Tying to the platform in good condition? | | | | | | |
| 3 | Geotextile intact and in good condition | | | | | | |
| 4 | Any obstruction to water flow between geotextile? | | | | | | |

*Note: For silt curtain with defects which need to be rectified immediately, related marine works have to be stopped until rectification works are completed to the satisfaction of the *Supervisor*
 Please Tick the Appropriate Box

JV's Representative
 Inspected by : _____
 Post : _____
 Signature : _____
 Date : _____

Silt Curtain ID: _____

Location: _____

Inspection Date and Time: _____



Contract No: NE/2017/01
 Project Title: Tseung Kwan O - Lam Tin Tunnel -
 Tseung Kwan O Interchange and Associated Works

Ref. no.: _____
 Date: _____

Weekly Silt Curtain Inspection List (for JV and *Supervisor* joint inspection use)

| Item | Description | Condition | | Immediate Action Required? * | | Target Rectification Date | Remark |
|------|--|-----------|----|------------------------------|----|---------------------------|--------|
| | | Yes | No | Yes | No | | |
| 1 | Any floating debris/ refuse within silt screen/ curtain? | | | | | | |
| 2 | Tying to the platform in good condition? | | | | | | |
| 3 | Geotextile intact and in good condition | | | | | | |
| 4 | Any obstruction to water flow between geotextile? | | | | | | |

*Note: For silt curtain with defects which need to be rectified immediately, related marine works have to be stopped until rectification works are completed to the satisfaction of the *Supervisor*
 Please Tick the Appropriate Box

JV's Representative
 Inspected by : _____
 Post : _____
 Signature : _____
 Date : _____

Supervisor's Representative
 Reviewed by : _____
 Post : _____
 Signature : _____
 Date : _____

Silt Curtain ID: _____

Location: _____

Inspection Date and Time: _____



Contract No: NE/2017/01
 Project Title: Tseung Kwan O - Lam Tin Tunnel -
 Tseung Kwan O Interchange and Associated Works

Ref. no.: _____
 Date: _____

Silt Curtain Inspection List (for Diver Team's use)

| Item | Description | Condition | | Immediate Action Required? * | | Target Rectification Date | Remark |
|------|--|-----------|----|------------------------------|----|---------------------------|--------|
| | | Yes | No | Yes | No | | |
| 1 | Any floating debris/ refuse within silt screen/ curtain? | | | | | | |
| 2 | Tying to the platform in good condition? | | | | | | |
| 3 | Geotextile intact and in good condition? | | | | | | |
| 4 | Steel chain ballast in good condition? | | | | | | |
| 5 | Any obstruction to water flow between geotextile? | | | | | | |

*Note: For silt curtain with defects which need to be rectified immediately, related marine works have to be stopped until rectification works are completed to the satisfaction of the *Supervisor*
 Please Tick the Appropriate Box

Diver Team's Representative
 Inspected by : _____
 Post : _____
 Signature : _____
 Date : _____

Supervisor's Representative
 Reviewed by : _____
 Post : _____
 Signature : _____
 Date : _____

