ANEWR

Water Supplies Department
New Works Branch
Construction Division
11 Tai Yip Lane
Kowloon Bay
Kowloon
Hong Kong

Your reference:

Our reference: HKWSD201/50/107524

Date: 26 August 2021

Attention: Mr Hivan Cheng

BY POST

Dear Sirs

Quotation No.: WQ/17/A071
Independent Environmental Checker for Water Supplies Department
- Proposed Desalination Plant in TKO Area 137 for Contract No. 13/WSD/16
Verification of 2nd Annual EM&A Review Report for August 2019 to August 2020

We refer to emails of 23 and 26 August 2021 attaching 2nd Annual EM&A Review Report for August 2019 to August 2020 for the captioned project prepared by the ET.

We have no further comments and hereby verify the captioned report in accordance with Clause 3.5 of the Environmental Permit no. EP-503/2015/A.

Should you have any queries regarding the above, please do not hesitate to contact the undersigned or our Mr Louis Kwan on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/KSYL/lsmt

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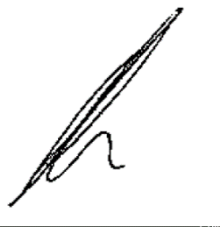
水務署
Water Supplies Department

Contract No. 13/WSD/16

Mainlaying in Tseung Kwan O

Annual EM&A Review Report No. 2
For August 2019 to August 2020

December 2020
(Rev. 0)

	Prepared by:	**Certified by:**
Name	Karen Cheung	Jacky Leung
Position	Environmental Team	Environmental Team Leader
Signature		
Date:	04 December 2020	04 December 2020

Revision History

0	1st Submission	04 December 2020
Rev.	**DESCRIPTION OF MODIFICATION**	**DATE**

CONTENT

EXECUTIVE SUMMARY

A1. Penta-Ocean - Concentric Joint Venture (POCJV) is contracted to carry out the Mainlaying in Tseung Kwan O under Contract No. 13/WSD/16 (hereinafter known as "the Project").

A2. In accordance with the Environmental Monitoring and Audit (EM&A) Manual for the Project, EM&A works should be carried out by Environmental Team (ET), Acuity Sustainability Consulting Limited (ASCL), during the construction phase of the Project.

A3. The construction works of Mainlaying in Tseung Kwan O was commenced on 30 August 2018. This is the 2nd Annual Environmental Monitoring and Audit (EM&A) Review Report prepared by ASCL. This report presents the EM&A works carried out during the period of 1 August 2019 to 31 August 2020.

A4. A summary of the monitoring activities undertaken in this reporting period is listed below:

Monitoring Activities	Frequency
Daytime Noise monitoring	4 times
Landfill Gas Monitoring	5541 times
Environmental Site Inspection	56 times

A5. No project-related exceedance of the noise Action/Limit Level was recorded during the reporting period.

A6. 4 times of noise impact monitoring between August 2019 to August 2020 were conducted since projected-related construction activities were undertaken within a radius of 300m from NSR4 Creative Secondary School.

A7. No exceedance of landfill gas monitoring was recorded during the reporting period.

A8. No summons/ prosecutions were received in the reporting period.

A9. There were no changes to be reported that may affect the on-going EM&A programme.

1 Basic Project Information

1.1 Background

1.1.1 The proposed Desalination Plant at Tseung Kwan O (DPTKO) will produce potable water with an initial capacity of 135 million liters per day (MLD), expandable to an ultimate capacity of 270 MLD in the future to provide a secure and alternative fresh water resource complying with the World Health Organization (WHO) standards. The plant will adopt the Seawater Reverse Osmosis (SWRO) technology, which dominates the market due to its reliability and progressive reduction in cost as the technology advances.

1.1.2 Pursuant to the Environmental Impact Assessment Ordinance (EIAO), the Director of Environmental Protection granted the Variation of Environmental Permit (No. EP-503/2015/A) to Water Supplies Department (WSD) for the Project on 26 January 2018.

1.1.3 The scope of the Contract consists of the laying of about 10km long 1200mm diameter fresh water mains and the associated works along the alignment of the Project as shown with the overall view in **Appendix A**.

1.2 The Reporting Scope

1.2.1 This is the 2nd Annual EM&A Review Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 August 2019 to 31 August 2020.

1.3 Project Organization

1.3.1 The Project Organization structure for Construction Phase is presented in **Appendix B**.

1.3.2 Contact details of the key personnel are presented in **Table 1.1** below:

Table 1.1 Contact Details of Key Personnel

Party	Position	Name	Telephone no.
Penta-Ocean - Concentric Joint Venture	Environmental Officer	Calvin Chik	9863-5630
Acuity Sustainability Consulting Limited	Environmental Team Leader	Jacky Leung	2698-6833
ANewR Consulting Limited	Independent Environmental Checker	James Choi	2618-2831

1.4 Summary of Construction Works

1.4.1 Details of the major construction works undertaken in this reporting period are shown in **Table 1.2** and **Appendix A**. The construction programme is presented in **Appendix C**.

Table 1.2 Summary of the Construction Works Undertaken during the reporting period

Location	Works Conducted in the reporting period
Portion H	• Excavation of trench ranging from CH.C 10+00 to CH.C 11+00) at TKO Area and from CH.C11+00 to CH.C 11+80. • Pipes have been laid from CH.C 0+01 to CH.C 11+56 & from CH.CT 0+07 to CH.CT 2+64. • Backfilling of trench to the required level from CH.C 07+40 (CH.CA 0+00) to CH.C 11+56 (CH.CA04+16). • Underground utilities diversion at working pit 137A near entrance gate of landfill area 137. • Casting of concrete thrust block for the 45 degrees horizontal bend between CH.CT2+09 and CH.CT2+43. • Concreting work of the top slab and wall of DN900 HSV chamber at CH.CA4+30 was completed. • Working pit's excavation for DN900 HSV chamber at CH.CA4+30. • Rebar fixing and formwork erection of the DN900 HSV chamber at CH.CA4+30. • Construction of washout chamber and DAV/IT. • Combined chamber at CH.CT2+30 and CH.CT2+47 respectively. • Trial pit for trenchless pit 137B.

Portion J	• Pipe laying at CHA.13+50. • Inspection pit at Jacking Pit A (planter area) was completed and backfilled. • 2 nos. of work fronts implemented as scheduled for the open-trench between CH. A0+00 to 13+70. • Laying work of 30 degrees bend DN1200 MS pipe at CH.A6+53 was completed. • The construction of DN900 Horizontal Valve chamber and DN150 by pass pipe was completed. The precast concrete unit on top of the chamber at CH.A12+45 was completed. Backfilling and road reinstatement work were conducted at CHA12+45. • The footpath and slow lane carriageway of Po Lam Road Westbound (PLR 2 and PLR 3) was conducted. • Inspection pit at downhill lane of Po Lam South Road was completed. • Trital pits at the cycle track and EPD area, Shek Kok Road's parking area (Pit E), Pit C, Pung Loi Avenue's Footpath (PLA 1) and carriage's slow lane (PLA2), the footpath and carriageway at Po Lam Road (PLR 1) were completed. • Trial pits works at rural road near Mau Wu Tsai Village (Po Lam South Road) for alternative alignment. • Trial pit at Pit F in Landfill Stage 1. • Two inspection pits at Area B in Landfill Stage 1 was completed (B01 and B02). • Inspection pit at Area A in Landfill Stage 1. • Excavation, mainlaying and reinstatement works at Landfill Stage 1's cycle track • Trial pit work at cycle track and drainage diversion of working pit near Hong Kong Velodrome were completed in May 2020. • Working pit excavation to 6m below ground and installation of the 3rd layer of waling and strut were completed at working Pit B. • Drilling work for grouting in Pit B has been carried out since 3 April 2020. • Sheetpiling, including saw cutting of concrete surface, was carried out at Pit C. • Grouting work for working Pit C for preventing ingress of underground water was conducted Excavation to 9mBG and installation of 6th layer of waling and strut were completed. • Pre-boring machine was deployed to drill 8 pre-boring holes for each working pit, including Wan Po Road Pit A & Pit C and TKO Area Pit 137A, 137B & 137C. • Trial pit was carried out at CH.A6+30 to expose two existing watermain crossing. Trench excavation to expose the pipe end of the cross-lane watermain. • The precast concrete unit on top of the chamber at CH.A12+45 was completed and the installation of DN150 by-pass pipe. • GI under MTR tunnel • Trench excavation and pipe laying work from CH.FC12+21 to CH.FC12+50 was completed at Area B.

	• Excavation work for 1st layer of struts and waling was in-progress at Pit O. • Excavation work for 2nd layer of struts and waling was in-progress at Pit M. • Excavation work for 1st layer of struts and waling was in-progress at Pit N. • The driving work of sheet piles at Pit P was in-progress. • Trial pit at Pit P near Po Shun Road was conducted. • Inspection pit at Pit Q near HKT building and Wan Lung Road was completed. • Sheet pilling works were conducted at Pit N. • Pipes were laid between CH.FB1+98 to CH.FB3+60. • Pipes were laid between CH.FC13+26 and CH.FC12+05 in Area B. Backfilling work and reinstatement of existing geotextile.

