Doc. Type: ***Report***

No: NENTX-VHK-RP-E-ZZ-001-I03

Description: Survey Report and Mapping Records for Boulder Paths BP1 & BP2

Document History

Revision	Date	Status	Prepared by	Approved by	Change
I01	28 Sept 2022	First issue	WW	AK	
I02	6 April 2023	Second Issue	WW	AK	Add protection measures of boulder paths; checking visit on 8 July 2022 is for verification purpose, details of the survey should be referred to the one conducted on 23 August 2022
I03	9 June 2023	Third Issue	WW	CM	Replace of the upper 2 photos shown in Table 4 by clearer ones.

MEINHARDT
Consulting Engineers . Planners . Managers
工程設計 . 策劃 . 統籌

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Our Ref.: CL/91823/0469-VES
Date: 9 June 2023

By Email

Veolia Environmental Services Hong Kong Limited
40/F, One Taikoo Place
979 King's Road
Quarry Bay
Hong Kong

Attn.: Mr. Colin Mitchell

Dear Sir

Re: Contract No. EP/SP/77/15
North-East New Territories Landfill Extension (NENTX)
Submission of Preservation of Cultural Landscape Features Survey
Survey Report and Mapping Records for Boulder Paths
BP1 & BP2 (Revision I03)

I refer to Conditions 2.6(a) under Environmental Permit No. EP-292/2007 and Conditions 2.4(a) of Further Environmental Permit No. FEP-01/292/2007, regarding the submission of boulder paths survey and records. I hereby verify the captioned "Survey Report and Mapping Records for Boulder Paths BP1 & BP2 (Revision I03)" dated 9 June 2023.

Should you have any queries, please do not hesitate to contact the undersigned at 2859 5409.

Yours faithfully
MEINHARDT INFRASTRUCTURE AND ENVIRONMENT LTD

Claudine Lee
Independent Environmental Checker

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Ref: P521530-0000-REV-NN-0058

By Email

9 June 2023

Meinhardt Infrastructure & Environment Ltd.
10/F Genesis
33-35 Wong Chuk Hand Road
Hong Kong

Attn: Ms. Claudine Lee,

Dear Claudine,

Re: Contract No. EP/SP/77/15
Northeast New Territories Landfill Extension
Submission of Preservation of Cultural Landscape Features

In accordance with the requirement specified in Conditions 2.6(a) of Environmental Permit No. EP-292/2007 and Conditions 2.4(a) of Further Environmental Permit No. FEP-01/292/2007, we are pleased to submit the certified "Survey Report and Mapping Records for Boulder Paths BP1 & BP2" dated on 9 June 2023 for your verification.

Should you require any further information or clarification, please do not hesitate to contact the undersigned or our Mr. Keith Chau on 3664 6788.

Yours faithfully,
For and on behalf of
Aurecon Hong Kong Limited

Fredrick Leong
Environmental Team Leader

Encl.
1. Survey Report and Mapping Records for Boulder Paths BP1 & BP2

cc.
1. IEC - Ms. Claudine Lee (By email: claudinelee@meinhardt.com.hk)
2. IEC Representative – Ms. Echo Hung (By email: echohung@meinhardt.com.hk)

Package: Follow up & Content

Document Name	Submitted in Package Rev No.:	Comment	Included in this submission
Survey Report and Mapping Records for Boulder Paths BP1 & BP2	I01		Soft/Hard Copy
Survey Report and Mapping Records for Boulder Paths BP1 & BP2	I02	Add protection measures of boulder paths; checking visit on 8 July 2022 is for verification purpose, details of the survey should be referred to the one conducted on 23 August 2022	Soft/Hard Copy
Survey Report and Mapping Records for Boulder Paths BP1 & BP2	I02	Replace of the upper 2 photos shown in Table 4 by clearer ones.	Soft/Hard Copy

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Appendix 1 - Boulder Paths Survey and Mapping Layout Plan