Silt Curtain ID: _____

Location: _____

Inspection Date and Time: _____

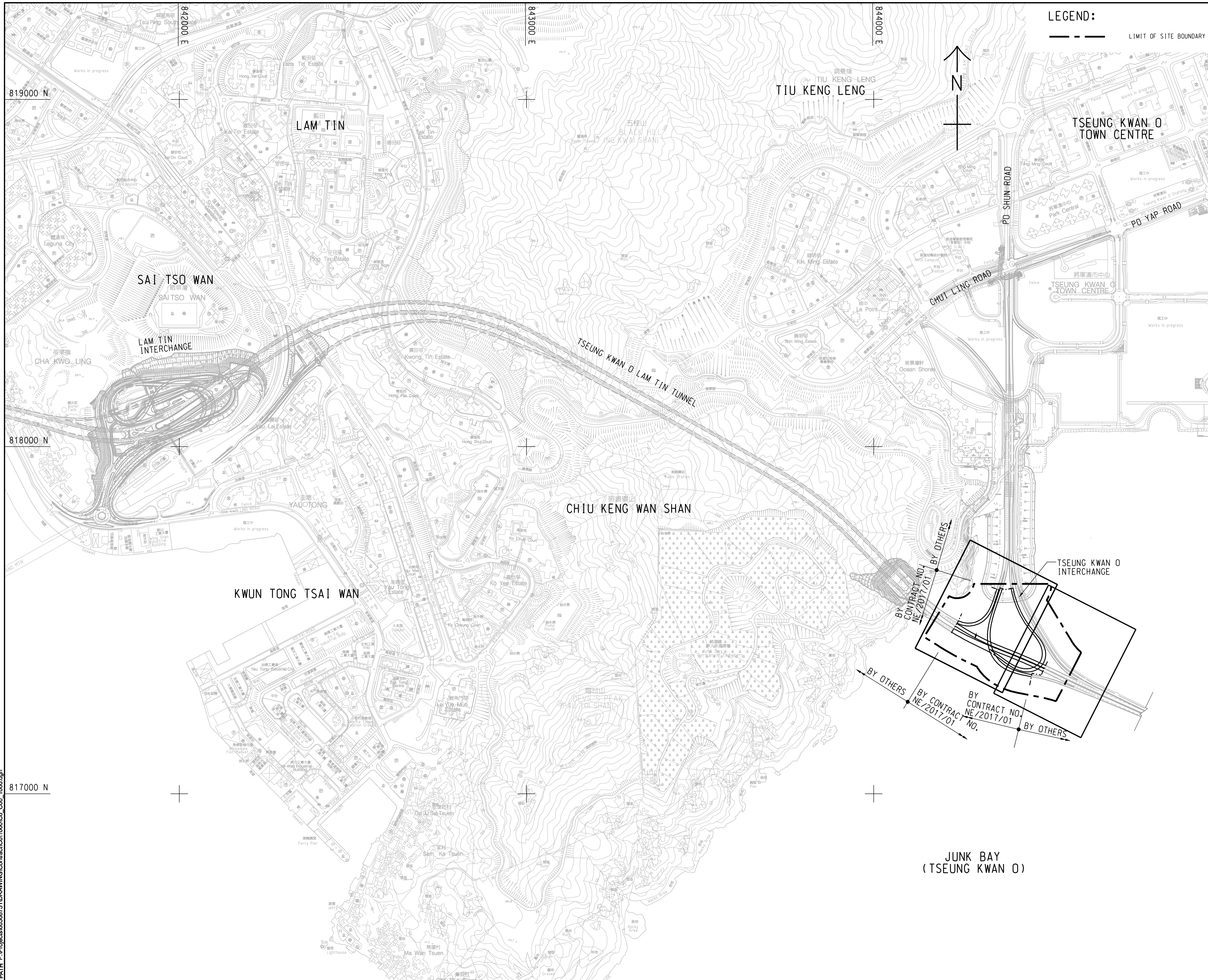
NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

Appendix E – Site Layout

ISO A1 594mm x 841mm
 Project Management Initials: Designer: WN Checked: RPCM Approved: HKT
 2017/09
 PATH: P:\Projects\603075\DRAWING\Contract\603075\000\CS_C00_1000.dgn
 Pld File by: HEDS



LEGEND:
 - - - - - LIMIT OF SITE BOUNDARY

AECOM

PROJECT
 項目
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
 TSEUNG KWAN O - LAM TIN TUNNEL
 TSEUNG KWAN O INTERCHANGE AND ASSOCIATED WORKS

CLIENT
 業主
CEDD 土木工程拓展署
 Civil Engineering and Development Department

CONSULTANT
 工程顧問公司
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分判工程顧問公司

ISSUE/REVISION
 修訂

| I/R | DATE | DESCRIPTION | CHK. |
|-----|--------|----------------|------|
| - | JUN.17 | TENDER DRAWING | RPCM |
| | | | |
| | | | |
| | | | |

