

WATER SUPPLIES DEPARTMENT

STANDARD SPECIFICATION M-09-02

COATED STAINLESS STEEL INTAKE SCREENS

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COATED STAINLESS STEEL INTAKE SCREENS

1. GENERAL

This Specification covers the fabrication of stainless steel intake screens for seafront salt water pumping stations.

2. MATERIALS REQUIREMENTS

2.1 Intake Screens

Unless stated otherwise in the Particular Specifications, the intake screens shall meet the following requirements:

- (a) The intake screen and the intake screen lifting bars shall be made of stainless steel of grade 316.
- (b) Welding shall be executed in accordance with BS EN 1011-3 by qualified welders. Welding consumables shall be compatible with the parent metals and the selected welding process. All welded joints and heat affected zones shall be thoroughly cleaned, pickled and passivated by appropriate means.
- (c) Bolts, washers and nuts (collectively termed as fasteners hereunder) shall be made of stainless steel of grade 316 and in metric size and shall conform to BS EN ISO 3506-1 and BS EN ISO 3506-2 where appropriate.
- (d) Mesh shall be made of stainless steel wire of grade 316.

2.2 Antifouling Paints

An approved antifouling paint and primer shall be applied on the whole intake screen to prevent marine organisms such as barnacles, mussels and algae attaching to the stainless steel surfaces.

Only tin-free, insoluble matrix type, antifouling paints that are registered pesticides under the Pesticides Ordinance CAP. 133 shall be used for the application. The antifouling paint and primer shall be suitable for applying on stainless steel surfaces

in a marine environment.

At least one coat of primer and two coats of antifouling paint shall be applied by airless spray or brush in accordance with the paint manufacturer's recommendation to give a dry film thickness (DFT) of not less than 80 microns and 200 microns respectively. Thinning of antifouling paint beyond the paint manufacturer's recommendation is not allowed. Before the application of primer, all surfaces shall be thoroughly cleaned, dried and treated by abrasive blasting or other appropriate surface preparation methods to increase adhesion of the paint on the stainless steel surfaces. Precautions shall be taken to ensure that the structure of the intake screens would not be weakened during any surface preparation or treatment.

3. DESIGN AND CONSTRUCTION

3.1 Intake Screen

All intake screens shall be standardized in heights of 1 metre each and the screens shall be able to stack up in the screen guides to a height well above the sea water level even at high tide in order to prevent ingress of debris into the intake culvert.

A general arrangement of intake screen is shown in Appendix I. Unless otherwise specified in the Particular Specifications, the width of the intake screens shall be designed to suit all pairs of guide rails in the pumping station concerned.

3.2 Intake Screen Lifting Bar

Intake screen lifting bar shall be fabricated if requested in the Particular Specifications. A typical lifting bar is shown in Appendix II. The dimensions of the lifting bar shall be specified in the Particular Specifications or determined on site. The design shall suit the particular requirements of the intake screens and guide rails in each pumping station. The safe working load (SWL) of the lifting bar shall not be less than 50 kg.

Each lifting bar shall be load tested to the statutory requirements as specified in the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations (CAP. 59 Sub. Leg. J) of the Hong Kong Special Administrative Region.

4. WORKS TESTS

The Contractor shall at least arrange and carry out the following works inspection and tests on the intake screens and the intake screen lifting bars:

- (a) Dimensional verification against approved drawings;
- (b) Verification of the correct use of materials, including fasteners;
- (c) Verification of the correct quantities of items to be supplied;
- (d) Verification of the correct painting process and measurement of DFT of the painting system;
- (e) Visual inspection on the quality of the finished painting;
- (f) Load test for the intake screen lifting bars.