Appendix 2 – Surveying Equipment Calibration Certificate

1. Purpose

In accordance with Condition 2.4(a) of the FEP-01/292/2007, Veolia Services Hong Kong Limited (Veolia) shall no later than four weeks before commencement of construction of the Project, deposit a report documenting the implementation of the following mitigation measures for preservation of the cultural landscape features located within the Project area. The report shall be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) as conforming to the information and recommendations contained in the approved EIA Report:

- Carry out survey and mapping work to identify sections of boulder paths BP1 and BP2 as shown in Figure 2 attached to the Permit that fall within the Project area, and preservation by detailed record for sections of boulder paths that fall within the Project area.

2. Methodology

The Environmental Manager of Veolia visited the 2 boulder paths BP1 and BP2 together with 3 surveyors of Paul Y. Construction & Engineering Co. Limited (PYE). A few survey reference points along the initial sections of the 2 boulder paths, closest to the NENTX, were taken by the surveyors. Then the surveyed sections of the 2 boulder paths were plotted on the site layout plan of NENTX, overlaying with the exact NENTX site boundaries and the remaining sections of the 2 boulder paths shown on Figure 2 of the FEP-01/292/2007 to obtain an updated layout plan "NENTX-VES-DW-C-ZZ-003-1" Boulder Paths Survey and Mapping Layout Plan attached as **Appendix 1**. Table 1 of the next Section summarized the Survey and Mapping results.

3. Survey and Mapping Summary

Survey Date: 25 April 2022

Survey Time: 15:00 – 16:00

Weather: Fine

Veolia Representative: Mr. William Wan (Environmental Manager)

PYE Representatives: 3 surveyors

Survey and Mapping Layout Plan: **Appendix 1**

Table 1 – Survey and Mapping Summary:

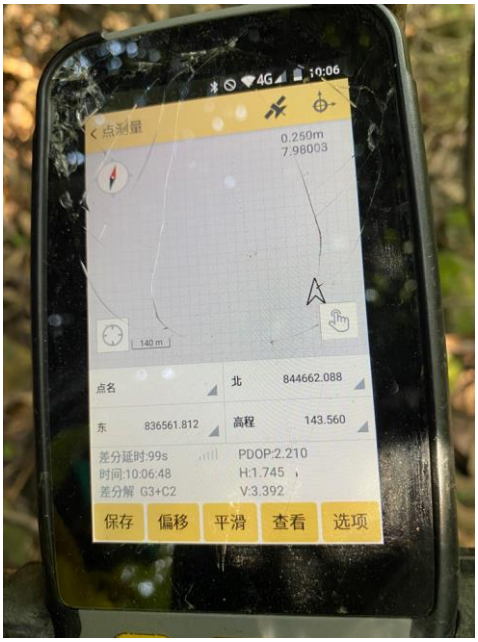
	Boulder Path 1 (BP1)		Boulder Path 2 (BP2)	
Location	Northeast of NENTX		East of NENTX	
Boulder Path (BP) Starting Point Coordinations	N	E	N	E
	844773.91	836372.54	844661.42	836562.54
Distance of BP Starting Point from NENTX boundary (m)	9.56		4.80	
Boulder Path within Site Boundary?	No		No	

4. Verification Survey

The 2 boulder paths BP1 and BP2 were revisited by the Environmental Manager of Veolia again with another surveyor of PYE on 23 August 2022. The site boundaries closest to the boulder paths were demarcated by wooden poles and the survey and mapping results recorded on 25 April 2022 were verified by the surveyor. The verification survey results are summarized as Table 3 below. Surveying equipment calibration certificate is attached as **Appendix 2**.