STATUS
 階段

SCALE
 比例
 A1 1 : 5000

DIMENSION UNIT
 尺寸單位
 METRES

KEY PLAN
 索引圖

PROJECT NO.
 項目編號
 60308751

CONTRACT NO.
 合約編號
 NE/2017/01

SHEET TITLE
 圖紙名稱
 KEY PLAN AND LOCATION PLAN

SHEET NUMBER
 圖紙編號
 60308751/C6/C00/1000

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817200 N

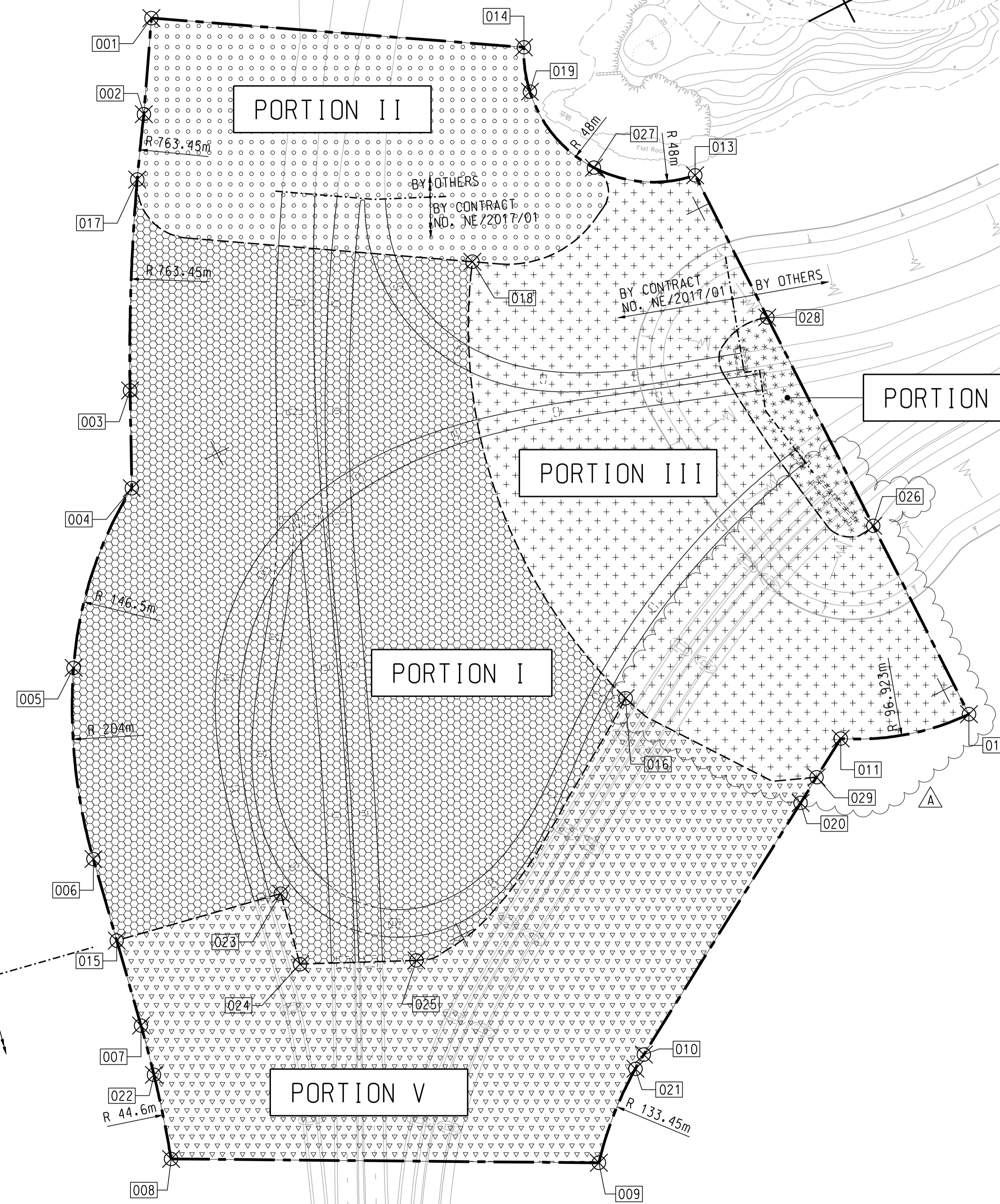
844100 E

NOTE:

1. ALL SETTING OUT POINTS SHOWN ON THIS SET OF DRAWINGS ARE FOR REFERENCE ONLY. THE EXACT LIMIT OF SITE BOUNDARY SHALL BE VERIFIED AND DETERMINED BY THE CONTRACTOR ON SITE.

LEGEND:

- LIMIT OF SITE BOUNDARY
- [Pattern] PORTION I
- [Pattern] PORTION II
- [Pattern] PORTION III
- [Pattern] PORTION IV
- [Pattern] PORTION V



SETTING OUT POINTS

| POINTS | EASTING | NORTHING |
|--------|------------|------------|
| 001 | 844145.337 | 817451.381 |
| 002 | 844175.768 | 817432.789 |
| 003 | 844264.674 | 817381.875 |
| 004 | 844297.203 | 817366.044 |
| 005 | 844346.746 | 817316.716 |
| 006 | 844413.182 | 817291.188 |
| 007 | 844476.127 | 817278.972 |
| 008 | 844525.199 | 817266.527 |
| 009 | 844598.186 | 817407.066 |
| 010 | 844570.091 | 817440.045 |
| 011 | 844498.695 | 817557.994 |
| 012 | 844512.176 | 817604.423 |
| 013 | 844288.396 | 817604.423 |
| 014 | 844217.442 | 817569.406 |
| 015 | 844444.019 | 817285.204 |
| 016 | 844450.066 | 817495.320 |
| 017 | 844196.257 | 817419.620 |
| 018 | 844279.572 | 817516.430 |
| 019 | 844233.083 | 817563.928 |
| 020 | 844513.219 | 817533.974 |
| 021 | 844573.301 | 817434.873 |
| 022 | 844494.556 | 817274.992 |
| 023 | 844456.043 | 817347.195 |
| 024 | 844482.530 | 817341.744 |
| 025 | 844500.176 | 817380.791 |
| 026 | 844433.946 | 817604.423 |
| 027 | 844268.887 | 817572.299 |
| 028 | 844347.400 | 817604.380 |
| 029 | 844507.431 | 817545.547 |

PROJECT

TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL
TSEUNG KWAN O INTERCHANGE AND
ASSOCIATED WORKS

CLIENT

土木工務拓展署
Civil Engineering and
Development Department

CONSULTANT

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

| I/R | DATE | DESCRIPTION | CHK. |
|-----|--------|----------------------|------|
| A | JUL.17 | TENDER ADDENDUM NO.1 | RPCM |
| - | JUN.17 | TENDER DRAWING | RPCM |

STATUS

SCALE

A1 1: 1000

KEY PLAN

PROJECT NO.

60308751

CONTRACT NO.