5. SITE TESTS

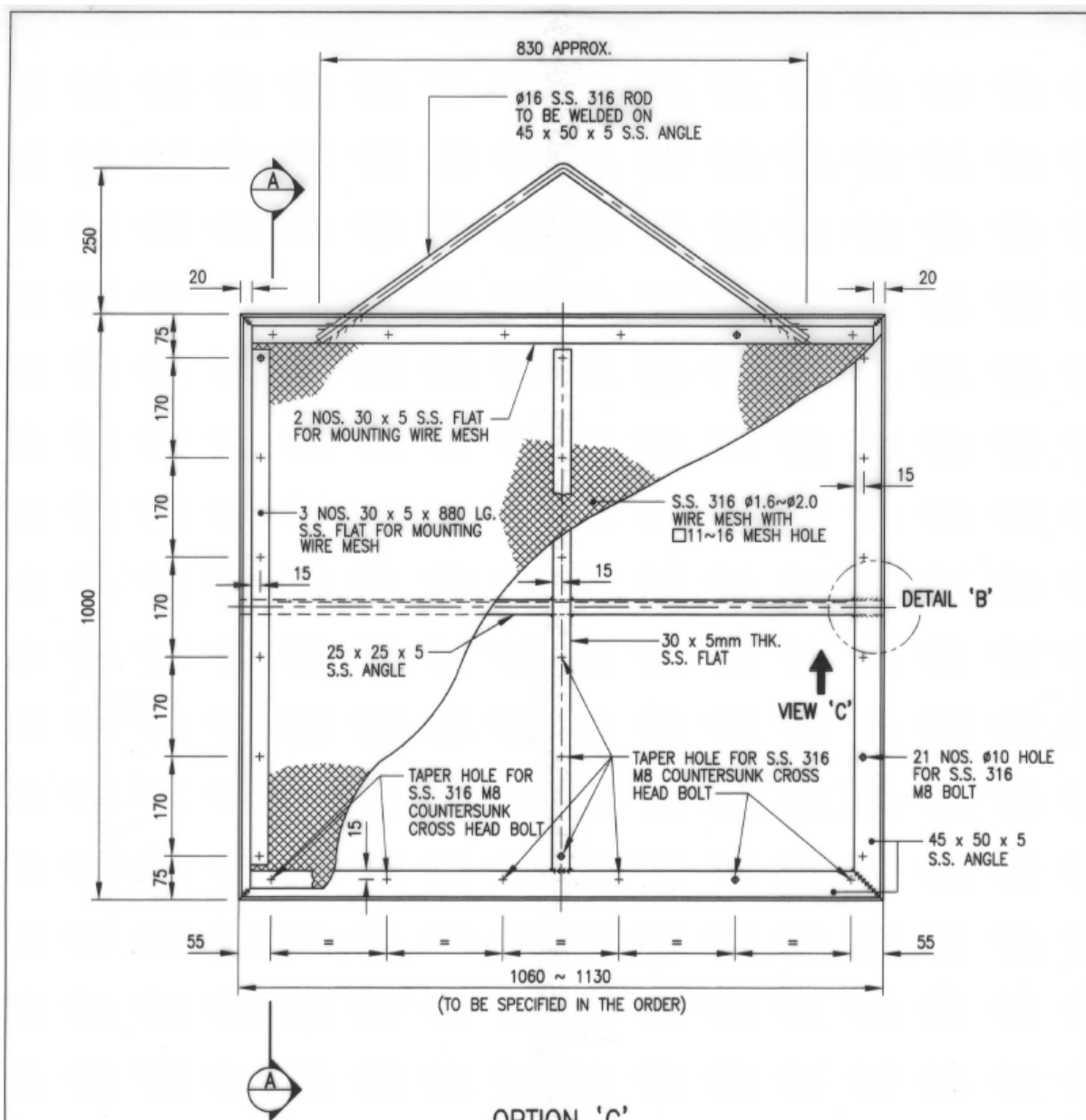
The intake screens and/or the intake screen lifting bars as requested in the Particular Specifications shall be installed between pairs of guide rails inside the culverts at seafront salt water pumping stations. The Contractor shall be responsible to demonstrate the raising and lowering of the intake screens and/or lifting bars in the culverts to the satisfaction of the Engineer or his representative for acceptance.