1.5 Summary of Environmental Status

1.5.1 A summary of the valid permits, licences, and /or notifications on environmental protection for this Project is presented in **Table 1.3**.

Table 1.3 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Variation of Environmental Permit	EP no.: EP-503/2015/A	Throughout the Contract	-
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	Ref no.: 423775	Throughout the Contract	-
Chemical Waste Producer Registration	WPN: 5213-839-P3287-01	Throughout the Contract	-
Billing Account for Disposal of Construction Waste	A/C no.: 7029491	Throughout the Contract	-
Water Discharge Licence	WT00032336-2018	Until 31 Dec 2023	-
Construction Noise Permit	GW-RE1016-19	Until 29 June 2020	-
Construction Noise Permit	GW-RE0563-20	Until 28 Sep 2020	-
Construction Noise Permit (Hong Kong Velodrome)	GW-RE0364-20	Until 17 Nov 2020	-

1.5.2 The status for all environmental aspects is presented **Table 1.4**.

Table 1.4 Summary of Status for Key Environmental Aspects under the EM&A Manual

Parameters	**Status**
Noise	
Baseline Monitoring	The baseline noise monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under VEP Condition 3.4
Impact Monitoring	4 times of noise impact monitoring between August 2019 to August 2020 were conducted since projected-related construction activities were undertaken within a radius of 300m from NSR4 Creative Secondary School
Waste Management	
Mitigation Measures in Waste Monitoring Plan	On-going
Landfill Gas Monitoring	
Mitigation Measures	On-going
Monitoring	On-going
Environmental Audit	
Site Inspection	On-going

1.5.3 Other than the EM&A works by ET, regular environmental management meetings were conducted in order to enhance environmental awareness and closely monitor the environmental performance of the contractors.

1.5.4 The EM&A programme has been implemented in accordance with the recommendations presented in the approved EIA Report and the EM&A Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix E**.

2 Noise Monitoring

2.1 Monitoring Requirements

2.1.1 To ensure no adverse noise impact, noise monitoring is recommended to be carried out within 300m radius from the nearby noise sensitive receivers (NSRs), during construction phase. The NSRs selected as monitoring station are (i) NSR4 – Creative Secondary School, (ii) NSR24 – PLK Laws Foundation College, and (iii) NSR31 – School of Continuing and Professional Studies – CUHK respectively.

2.1.2 In accordance with the EM&A Manual, baseline noise level at the noise monitoring stations were established as presented in the Baseline Monitoring Report. Impact noise monitoring will be conducted once per week in the form of 30-minutes measurements Leq, L10 and L90 levels recorded at each monitoring station between 0700 and 1900 hours on normal weekdays.

2.1.3 Referring to EM&A manual Section 4.1.2, the impact noise monitoring should be carried out at all the designated monitoring stations when there are project-related construction activities undertaken within a radius of 300m from the monitoring stations. 4 times of noise impact monitoring between August 2019 to August 2020 were conducted since projected-related construction activities were undertaken within a radius of 300m from NSR4 Creative Secondary School.

2.2 Noise Monitoring Parameters, Time, Frequency

2.2.1 Impact noise monitoring will be conducted weekly in the reporting period between 0700-1900 hours on normal weekdays. No construction works were carried out during 1900-0700 hours all days or any time on Sundays or general holidays during the reporting period.

2.2.2 Construction noise level measured in terms of the A-weighted equivalent continuous sound pressure level (LAeq). Leq 30min was used as the monitoring parameter for the time period between 0700 and 1900 on normal weekdays. **Table 2.1** summarizes the monitoring parameters, frequency and duration of the impact noise monitoring.

Table 2.1 Noise Monitoring Parameters, Time, Frequency and Duration

Time	Frequency	Duration	Parameters
Daytime: 0700-1900	Once per week	Continuously in $L_{eq\ 5min}$/$L_{eq\ 30min}$ (average of 6 consecutive $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}

2.3 Noise Monitoring Locations

2.3.1 The monitoring locations should normally be made at a point 1m from the exterior of the NSRs building façade and placed at a position 1.2m above the ground. A correction of +3dB(A) should be made to the free-field measurements

2.3.2 Referring to EM&A manual Section 4.1.2, the impact noise monitoring should be carried out at all the designated monitoring stations when there are project-related construction activities undertaken within a radius of 300m from the monitoring stations.

2.3.3 According to the environmental findings detailed in the EIA report and Baseline Monitoring Report, the designated locations for the construction noise monitoring are listed in Table 2.2 below.

Table 2.2 Noise Monitoring Location

NSR ID	Noise Sensitive Receivers	Monitoring Location	Position
NSR 4	Creative Secondary School	Roof Floor	1 m from facade
NSR 24	PLK Laws Foundation College	Pedestrian Road on Ground Floor	Free-field
NSR 31	School of Continuing and Professional Studies - CUHK	Roof Floor	1 m from facade

2.3.4 Three noise monitoring locations for impact monitoring at the nearby sensitive receivers are shown in **Figure 2.1 - 2.3.**