NE/2017/01

SHEET TITLE

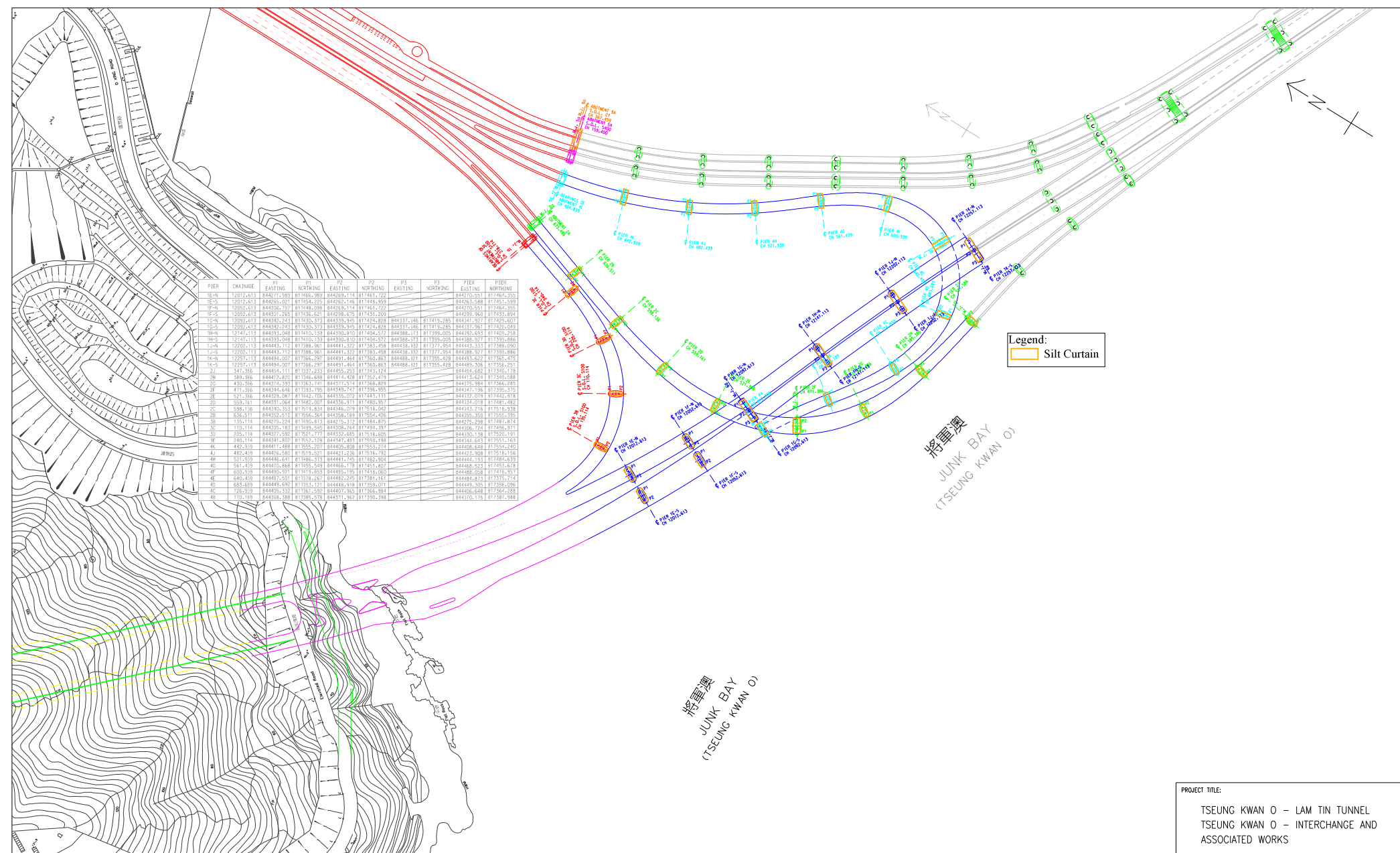
PORTION OF SITE

SHEET NUMBER

60308751/C6/C00/1011A

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JUNK BAY
(TSEUNG KWAN O)