6. INFORMATION TO BE SUBMITTED

Unless otherwise specified in the Particular Specifications, catalogues, drawings, specifications, samples, product data sheets, suppliers' information and other relevant documents of the stainless steel materials, wire meshes, fasteners, antifouling paints and primers shall be submitted for approval prior to commencement of the fabrication works.

The general layout with full dimensions and fixing details of the intake screens and/or intake screen lifting bars shall be submitted for approval prior to commencement of the fabrication works. Minor deviations on the dimensions of the intake screens and/or intake screen lifting bars may be acceptable with reasonable justifications and it is subject to the Engineer's approval.

Works test reports for the intake screens and the intake screen lifting bars and load test certificates for the intake screen lifting bars shall be submitted prior to delivery.



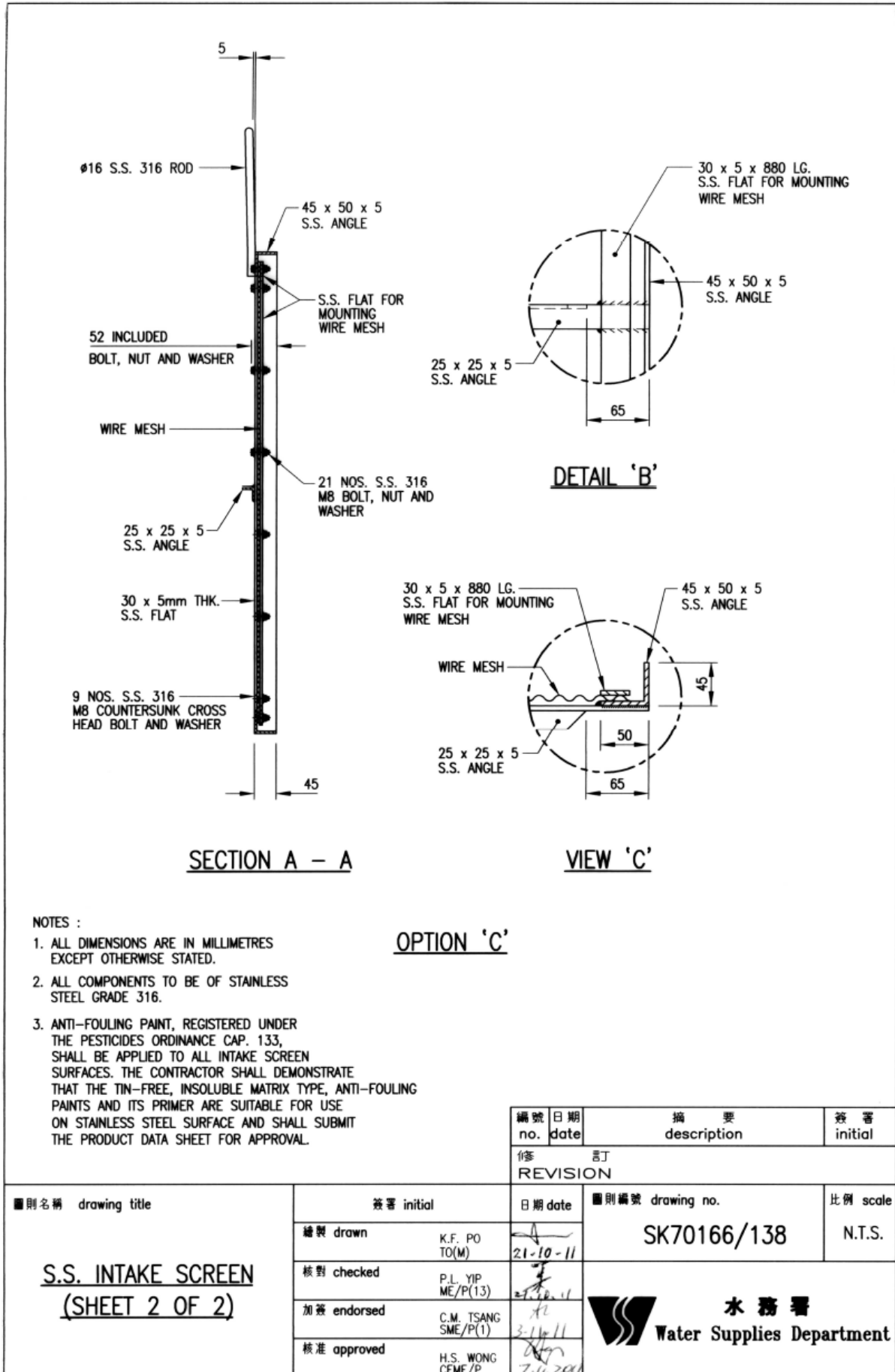
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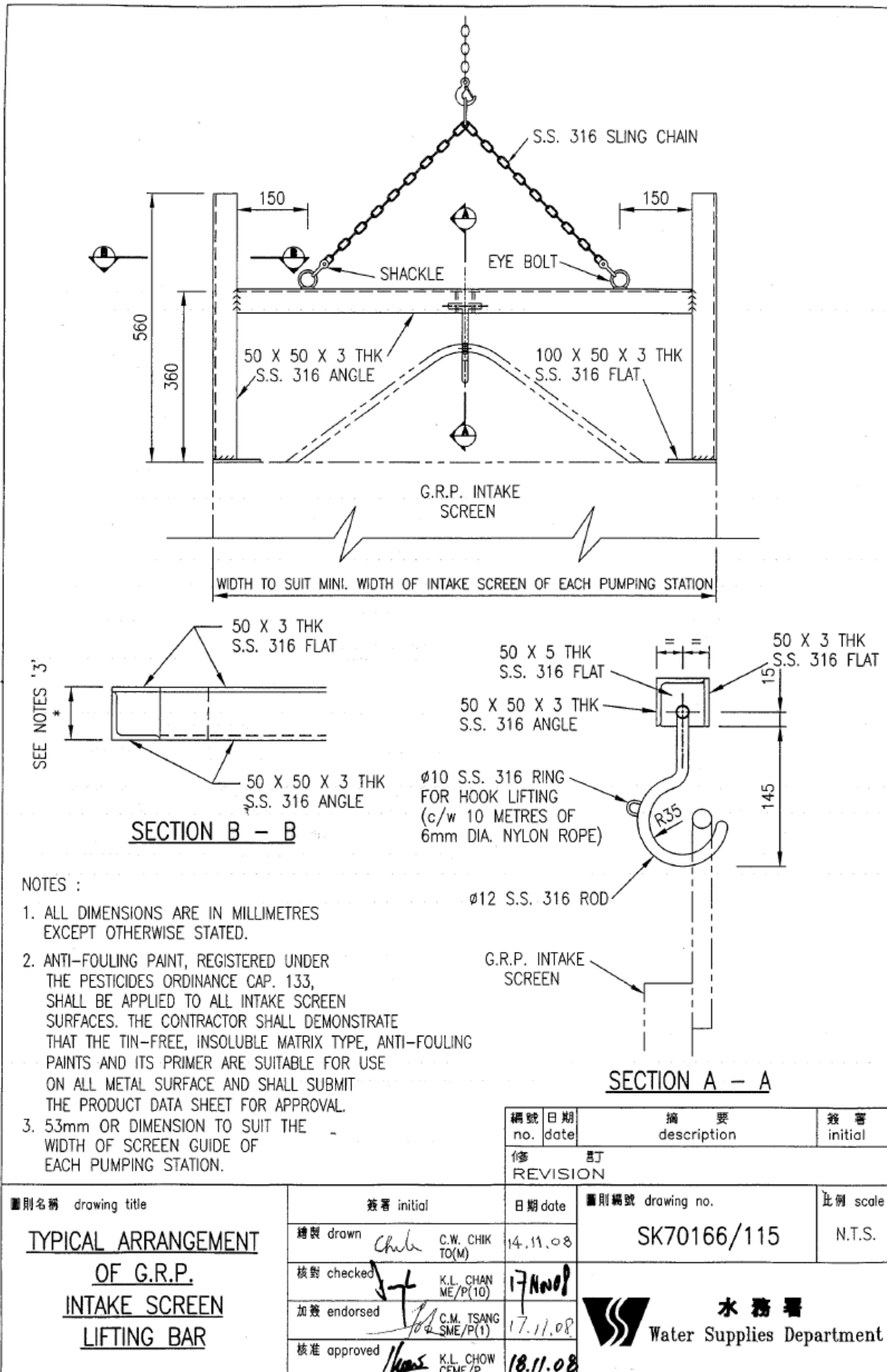
NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT OTHERWISE STATED.
2. ALL COMPONENTS TO BE OF STAINLESS STEEL GRADE 316.
3. ANTI-FOULING PAINT, REGISTERED UNDER THE PESTICIDES ORDINANCE CAP. 133, SHALL BE APPLIED TO ALL INTAKE SCREEN SURFACES. THE CONTRACTOR SHALL DEMONSTRATE THAT THE TIN-FREE, INSOLUBLE MATRIX TYPE, ANTI-FOULING PAINTS AND ITS PRIMER ARE SUITABLE FOR USE ON STAINLESS STEEL SURFACE AND SHALL SUBMIT THE PRODUCT DATA SHEET FOR APPROVAL.