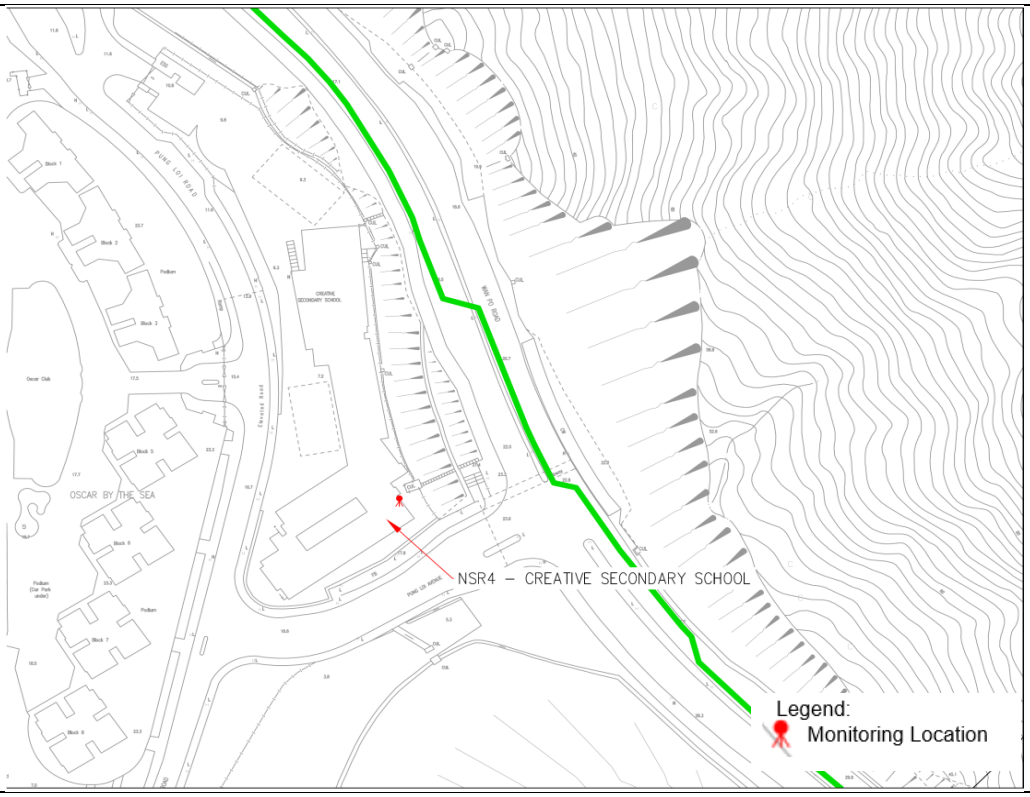


Figure 2.1 NSR4 Creative Secondary School

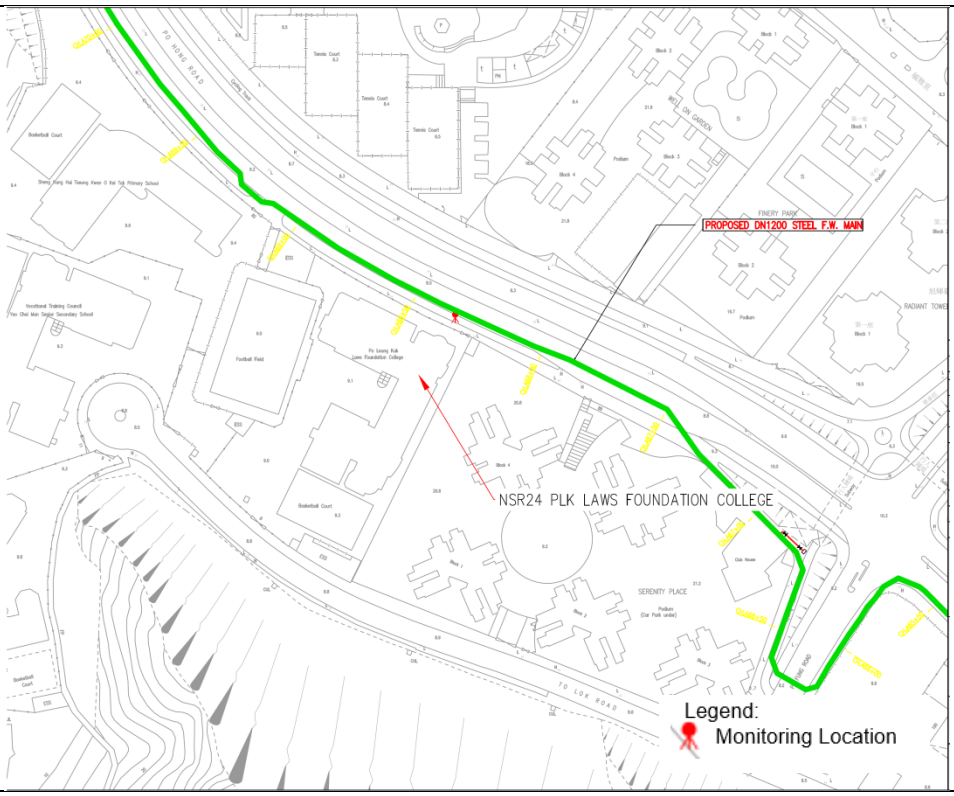


Figure 2.2 NSR24 PLK Laws Foundation College

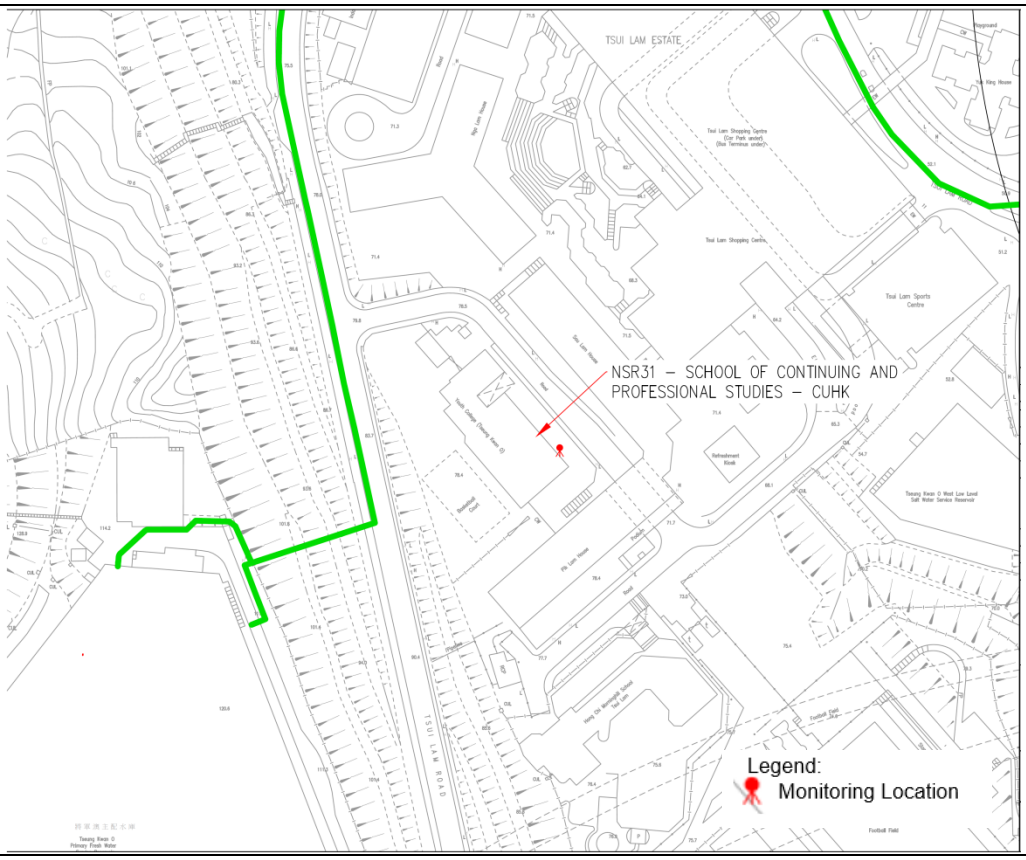


Figure 2.3 NSR31 School of Continuing and Professional Studies - CUHK

2.4 Impact Monitoring Methodology

2.4.1 Integrated sound level meter shall be used for the noise monitoring. The meter shall be in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications. Immediately prior to and following each noise measurement the accuracy of the sound level meter would be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration level before and after the noise measurements agree to within 1.0 dB(A).

2.4.2 Noise measurements shall not be made in the presence of fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed would be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

Table 2.3 Impact Noise Monitoring Equipment

Equipment	Brand and Model	Detection Limit
Sound Level Meter	Nti XL2	30-130 dB(A)
Sound Level Meter Calibrator	Rion NC-74	Nil
Pocket Wind Meter Anemometer	Kestrel 1000 Wind Meter	Nil

2.5 Action and Limit Levels

2.5.1 The Action/Limit Levels are in line with the criteria of Practice Note for Professional Persons (ProPECC PN 2/93) "Noise from Construction Activities – Non-statutory Controls" and Technical Memorandum on Environmental Impact Assessment Process issued by HKSAR Environmental Protection Department ["EPD"] under the Environmental Impact Assessment Ordinance, Cap 499, S.16 are presented in **Table 2.4.**

Table 2.4 Action and Limit Levels for Noise

Time Period	Action	Limit (dB(A))
0700-1900 on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers	• 70 dB(A) for school and • 65 dB(A) during examination period
Notes: (a) Limits specified in the GW-TM and IND-TM for construction and operation noise, respectively.		

2.5.2 If exceedances were found during noise monitoring. The actions in accordance with the Event and Action Plan will be carried out according to **Appendix F**.

2.6 Monitoring Results and Observations

2.6.1 Noise monitoring data shall be recovered in real-time as it is a manned-event with data display from the sound level meters.

2.6.2 4 times of noise impact monitoring between August 2019 to August 2020 were conducted since projected-related construction activities were undertaken within a radius of 300m from NSR4 Creative Secondary School.

2.6.3 Detailed monitoring results are presented in **Appendix H**.

2.6.4 No notification of summons and prosecution related to noise was received in the reporting period.

3 Waste Management

3.1.1 Total of 6.698m3 of inert C&D materials was collected to the Fill Bank, 0.035 m3 C&D waste and general refuse were disposed of at Landfill, 0.475 tonnes of paper/ cardboard packaging was recycled and 0 tonnes chemical waste collected by licensed contractor for disposal in the reporting period.

3.1.2 Waste Flow Table is shown in **Appendix D**.

4 Summary of Monitoring Exceedance, Complaints, Notification of Summons and Prosecutions

4.1.1 No monitoring exceedance, notification of summons and prosecution was received in the reporting period.

5 EM&A Site Inspection

5.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, site inspections were carried out from August 2019 to August 2020 at the site portions list in **Table 5.1** below.

5.1.2 Elven joint site inspections with IEC were carried out in the reporting period as shown in **Table 5.1**.

Table 5.1 Site Inspection Record

Date	Inspected Site Portion	Time
2*, 8, 15, 23, 30 August 2019	Portion J, F and H	09:15 am – 12:00 pm
6*, 12, 18, 23* September 2019	Portion J, F & H	09:15 am – 12:00pm 14:45 pm – 16:45 pm
2, 11, 18, 24, 31* October 2019	Portion J, F & H	09:30 am - 12:00 pm
7, 14, 22, 29* November2019	Portion J, F & H	09:30 am – 12:00 pm
5, 12, 18, 23, 31* December 2019	Portion J, F & H	09:30 am – 12:00 pm
9, 17, 22* January 2020**	Portion J	09:15 am – 12:00 pm
7, 13, 20, 27* February 2020	Portion J, F & H	09:20 am - 11:50 am
5, 12, 19, 24 March* 2020	Portion J, F & H	09:17 am – 12:03 pm 13:30 pm – 16:00 pm
2, 9, 16, 23, 28* April 2020	Portion J, F & H	09:25 am – 12:10 pm
7, 14, 21, 26* May 2020	Portion J, Portion H	09:20 am – 12:00 pm
4, 11, 18, 23* June 2020	Portion J, F & H	09:25 am – 12:10 pm
2, 9, 16, 23, 27* July 2020	Portion J, F & H	09:25 am – 12:00 pm 14:30 pm – 17:00 pm
6, 13, 20, 24* August 2020	Portion H and J	09:15 am – 12:30 pm

Remark (*): Joint Site Inspection
Remark (**): Cancelled due to the spread of the Noval Coronavirus.

5.1.3 Minor deficiencies were observed during weekly site inspection. Key observations during the site inspections are summarized in Table 5.2.