| PIER | CHANGE | PT | NORTHING | EASTING | PI | PI | PIER | PIER |
|------|-----------|------------|------------|------------|------------|------------|------------|------------|
| | | | | | STARTING | NORTHING | STARTING | NORTHING |
| 1C-N | 12012.613 | 844021.953 | 817468.953 | 844025.118 | 817461.222 | | 844020.351 | 817464.351 |
| 1C-S | 12012.613 | 844026.071 | 817464.271 | 844026.146 | 817468.953 | | 844026.588 | 817461.597 |
| 1F-N | 12052.613 | 844026.751 | 817468.953 | 844026.118 | 817461.222 | | 844026.351 | 817464.351 |
| 1F-S | 12052.613 | 844031.269 | 817464.269 | 844029.638 | 817451.269 | | 844029.968 | 817451.891 |
| 1C-N | 12092.613 | 844042.241 | 817450.241 | 844039.249 | 817424.828 | 844311.246 | 817418.288 | 844311.521 |
| 1C-S | 12092.613 | 844046.241 | 817450.241 | 844339.249 | 817424.828 | 844331.246 | 817418.288 | 844331.961 |
| 1H-N | 12147.113 | 844091.048 | 817410.133 | 844090.810 | 817406.572 | 844086.172 | 817399.020 | 844092.824 |
| 1H-S | 12147.113 | 844095.048 | 817410.133 | 844090.810 | 817406.572 | 844086.172 | 817399.020 | 844092.824 |
| 1-N | 12202.113 | 844048.171 | 817388.961 | 844041.322 | 817383.458 | 844048.332 | 817371.359 | 844044.333 |
| 1-S | 12202.113 | 844044.171 | 817388.961 | 844044.322 | 817383.458 | 844048.332 | 817371.359 | 844044.333 |
| 1-N | 12287.113 | 844044.001 | 817386.291 | 844041.464 | 817360.863 | 844048.211 | 817355.428 | 844043.622 |
| 1-S | 12287.113 | 844048.001 | 817386.291 | 844041.464 | 817360.863 | 844048.211 | 817355.428 | 844043.622 |
| 2-N | 4012.316 | 844046.114 | 817371.233 | 844055.251 | 817454.124 | | 844046.058 | 817365.124 |
| 2-S | 4012.316 | 844042.114 | 817371.233 | 844055.251 | 817454.124 | | 844042.058 | 817365.124 |
| 2-N | 4012.316 | 844047.871 | 817364.698 | 844041.428 | 817352.475 | | 844041.624 | 817345.588 |
| 2-S | 4012.316 | 844043.871 | 817364.698 | 844041.428 | 817352.475 | | 844037.624 | 817345.588 |
| 2F | 411.366 | 844044.648 | 817393.793 | 844043.741 | 817390.355 | | 844041.798 | 817390.355 |
| 3-N | 552.366 | 844037.001 | 817364.621 | 844031.020 | 817464.113 | | 844031.018 | 817461.482 |
| 3-S | 552.366 | 844033.001 | 817364.621 | 844031.020 | 817464.113 | | 844027.018 | 817461.482 |
| 3C | 388.136 | 844040.351 | 817519.874 | 844044.078 | 817519.042 | | 844043.214 | 817516.538 |
| 3S | 388.136 | 844036.351 | 817519.874 | 844044.078 | 817519.042 | | 844039.214 | 817516.538 |
| 3-N | 135.114 | 844079.228 | 817490.871 | 844079.122 | 817488.875 | | 844079.238 | 817488.874 |
| 3-S | 135.114 | 844075.228 | 817490.871 | 844079.122 | 817488.875 | | 844071.238 | 817488.874 |
| 3C | 205.114 | 844071.591 | 817521.771 | 844332.685 | 817518.605 | | 844330.138 | 817522.151 |
| 3S | 205.114 | 844067.591 | 817521.771 | 844332.685 | 817518.605 | | 844326.138 | 817522.151 |
| 4-N | 442.439 | 844041.488 | 817525.021 | 844026.868 | 817525.274 | | 844040.648 | 817525.260 |
| 4-S | 442.439 | 844037.488 | 817525.021 | 844026.868 | 817525.274 | | 844036.648 | 817525.260 |
| 4C | 521.339 | 844046.441 | 817486.313 | 844041.445 | 817486.309 | | 844044.151 | 817486.439 |
| 4S | 521.339 | 844042.441 | 817486.313 | 844041.445 | 817486.309 | | 844038.151 | 817486.439 |
| 4C | 600.339 | 844049.321 | 817479.824 | 844049.195 | 817479.820 | | 844048.028 | 817479.327 |
| 4S | 600.339 | 844045.321 | 817479.824 | 844049.195 | 817479.820 | | 844044.028 | 817479.327 |
| 4C | 685.439 | 844049.691 | 817351.121 | 844048.918 | 817350.071 | | 844048.305 | 817350.090 |
| 4S | 685.439 | 844045.691 | 817351.121 | 844048.918 | 817350.071 | | 844044.305 | 817350.090 |
| 4C | 110.189 | 844038.988 | 817385.518 | 844311.962 | 817390.398 | | 844038.648 | 817386.288 |
| 4S | 110.189 | 844034.988 | 817385.518 | 844311.962 | 817390.398 | | 844030.648 | 817386.288 |