編號 no.	日期 date	摘要 description	簽署 initial
修訂 REVISION			

圖則名稱 drawing title	簽署 initial	日期 date	圖則編號 drawing no.	比例 scale
S.S. INTAKE SCREEN (SHEET 1 OF 2)	繪製 drawn	K.F. PO TO(M)	SK70166/137	N.T.S.
	核對 checked	P.L. YIP ME/P(13)		
	加簽 endorsed	C.M. TSANG SME/P(1)	水務署 Water Supplies Department	
	核准 approved	H.S. WONG CEME/P		






NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT OTHERWISE STATED.
2. ANTI-FOULING PAINT, REGISTERED UNDER THE PESTICIDES ORDINANCE CAP. 133, SHALL BE APPLIED TO ALL INTAKE SCREEN SURFACES. THE CONTRACTOR SHALL DEMONSTRATE THAT THE TIN-FREE, INSOLUBLE MATRIX TYPE, ANTI-FOULING PAINTS AND ITS PRIMER ARE SUITABLE FOR USE ON ALL METAL SURFACE AND SHALL SUBMIT THE PRODUCT DATA SHEET FOR APPROVAL.
3. 53mm OR DIMENSION TO SUIT THE WIDTH OF SCREEN GUIDE OF EACH PUMPING STATION.

編號 no.	日期 date	摘要 description	簽署 initial
修訂 REVISION			

圖則名稱 drawing title TYPICAL ARRANGEMENT OF G.R.P. INTAKE SCREEN LIFTING BAR	簽署 initial	日期 date	圖則編號 drawing no. SK70166/115	比例 scale N.T.S.
	繪製 drawn <i>Chiu</i> C.W. CHIK TO(M)	14.11.08		
	核對 checked <i>JT</i> K.L. CHAN ME/P(10)	17.11.08	 水務署 Water Supplies Department	
	加簽 endorsed <i>JT</i> C.M. TSANG SME/P(1)	17.11.08		
核准 approved <i>Chiu</i> K.L. CHOW CEME/P	18.11.08			