Table 5.2 Site Observations

Date	Environmental Observations	Follow-up Status
02 August 2019	1. Wastewater should be connected to water treatment facilities and treated prior to discharge at A0+78. 2. Sandbags should be fully placed along the work area at A0+64 3. Chemicals should be placed on drip tray after used at 12+50	1. Wastewater had already been connected to water treatment facilities and treated prior to discharge at A0+78. 2. Sandbags had been fully placed along the work area. 3. Chemicals had been placed on drip tray after used.
08 August 2019	1. Sandbags should be fully placed along the work area at A0+78, A06+64 and A12+50. 2. Sandbags were damaged at Pit B. 3. Dust suppression measures should be provided in the construction works 4. Contractor is reminded all water should be treated before discharging to discharge point as per requirements in water discharge license.	1. Sandbags had been fully placed along the work area. 2. Sandbags were changed at Pit B. 3. Water spraying facility was provided and water was sprayed in the work area to minimize the dust emission. 4. All water was treated before discharging to discharge point as per requirements in water discharge license.
15 August 2019	1. Sandbags should be fully placed along the work area at A0+78, A6+64 and A12+50 2. Sandbags were damaged at Pit B. 3. All water should be treated before discharging as per requirements in water discharge license at A0+78 and A06+64	1. Sandbags were fully placed along the work area. 2. Sandbags were changed at Pit B. 3. All water was treated before discharging as per requirements in water discharge license.
23 August 2019	1. Stagnant water in the drip tray should be cleaned regularly at Portion F. 2. Sandbags should be fully placed along the work area at Pit E and Pit B. 3. All water should be treated before discharging as per requirements in water discharge license. 4. Chemicals were not placed in drip tray at 137 and CHA 12+50. 5. Regular cleaning should be conducted at Pit B. 6. Gullies should be covered with geotextile and enclosed by sandbags.	1. Stagnant water in the drip tray was cleaned regularly at Portion F. 2. Sandbags were fully placed along the work area. 3. All water was treated before discharging as per requirements in water discharge license. 4. Chemicals were taken back to Portion F from 137 and CHA 12+50 and placed in drip tray. 5. Regular cleaning was conducted at Pit B. 6. Gullies were covered with geotextile and enclosed by sandbags.

Date	Environmental Observations	Follow-up Status
30 August 2019	1. All water should be treated before discharging as per requirements in water discharge license at A0+78 and A6+64. 2. General refuse should be disposed properly and regularly at A0+78 and Pit B. 3. Gully should be blocked. Contractor is recommended to cover the gully with geotextile and place the sandbags at four sides of the gully at Pit B. 4. Chemical should be place properly to prevent leakage and spillage at Pit B and 137.	1. All water was treated before discharging as per requirements in water discharge license. 2. General refuse was disposed properly and regularly. 3. Gully was blocked. 4. Chemicals were taken back to Portion F from 137 and CHA 12+50 and placed in drip trays.
06 September 2019	1. Stagnant water should be cleaned regularly. 2. Chemical should be placed properly to prevent leakage and spillage. 3. Sediment in the sedimentation tank should be cleaned regularly. 4. Sandbags should be fully placed along the work boundaries. 5. Contractor is reminded all water should be treated before discharging as per requirements in water discharge license.	1. Stagnant water was pumping and cleaning regularly. 2. Chemical were removed from construction site and placed back to chemical storage area. 3. Chemicals were placed properly to prevent leakage and spillage. 4. Sandbags were fully placed along the work boundaries. 5. Water was treated before discharging as per requirements in water discharge license.
12 September 2019	1. Stagnant water should be cleaned regularly. 2. Sandbags should be fully placed along the work boundaries 3. All water should be treated before discharging as per requirements in water discharge license. 4. Construction tools should not be placed outside the site boundary at CHA 0+78	1. Stagnant water was pumping regularly. 2. Sandbags were fully placed along the work boundaries. 3. All water was treated before discharging as per requirements in water discharge license. 4. Construction tools on the site boundaries were cleaned.
18 September 2019	1. Sandbags should be fully placed along the work boundaries 2. All water should be treated before discharging as per requirements in water discharge license. 3. Stagnant water should be cleaned regularly. 4. Chemicals should be placed properly.	1. Sandbags were fully placed along the work boundaries. 2. All water was treated before discharging as per requirements in water discharge license. 3. Stagnant water was pumping regularly. 4. Chemicals were placed on the drip tray and take them back to Portion F.

Date	Environmental Observations	Follow-up Status
23 September 2019	1. Stagnant water should be cleaned regularly. 2. Chemical should be placed properly. 3. Chemical leakage was found at CHA12+50.	1. Stagnant water was cleaning regularly. 2. Chemical was removed from CHA 0+78. 3. Chemical stain was cleaned and a drip tray was added for the machine and chemicals.
02 October 2019	1. Chemicals should be placed properly. 2. Stagnant water should be cleaned regularly. 3. Chemical leakage was found.	1. Chemicals was removed from construction site or a drip tray was added for chemicals. 2. Stagnant water was pumping. 3. Chemical stain was cleaned and a drip tray was added for the machine and chemicals.
11 October 2019	1. Stagnant water should be cleaned regularly. 2. Accumulated sediment was not treated properly. 3. Construction tools were placed in the greenery area. 4. Machine were placed outside the site area. 5. Wastes should be cleaned and disposed properly and regularly. 6. Gullies were not protected properly. 7. Chemicals should be placed on drip tray. 8. All water should be treated before discharging as per requirements in water discharge license. 9. Sandbags should be fully placed along the work boundary. 10. Construction materials should be treated properly. 11. Chemical stain should be treated properly.	1. Stagnant water was pumping. 2. Accumulated sediment was disposed properly. 3. Construction tool were removed. 4. Machines were transported away from the site area. 5. Wastes were collected and disposed. 6. Gullies were protected properly. 7. Chemicals were removed from the construction site. 8. All water was treated before discharging as per the requirements in water discharge license. 9. Sandbags were fully placed along the work boundary. 10. Construction materials were covered fully. 11. Chemicals stain was cleaned up. Chemicals and machine were placed on drip tray.

Date	Environmental Observations	Follow-up Status
18 October 2019	1. Stagnant water should be cleaned regularly. 2. Accumulated sediment should be treated properly at CHA0+78. 3. Construction tool should not place in the greenery area at CHA0+78. 4. Machines should not place outside the site area at CHA0+78. 5. Wastes should be disposed properly and regularly. 6. Gullies should be protected properly at A0+78. 7. Chemicals should be placed on drip tray. 8. All water should be treated before discharging as per requirements in water discharge license. 9. Chemical stain should be treated properly at CHA12+50. 10. Stagnant water should be kept inside the site boundary.	1. Stagnant water was pumping. 2. Accumulated sediment was disposed. 3. Construction tool were removed. 4. Construction tools were transported away from the site. 5. Waste were disposed properly and regularly. 6. Gullies were protected properly. 7. Chemicals were placed on drip tray or removed from the site. 8. All water was treated before discharging as per requirements in water discharge license. 9. Chemical stain was cleaned and a drip tray was added for the machine and chemicals. 10. Stagnant water was cleaned.
24 October 2019	1. Stagnant water should be cleaned regularly. 2. Wastes should be disposed properly and regularly. 3. Gullies should be protected properly. 4. Machines should not place outside the site area at CHA0+78	1. Stagnant water was pumping regularly. 2. Wates were disposed properly and regularly. 3. Gullies were fully protected. 4. Machines were transported away from the site area.
31 October 2019	1. Stagnant water should be cleaned regularly. 2. Machines should not place outside the site area at CHA0+78. 3. Gully should be protected properly. 4. Water should be sprayed or other mitigation measures should be conducted regularly on the exposed earth to prevent dust emission. 5. NRMM label should be showed on non-road mobile machineries (NRMM).	1. Stagnant water was cleaned regularly. 2. Machines were transported away from the site area. 3. Gully was fully protected. 4. Water was sprayed regularly on the exposed earth to prevent dust emission. 5. NRMM label was showed on non-road mobile machine.

Date	Environmental Observations	Follow-up Status
07 November 2019	1. Chemicals should be puton drip tray at Portion F. 2. Chemical stain was foundunder the machine atPortion F. 3. NRMM label should bedisplayed on non-roadmobile machineries (NRMM). 4. Waste should be cleaned regularly at Pit B. 5. All water in the construction site should be treated before discharging as per the requirements in the water discharge license at CHA12+50.	1. Chemicals were placed on the drip tray at Portion F. 2. Chemical stain was cleaned. 3. NRMM label was displayed on non-road mobile machineries (NRMM). 4. Waste was cleaned regularly at Pit B. 5. All water in the construction site was treated before discharging as per the requirements in the water discharge license at CHA12+50.
14 November 2019	1. Routine cleaning and maintenance for drainage system and sump pits should be conducted	1. Routine cleaning and maintenance for all drainage system and sump pits were conducted.
22 November 2019	1. Sandbags should be fully placed along the work boundary. 2. Gullies were not blocked. 3. All water should be treated before discharging as per the water discharge license. 4. NRMM label should be displayed on the NRMM. 5. Sandbags were damaged.	1. Sandbags were fully placed along the work boundary. 2. Gullies were blocked. 3. All water was treated befor discharging as per the water discharge license. 4. NRMM label was displayed on the NRMM. 5. Sandbags were changed.
29 November 2019	1. Chemicals was found at CHA12+50. Chemicals should be placed inside a drip tray or in the chemical storage area. 2. NRMM label should be displayed on the NRMM.	1. Chemical were placed inside a drip tray. 2. NRMM label was displayed on the NRMM.
5 December 2019	1. Accumulated mud-pile was observed directly next to the waterbarriers. The mud-pile should be treated properly to prevent it to escape from the construction site. 2. Sandbags should be fully placed along the working boundaries. 3. Road section near the site exits should be free from dusty materials. 4. Excess underground water should be cleaned regularly to prevent the accumulation or contamination of other construction materials. 5. The drip tray was observed without the plug/stopper that may lead to the leakage of chemicals.	1. The mud-pile next to the water-barrier was cleaned. 2. Sandbags have been placed fully along the construction boundaries. 3. Road Section near the site exit was cleaned. 4. Underground water was pumped regularly. 5. The drip tray was plugged.