Legend:
 Silt Curtain

將軍澳
 JUNK BAY
 (TSEUNG KWAN O)

將軍澳
 JUNK BAY
 (TSEUNG KWAN O)

PROJECT TITLE:
 TSEUNG KWAN O - LAM TIN TUNNEL
 TSEUNG KWAN O - INTERCHANGE AND
 ASSOCIATED WORKS

DRAWING TITLE:
 SCALE: AS SHOWN
 DRAWING NO:
 REV: 0

| REV. | DATE | REVISION NOTES | DRAWN BY | CHK BY | REV. | DATE | REVISION NOTES | DRAWN BY | CHK BY |
|------|------|----------------|----------|--------|------|------|----------------|----------|--------|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

CLIENT:
 土木工程拓展署
 Civil Engineering and
 Development Department

CONSULTING ENGINEER:

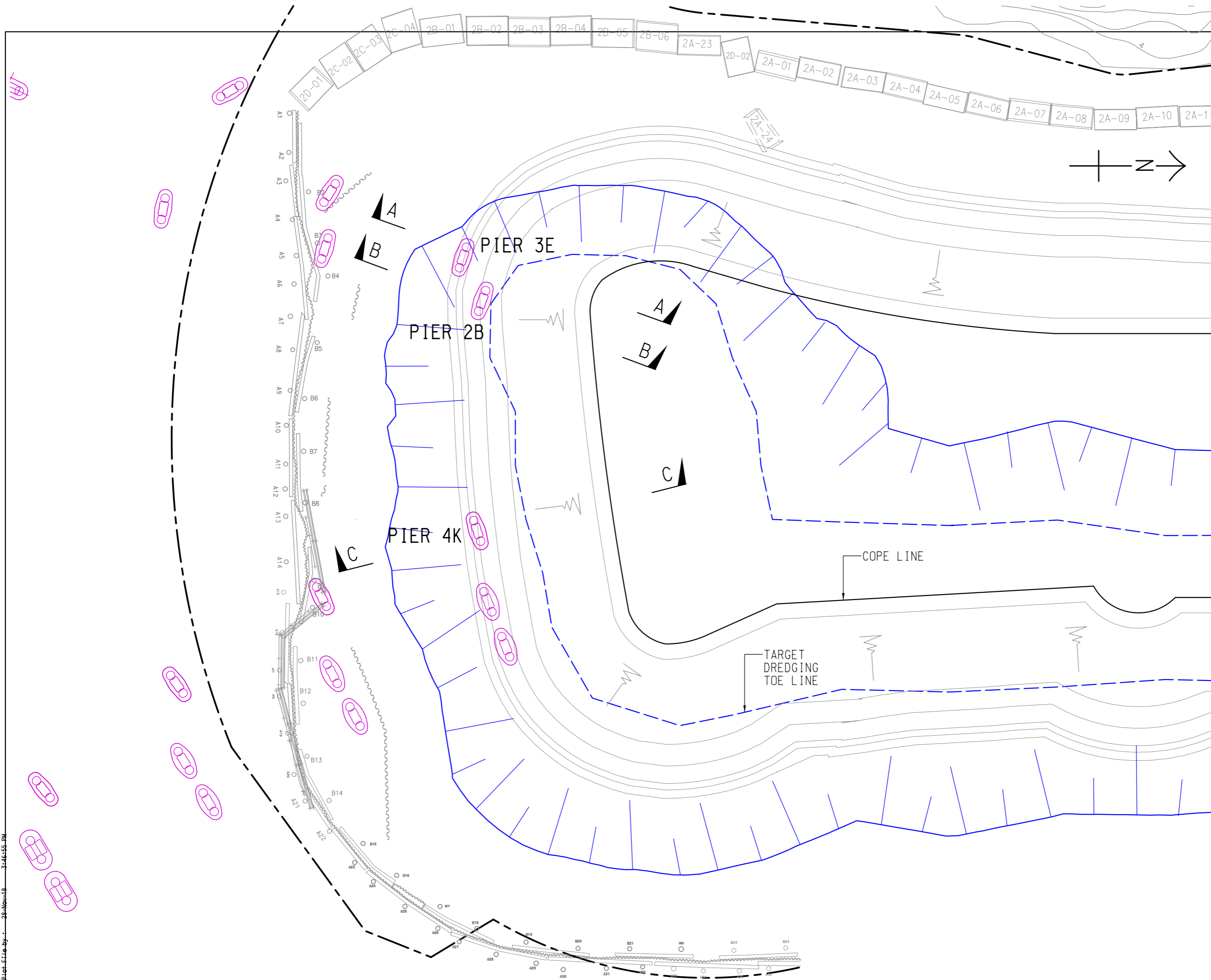
MAIN CONTRACTOR:
 俊和建築工程有限公司
 Chun Wo Construction & Engineering Co., LTD.

NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

Appendix F – Layout Plan for Bored Piles in Conflict with Sloping Seawall



| | | | | | |
|------|-----------|-------------|-------|------|------|
| REV. | DATE | DESCRIPTION | DRAWN | PRE. | APP. |
| - | XX-XXX-18 | - | - | - | - |

AECOM

KEY PLAN
 CONTRACT NO. NE/2015/02

TSEUNG KWAN O - LAM TIN TUNNEL - ROAD P2 AND ASSOCIATED WORKS
PLAN FOR BORED PILES IN CONFLICT WITH SLOPING SEAWALL

SKETCH NO. - REV. -
 EXTRACTED FROM DRG. NO. - SCALE 1:800 (A3)

J:\c2\To Engineer\For ARE\King\bored pile for c2_c6_CBL\piling arrangement.dgn
 28-Nov-18 3:46:55 PM

NE/2017/01

Tseung Kwan O – Lam Tin Tunnel: Tseung Kwan O Interchange and Associated Works

Silt Curtain Deployment Plan

Appendix G – Implementation Schedule and Arrangement of Silt Curtain

Implementation Schedule and Arrangement of Silt Curtain

| Condition | | Arrangement | Reference Section | Implemented by | Monitored by |
|------------------------------|--|---|---|----------------|---------------|
| Bore Pile Construction Stage | For rock grabbing works | Silt curtain will be deployed by surrounding the grabbing zone. In case one side of the grabbing zone is covered by land, the other three sides should be deployed with silt curtain. | Section 3 & Appendix B - drawing no.:JV-940-SK-012 | Contractor | RSS, ET & IEC |
| | Wastewater discharge from working platform | Silt curtain will be deployed by surrounding the temporary platform. | Section 3 & Appendix B – drawing no.: JV-940-SK-007 | Contractor | RSS, ET & IEC |
| Pile Cap Construction Stage | Wastewater discharge from precast pile cap shell (when there is a working platform nearby) | Silt curtain will surround two steel casings under the platform by tying the silt curtain to the railing of the platform. | Section 3 & Appendix B – drawing no.:JV-940-SK-009 | Contractor | RSS, ET & IEC |
| | Wastewater discharge from precast pile cap shell (when there is no working platform nearby) | Silt curtain will surround the precast pile cap shell by tying the silt curtain to the railing of the precast pile cap shell. | Section 3 & Appendix B – drawing no.:JV-940-SK-010 | Contractor | RSS, ET & IEC |
| | Wastewater discharge from precast pile cap shell (when there is no working platform nearby & the areas are confined to deploy the silt curtain around the shell) | Enclosed silt curtain will be placed near the precast pile cap shell. | Section 3 & Appendix B – drawing no.:JV-940-SK-011 | Contractor | RSS, ET & IEC |