Table 3 – Verification Survey Results:

	Boulder Path 1 (BP1)	Boulder Path 2 (BP2)
Location	Northeast of NENTX	East of NENTX
Demarcation of site boundaries closest to the boulder paths		
Boulder Path (BP) Starting Point Survey Photos		

	Boulder Path 1 (BP1)		Boulder Path 2 (BP2)	
Boulder Path (BP) Starting Point Coordination Photos				
Boulding Path (BP) Starting Point Coordinations (measured by surveyor on 23 August 22)	N	E	N	E
	844773.35	836373.50	844662.09	836561.81
NENTX site boundary closest to the boulder paths coordination (Refer to **Appendix 1**)	N	E	N	E
	844769.88	836363.87	844657.54	836559.72
Distance of BP Starting Point from NENTX boundary (m)	10.24		5.00	
Boulder Path within Site Boundary?	No		No	

5. Conclusion

The survey and mapping works carried out on 25 April 2022 and the verification survey carried out on 23 August 22 confirmed that both of the 2 boulder paths BP1 and BP2 are fall outside the site boundary and the Project area. As there is no section of boulder paths fall within the Project area, no preservation by detailed record is necessary.

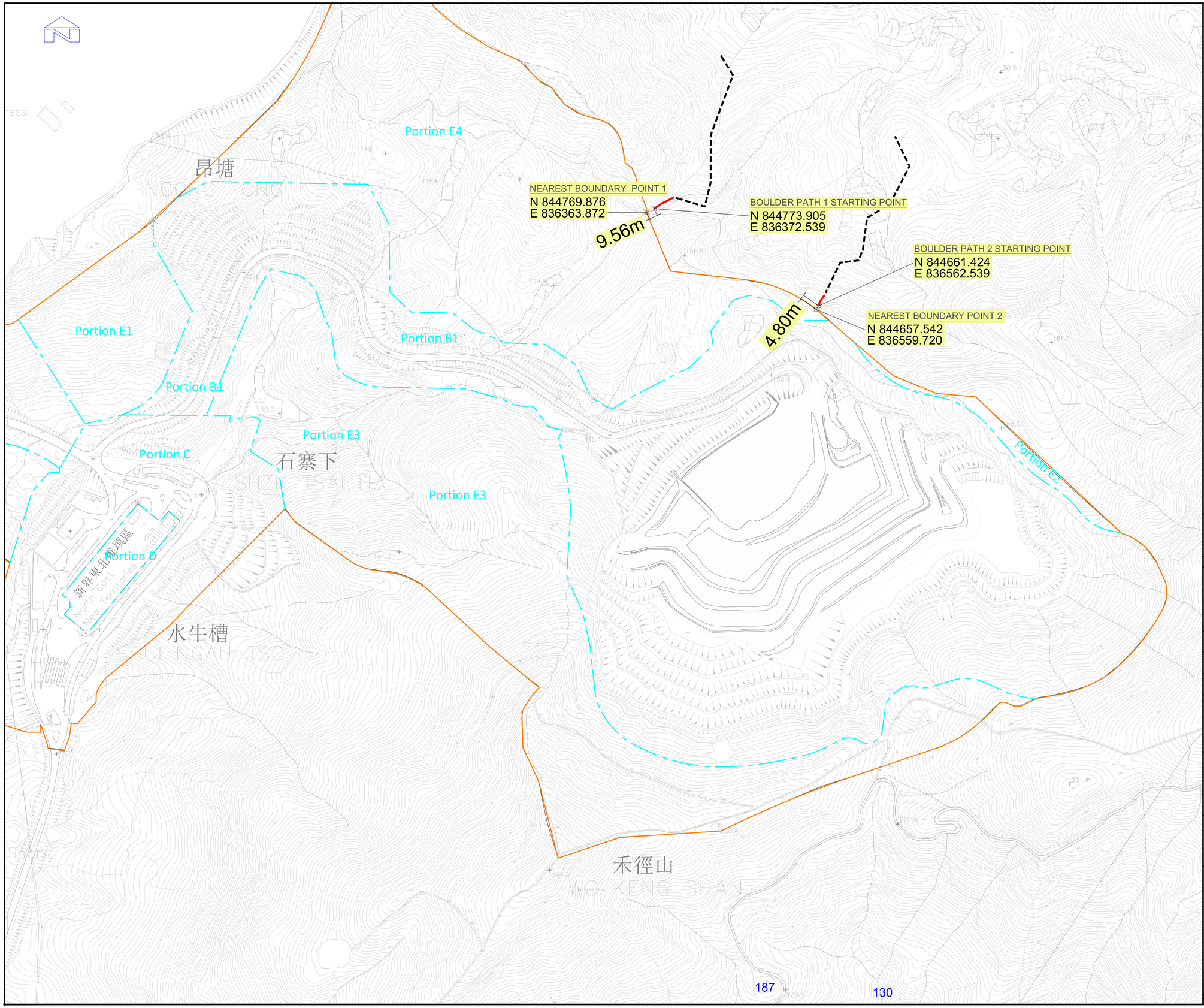
6. Protection Measures of Boulder Paths

Permanent fencing was constructed along the site boundary of NENTX in March 2023 and the boulder paths are protected from the construction works and activities of NENTX Project.

Table 4 – Protection Measures of Boulder Paths

	Boulder Path 1 (BP1)	Boulder Path 2 (BP2)
Location	Northeast of NENTX	East of NENTX
Boulder Path (BP) Starting Point Survey Photos		
Permanent Fencing		

Appendix 1 –
Boulder Paths Survey and Mapping Layout Plan



LEGEND :

- SITE BOUNDARY LINE
- PORTION LINE
- BOULDER PATH SURVEYED SECTION
- BOULDER PATH (SHOW ON FIGURE 2 OF FEP-01/292/2007))

LEGEND :

BOULDER PATH 1 STARTING POINT:
N 844773.905
E 836372.539

NEAREST BOUNDARY POINT 1:
N 844769.876
E 836363.872

DISTANCE FROM NEAREST BOUNDARY = 9.56m