Date	Environmental Observations	Follow-up Status
12 December 2019	1. Sandbags should be fullyplaced along the working boundaries. 2. The drip tray was observed without the plug/stopper that may lead to the leakage of chemicals. 3. Construction wastes should be properly treated to prevent dust emission.	1. Sandbags were placed fully along the construction boundaries. 2. The plug was added on the drip tray. 3. Construction waste was cleaned.
18 December 2019	1. Dust suppression mitigations should be implemented to prevent dust emission. 2. Accumulated mud-pile was observed directly next to the waterbarriers. The mud-pile should be treated properly to prevent it to escape from the construction site. 3. Construction wastes should be properly treated to prevent dust emission.	1. Mitigations were implemented to prevent dust emission. 2. The mud-pile was cleaned. 3. Construction wastes were treated.
23 December 2019	1. Chemical stain on the ground should be cleaned. 2. Chemicals should be placed properly. 3. Construction waste should be treated properly.	1. Chemical was cleaned. 2. Chemicals have been removed. 3. Construction waste was treated.
31 December 2019	No Major observations were recorded	N/A
9 January 2020	1. Accumulated dusty materials were observed directly next to the water-barriers. These materials should be cleaned properly to prevent it to escape from the construction site.	1. The mud-pile next to the water-barrier was cleaned.
17 January 2020	1. NRMMs were observed without a proper NRMM label. 2. Construction materials had not been stored properly. 3. Dusty materials were found near the construction exit. 4. Dusty materials were found in the drip tray.	1. NRMM label was added on the plant. 2. Construction materials were cleaned. 3. Dusty materials were cleaned at the construction exit. 4. The drip-tray was cleaned.
22 January 2020	1. Dusty materials were found near the construction boundaries. 2. Accumulated dusty materials were observed directly next to the water-barriers. These materials should be treated properly to prevent it to escape from the construction site.	1. Road section near the construction boundaries were cleaned. 2. Dusty materials were cleaned.

Date	Environmental Observations	Follow-up Status
07 February 2020	1. Proper NRMM Label was not observed on the NRMM at Pit C. 2. Dusty materials were found in the drip tray at CHA.12+50.	1. NRMM label was changed on the plant. 2. The drip tray was cleaned.
13 February 2020	1. NRMM Label (Exemption Label) was not observed on the NRMM at Pit C. 2. Construction materials had not been stored properly at CHA12+50 and CHA6+64.	1. NRMM was observed with a NRMM label at Pit C. 2. Construction materials were cleaned.
20 February 2020	1. Dusty materials were found near the construction exit at CHA6+64. 2. Construction materials had not been stored properly at CHA12+50, Pit B and CHA6+64. 3. Construction boundaries had not been protected fully via sandbags at CHA12+50. 4. Drainage system had not been protected fully at CHA12+50.	1. Construction exit was cleaned at CHA6+64. 2. Construction materials were stored properly. 3. Construction boundaries had been protected fully via sandbags at CHA12+50. 4. Drainage system was protected fully ay CHA12+50.
27 February 2020	NRMM Label (Exemption Label) was not observed on the NRMM at Pit C.	NRMM Label was added on the NRMM at Pit C.
05 March 2020	NRMM Label (Exemption Label) was not observed on the NRMM at Pit C.	NRMM label was observed on the NRMM at Pit C.
12 March 2020	1. Construction boundaries were not fully protected by sandbags at 137 Pit A. 2. Chemicals were not stored in the drip tray at Pit B and CHA12+50. 3. Drainage system was not fully protected and sandbags were damaged at CHA12+50. 4. Accumulated dusty materials were observed directly next to the water-barriers. The stockpile should be treated to prevent it to escape from the construction site at CHA12+50. 5. Dust suppression mitigations were not implemented at CHA12+50.	1. Construction boundaries were fully protected by sandbags. 2. Chemicals were removed or stored in the drip tray. 3. Drainage system was fully protected and sandbags were replaced. 4. Dusty materials were cleaned. 5. Dusty materials were cleaned.
19 March 2020	1. Chemical was not stored in the drip tray at CH12+50. 2. Dusty materials were found next to the water barriers at CHA12+50. These materials should be cleaned to prevent it from escaping from the construction site.	1. Chemical was removed. 2. These materials were cleaned to prevent it from escaping from the construction site.

Date	Environmental Observations	Follow-up Status
24 March 2020	1. Dusty materials were found near the construction exit at CHA12+50. 2. Dusty materials were found next to the water barriers at CHA12+50. These materials should be cleaned to prevent it from escaping from the construction site.	1. Dusty materials were cleaned. 2. These materials were cleaned to prevent it from escaping from the construction site
02 April 2020	1. Sandbags were observed damaged at CHA12+50. They should be replaced to protect the drainage systems fully. 2. Drainage system was observed with construction materials. These materials should be cleaned to prevent the contamination or damage to the drainage system at CH.FC4+65.	1. Sandbags were changed and the leak-out sand was cleaned. 2. These materials were cleaned to prevent the contamination or damage to the drainage system.
09 April 2020	1. Construction materials were observed being placed directly next to the water barriers at CHA6+64 and CHA12+50. These materials should be treated to prevent the escape from the construction site. 2. Sandbags were observed damaged at CHA12+50. 3. Gully was not protected by textile sheet. It should be added to protect the gully fully at Pit B. 4. Chemicals were not placed inside a drip tray at FC0+50 to FC0+92.	1. Construction materials were cleaned 2. Sandbags were changed. 3. Gully was fully protected. 4. Chemicals were placed inside a drip tray.
16 April 2020	1. Drainage systems were not protected fully at CHA12+50. Sandbags were observed damaged and geotextile was not added on top of the gullies. 2. Construction exit was not free from debris and dusty materials at CHA12+50. 3. Chemicals were not placed inside the drip tray at Pit B, FC0+64 and FC4+65-5+00. 4. Chemical stain was observed on the asphalt ground at FC4+65-5+00.	1. Drainage systems were protected fully by sandbags at CHA12+50. 2. Construction exit was cleaned. 3. Chemicals were moved. 4. Chemical stain was cleaned.

Date	Environmental Observations	Follow-up Status
23 April 2020	1. Environmental permits were not displayed at the vehicle site entrance/exit at 137 Pit A and CHA6+64. 2. Sandbags were observed damaged at CHA12+50. 3. Chemicals were not placed inside the drip tray at FC0+62.	1. Environmental permits were displayed at the vehicle site entrance/exit. 2. Sandbags were changed. 3. Chemicals were placed in the drip tray.
28 April 2020	1. Environmental permit was not displayed at the vehicle site entrance/exit at CHA6+64. 2. Chemical stain was observed at CHA6+64 (New Side). 3. Gully was not protected fully at Pit B. A geotextile should be added to protect the gully and prevent the escape of untreated water and construction materials from the construction site. 4. Chemical seepage was observed at Pit B. 5. Chemicals were not placed in the drip tray at Pit B.	1. Environmental permit was displayed at the vehicle site entrance/exit. 2. Chemical stain was cleaned. 3. Gully was protected fully at Pit B. 4. Chemical seepage was cleaned. 5. Chemicals were placed in the drip tray.
07 May 2020	1. Environmental permit was not observed on the vehicle exit/entrance at CHA6+64. 2. Chemicals were not placed inside the drip tray at CHA6+64, Pit B and FC0+64. 3. Construction materials were not stored properly at CHA12+50. 4. Chemical spillage was observed at Pit B. 5. Wastewater was not directed to water treatment facilities at FC0+64. 6. NRMM label was observed damaged at FC4+65-5+00.	1. Environmental permit was added on the vehicle exit/entrance at CHA6+64. 2. Chemicals were removed. 3. Construction materials were removed. 4. Chemical spillage was cleaned. 5. Wastewater was discharged through the sedimentation tank. 6. NRMM Label was changed to a new one.
14 May 2020	1. Chemicals were not placed inside the drip tray at Pit C. 2. Construction boundaries were not fully protected by sandbags at Pit C. 3. Dust suppression mitigations have not been fully implemented at CHA12+50, Landfill Stage 1 Area A and Pit F	1. Chemicals were removed. 2. Construction boundaries were fully protected by sandbags. 3. Dusty suppression mitigations were implemented or stockpiles were removed.

Date	Environmental Observations	Follow-up Status
21 May 2020	1. Chemicals were not placed inside the drip tray at Pit C and FC4+65-5+00. 2. Construction boundaries were not fully protected by sandbags at Pit C. 3. Chemcial leakage was observed at CHA6+64 and FC4+65-5+00.	1. Chemicals were removed or placed inside the drip tray. 2. Construction boundaries were fully protected by sandbags. 3. Chemical leakage was cleaned.
26 May 2020	1. Oil leakage was observed at CHA6+64.	1. Oil leakage was cleaned.
04 June 2020	1. Chemical was not placed inside a drip tray at Landfill Stage 1 Area A. 2. Wastewater was not directed to sedimentation tank at Landfill Stage 1 Area A.	1. Chemical was removed. 2. Wastewater was directed to sedimentation tank before being discharged.
11 June 2020	1. Dust suppression mitigations were not implemented at CHA12+50. 2. Chemicals were not placed inside the drip tray at Landfill Stage 1 Area A.	1. Dusty materials were cleared. 2. Chemicals were removed.
18 June 2020	1. No major observations were observed on the reporting day.	1. Stagnant water was cleaned. 2. Sandbags were changed and fully placed along the work area. 3. Geotextile covered on gullies were changed to a new one.
23 June 2020	No major observations were observed on the reporting day.	N/A
02 July 2020	1. Construction boundary was not being fully protected by sandbags at Pit C. 2. Construction exit was observed with dusty materials at CHA12+50. 3. Chemicals were not placed inside the drip tray at Landfill Stage 1.	1. Construction boundary was fully protected by sandbags. 2. Construction exit was cleaned. 3. Chemicals were removed.
09 July 2020	1. Chemicals were not placed inside a drip tray at Pit C, 137 Pit C and CHA6+64. 2. Drainage system was observed with general waste at Portion F. 3. Environmental Permit was not observed at the vehicle exit/entrance at 137 Pit C. 4. Construction exit was not free from dusty materials at CHA12+50.	1. Chemicals were removed. 2. Drainage system was cleaned. 3. Environmental Permit was added. 4. Construction exit was cleaned.
16 July 2020	1. Geotexile was observed damaged at CHA6+64. 2. Chemical statins were observed at Pit B. 3. Chemicals were not placed inside a drip tray at Landfill Stage 1 Area A.	1. Geotexile sheet was replaced. 2. Chemical stains were cleaned. 3. Chemicals were removed.

Date	Environmental Observations	Follow-up Status
23 July 2020	1. Wastes were observed in the gully at Portion F. 2. Chemicals were not placed inside a drip tray at Pit C, 137 Pit C, CH.FC0+62 and CH.FC 4+50. 3. Dusty materials were found directly next to the water barriers. It should be cleaned to prevent it from escaping the construction site at CHA12+50	1. Wastes were cleaned from the gully. 2. Chemicals were removed. 3. Dusty materials were cleaned from the construction site.
27 July 2020	No major observations were observed on the reporting day.	
06 August 2020	1. Chemicals were not placed inside a drip tray at Pit C. 2. Dust suppression mitigations were not implemented at CHA6+64. 3. Gully was not protected by a geo-textile at CHA6+64. 4. Environmental permit was not observed at the vehicle entrance/exit at the Hong Kong Velodrome.	1. Chemicals were placed inside a drip tray. 2. Dusty materials were removed. 3. Gully was protected by a geo-textile at CHA6+64. 4. Environmental permit was added at the vehicle entrance/exit at the Hong Kong Velodrome.
13 August 2020	1. Chemicals were not placed inside a drip tray at Pit C. 2. Drainage system was not fully protected by a geo-textile at CHA6+64. 3. Construction boundaries were not protected fully by sandbags at Jacking Pit A. 4. Construction exit/entrance was not free from dusty materials at CHA12+50.	1. Chemicals were placed inside a drip tray. 2. Gully was fully protected by a geo-textile at CHA6+64. 3. Construction boundaries were protected fully by sandbags at Jacking Pit A. 4. Construction exit/entrance was free from dusty materials at CHA12+50.
20 August 2020	1. Chemicals were not placed inside the drip tray at Pit C and Landfill Stage 1 Area A. 2. Gully was not protected fully by sandbags and geo-textile at CHA6+64. 3. Construction exit/entrance was not free from dusty materials at CHA12+50. 4. Construction boundaries were not protected fully by sandbags at Pit A.	1. Chemicals were removed or placed inside the drip tray at Pit C and Landfill Stage 1 Area A. 2. Gully was protected fully by sandbags and geo-textile at CHA6+64. 3. Construction exit/entrance was cleaned at CHA12+50. 4. Construction boundaries were protected fully by sandbags at Pit A.
24 August 2020	1. The contractor was reminded to place an environmental permit at the site entrance/exit at Hong Kong Velodrome.	1. The environmental permit was placed at the site entrance/exit at Hong Kong Velodrome.

5.1.4 According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents are implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in **Appendix E**.

6 Landfill gas monitoring

6.1.1 In accordane with Section 11 of the EM&A Manual, monitoring of landfill gas is required for construction works within the 250m Consultation Zone. Part of the desalination plant and the indicative area of natural slope mitigation works fall within the SENT Landfill Extension Consultation Zone; and part of the 1,200 mm diameter fresh water mains along Wan Po Road falls within the SENT Landfill and SENT Landfill Extension Consultation Zones, TKO Stage II/III Restored Landfill and TKO Stage I Restored Landfill Consultation Zones. Monitoring were conducted from August 2019 to August 2020.

6.1.2 Monitoring of oxygen, methane and carbon dioxide was performed for excavations at 1m depth or more within the consultation Zone. In this reporting period, 5541 times of monitoring was carried out by the Registered Safety Officer by the Contractor at the excavation locations. Action and Limit Level is provided in **Appendix F.**

6.1.3 Monitoring Equipment used in the reporting period are summarised in **Table 6.1**.

Table 6.1 Landfill Gas Monitoring Equipment

Equipment	Model and Make	Calibration Expiry Date
Gas Detector	QRAE II	28 August 2020
Gas Detector	QRAE III	27 July 2021
Gas Detector	RAE System QRAE3	17 October 2019

7 Conclusion and Recommendations

7.1.1 This is the 2nd Annual Environmental Monitoring and Audit (EM&A) Review Report prepared by ASCL. This report presenting the EM&A works carried out during the period of 1 August 2019 to 31 August 2020 in accordance with the EM&A Manual and the requirement under EP-503/2015/A.

7.1.2 4 times of noise impact monitoring between August 2019 to August 2020 were conducted since projected-related construction activities were undertaken within a radius of 300m from NSR4 Creative Secondary School.

7.1.3 No landfill gas exceedance was recorded in the reporting period.

7.1.4 No project-related exceedance of the noise Action Level was recorded during the reporting period.

7.1.5 Weekly environmental site inspection was conducted during the reporting period. Minor deficiencies were observed during site inspection and were rectified. The environmental performance of the Project was therefore considered satisfactory.

7.1.6 According to the environmental site inspections performed in the reporting period, the Contractor is reminded to pay attention on maintaining site tidiness and proper materials storage.