BOULDER PATH 2 STARTING POINT:
N 844661.424
E 836562.539

NEAREST BOUNDARY POINT 2:
N 844657.542
E 836559.720

DISTANCE FROM NEAREST BOUNDARY = 4.80m

Rev.	Description	By	Date	Approved
1	FIRST ISSUE	DH	09/06/22	WW

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Date: 9 JUN 2023	Scale: 1:1500 @A0

Contract

CONTRACT EP/SP/77/15
North East New Territories
Landfill Extension

Environmental Protection Department
The Government of the Hong Kong
Special Administrative Region

VEOLIA

Drawing Title

BOULDER PATHS SURVEY AND MAPPING LAYOUT PLAN

Drawing No. NENTX-VES-DW-C-ZZ-003

Rev. 3

Appendix 2 –
Surveying Equipment Calibration Certificate

YSF Corporation Ltd.
5A, Blk1 Kin Ho Ind. Bldg., 20-24 Au Pui Wan St., Fo Tan, Shatin, N.T., HK.
Tel: (852) 8109 8368 Fax: (852) 3007 4857 E-mail: sales@ysftool.com
www.sokkia.com.hk www.ysf.com.hk
Supply, Repair, Rental, Scanning and Calibration Service of Surveying Instruments and Accessories

CERTIFICATE OF CALIBRATION

Certificate No.	: CS-CC- 220110	Customer	: Paul Y-CIMC-JEC Joint Venture
Manufacturer	: Leica	Address	: 11/F., Paul Y. Centre, 51 Hung To Road, Kwun Tong, Kowloon, Hong Kong
Equipment	: Total Station		
Model	: TCRA1202		
Serial No.	: 261812	Calibration Interval	: 12 months
Calibration Date	: 26th January, 2022	Reference Document	: CS/ME 2(HKST)
Expire Date	: 25th January, 2023	Report No.	: CS-CR-220110

The instrument has been checked and calibrated according to document procedures and using standards and instruments which are traceable to international accepted standards. The standards and instruments used in the calibration are calibrated on a schedule which is adjusted to maintain traceability at the required accuracy level, or have been derived from the ratio type of self-calibration techniques. This is established by our Quality Management System, audited to ISO9001 :2015 by an independent national accredited body.

The specified calibration interval is a recommendation. Depending on the type of use ambient conditions or accuracy requirements, other calibration intervals may be applicable. The user shall be responsible that calibration is carried out at adequate intervals.

YSF Corporation Ltd. hereby certifies this instrument meets or exceeds all published specifications of the manufacturer at present inforce. This calibration certificate may only be distruibuted in a complete and unchanged form. Unsigned calibration certificates are invalid.

Calibrated by

Wayne

Wayne Ng, Service Engineer
26th January, 2022

Checked by

YSF Corporation Ltd.

Wallace Yu, Service Manager
26th January, 2022

CKL/CSL/220110

YSF Corporation Ltd.

Calibration Report

Certificate No. : CS-CC-220110 Certificate Report No. : CS-CR-220110

Client : Paul Y-CIMC-JEC Joint Venture

Address : 11/F., Paul Y. Centre, 51 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Item Calibrated **:Name/Description:** Total Station

Manufacturer: Leica

Model: TCRA1202 **Serial No:** 261812

Reference Standard : 142343
Calibration check according to customer's requirement.

Calibration Method : Procedure CS02

Calibration Conditions

Temperature : (21 ± 3℃)

Relative Humidity : 76% RH

Date of Test : 26th January, 2022

Test Results : **PASS** (All calibration points were within the tolerances as shown in the attached calibration results.)

Calibrated by : Wayne
Wayne Ng, Service Engineer
Date: 26th January, 2022

HKCS Approved Signatory:
Wallace Yu, Service Manager
Date: 26th January, 2022

Notes: 1, The test equipment used for calibration are traceable to national standards/international system of units(SI)
2, The values given in this calibration certificate only to the values measured at the time of test & any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes,vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. YSF Corporation Ltd. shall not be liable for any loss/damage resulting from the use of the equipment.
3, The test results apply to the above Unit-Under-Test only.
4, This certificate shall not be reproduced, except on full, without approval of YSF Corporation Ltd.

YSF Corporation Ltd.

Calibration Report

Certificate Report No. :CS-CR-220110 Certificate No. :CS-CC-220110

Client : Paul Y-CIMC-JEC Joint Venture

Address : 11/F., Paul Y. Centre, 51 Hung To Road, Kwun Tong, Kowloon, Hong Kong

Item Calibrated **:Name/Description** Total Station

Manufacturer: Leica

Model: TCRA1202 **Serial No:** 261812

INSPECTION ITEM	INSPECTION RESULT
Perpendicularity of the leveling base assembly with the vertical angle.	Pass
Perpendicularity of the circular level assembly with the vertical angle.	Pass
Inclination in the vertical crosshair of the focusing telescope reticule (scale inclination).	Pass
Perpendicularity of the vertical axis with the horizontal axis. (Plumb line)	Pass
Perpendicularity of the horizontal axis with the line of sight. (Double centering)	Pass
Coincidence of the line of sight of the optical plummet telescope with the vertical axis.	Pass
Coincidence of the line of sight of the sighting collimator.	Pass
Eccentricity of the horizontal scale.	Pass
Eccentricity of the vertical scale.	Pass

Under the above condition, we have got the following data with our standard prism and standard measured distance.

Standard distance	Mean Result	Difference (mm)
7.6750	7.6750	0
10.3120	10.3120	0
46.6860	46.6880	2
87.2740	87.2750	1
125.7720	125.7730	1

Overall Inspection Result : PASS

Served by :

Wayne

Wayne Ng, Service Engineer

Date: 26th January, 2022

YSF Corporation Ltd.

Wallace Yu, Service Manager

Date: 26th January, 2022

We hereby confirm the inspection has been completed and complied with the specifications required.