7.1.7 No environmental complaint was received in the reporting period.

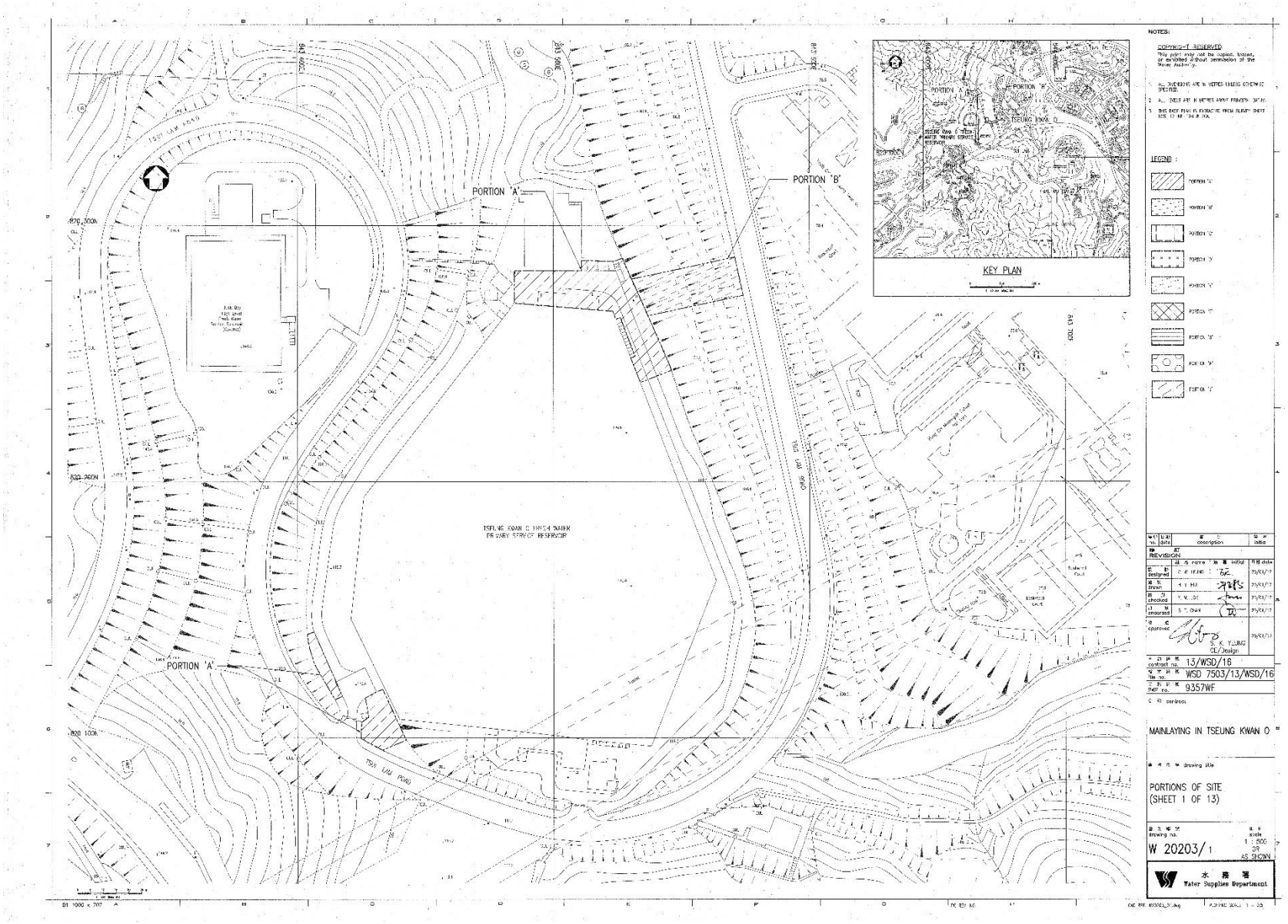
7.1.8 No notification of summons or prosecution was received since commencement of the Contract.

7.1.9 The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

7.1.10 Statistics on complaints and regulatory compliance are summarized in **Appendix G**.

Appendix A

Overview of Mainlaying in TKO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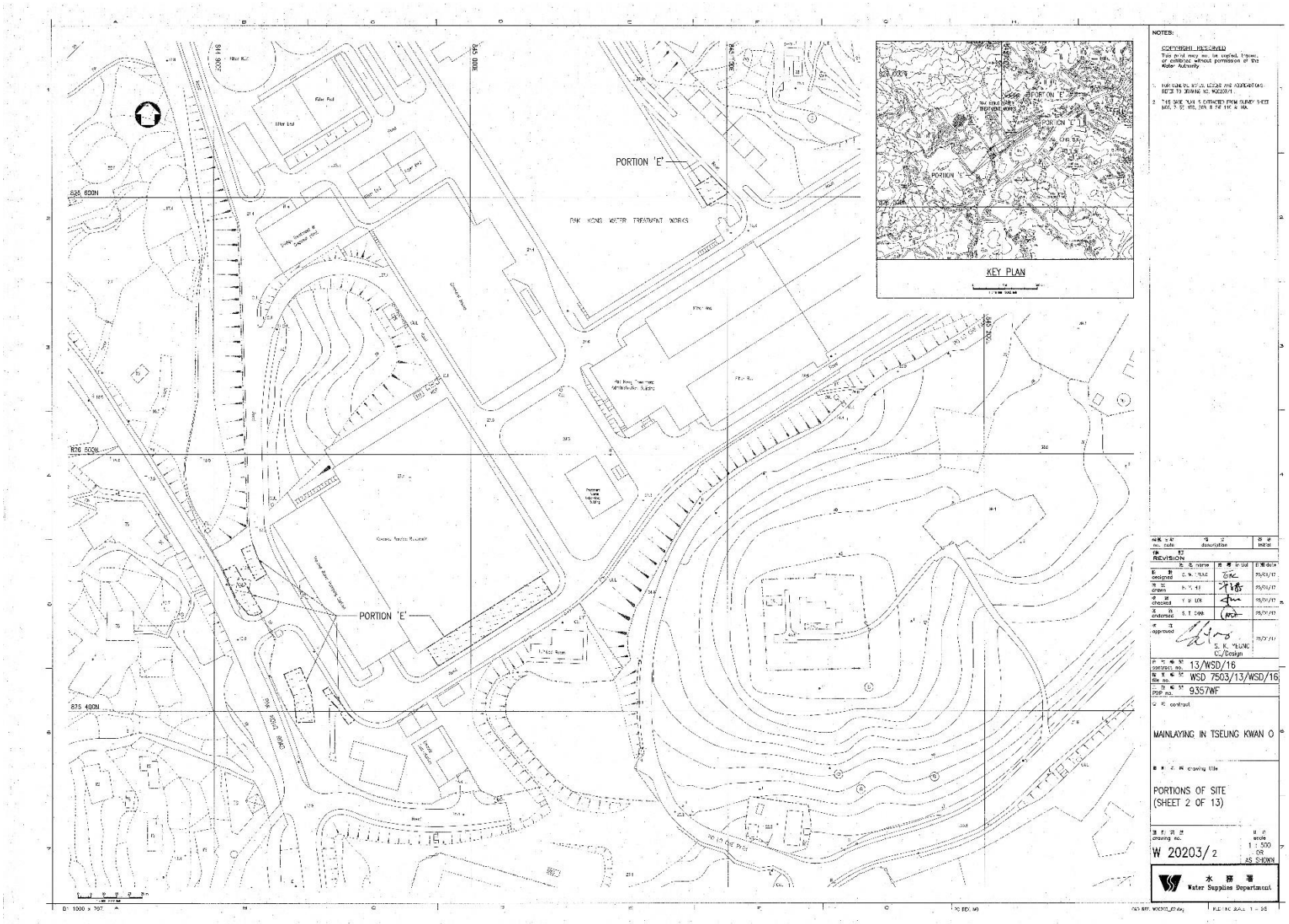
水務署
Water Supplies Department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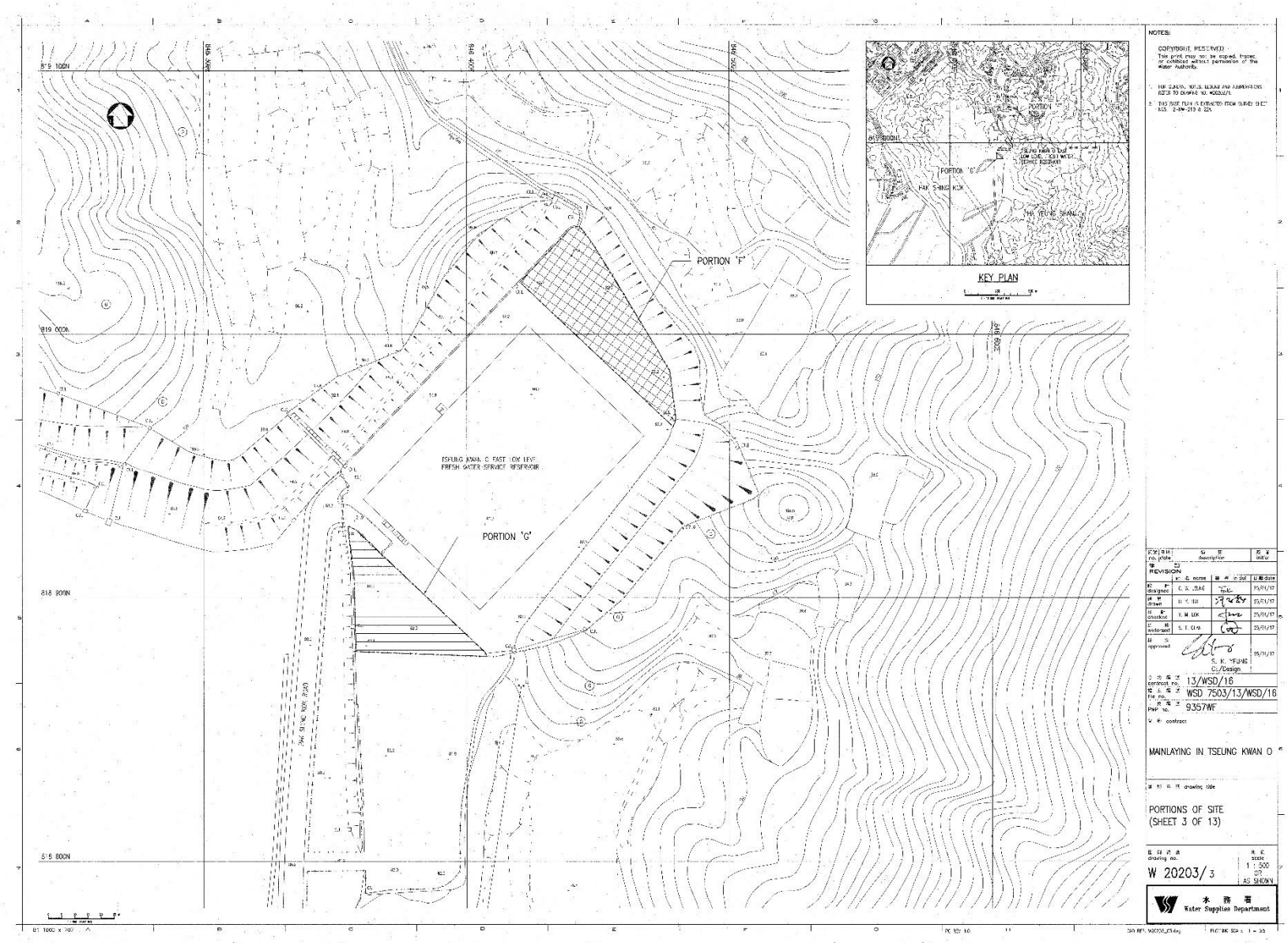
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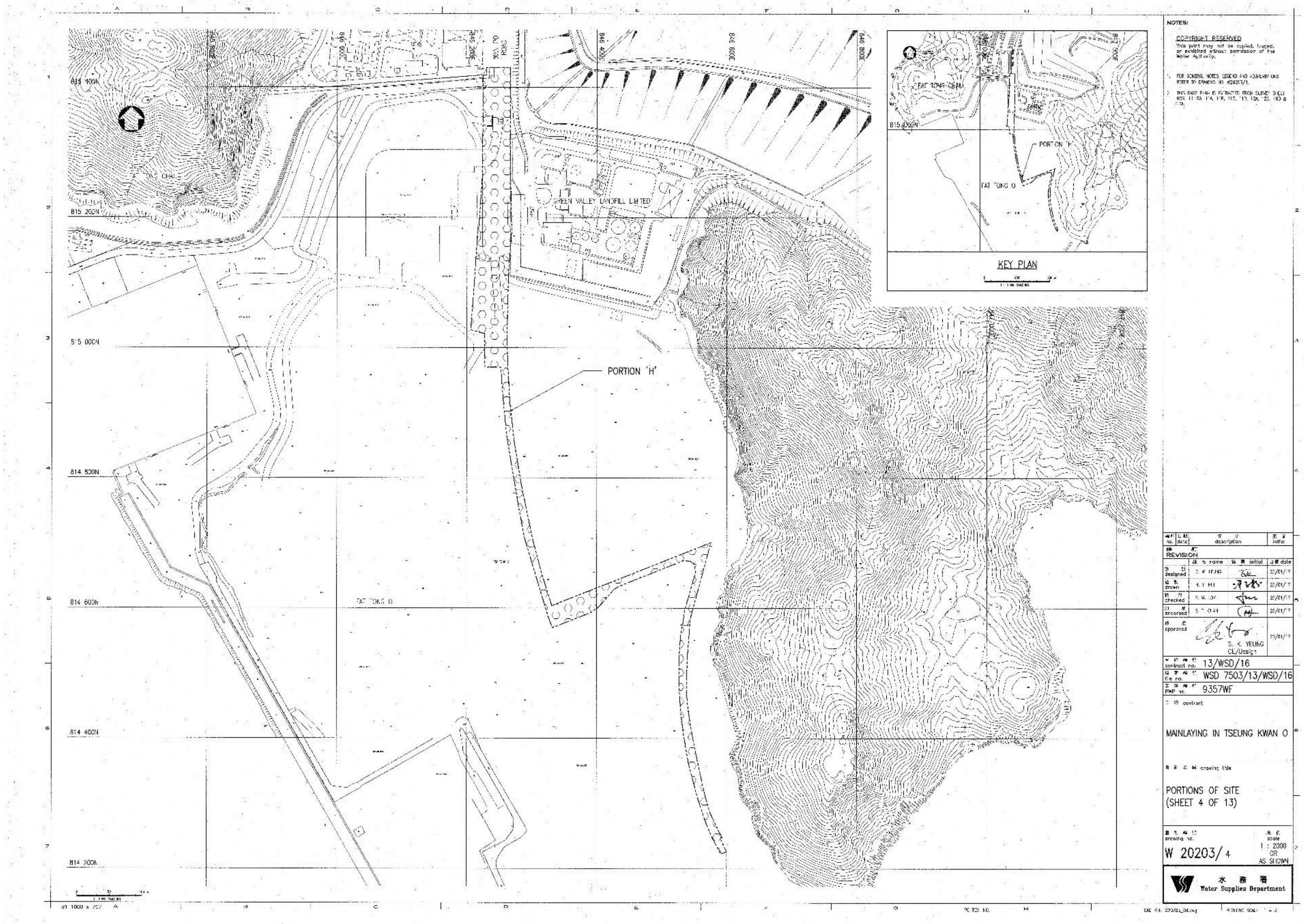
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PWP no. 9357WF
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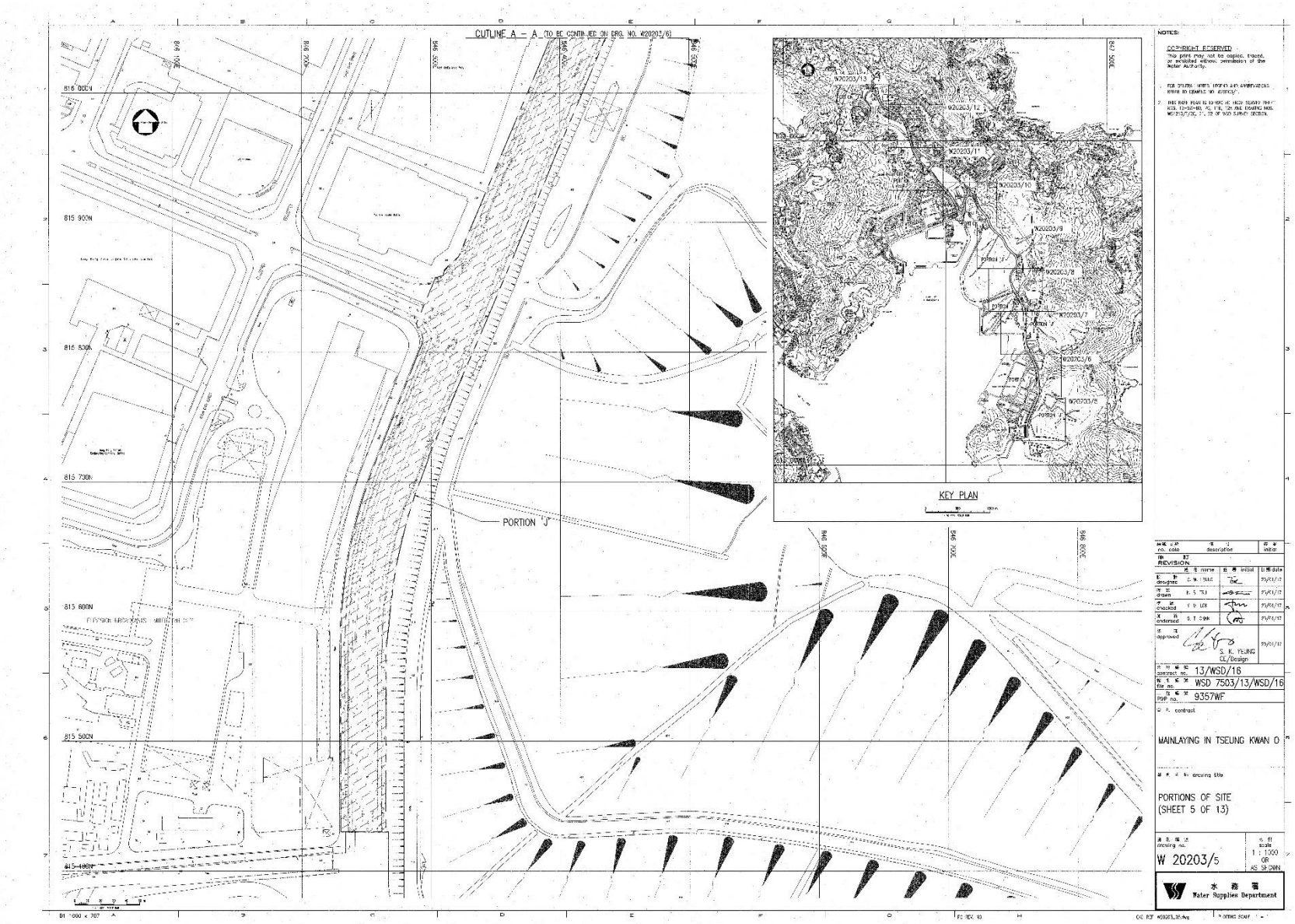
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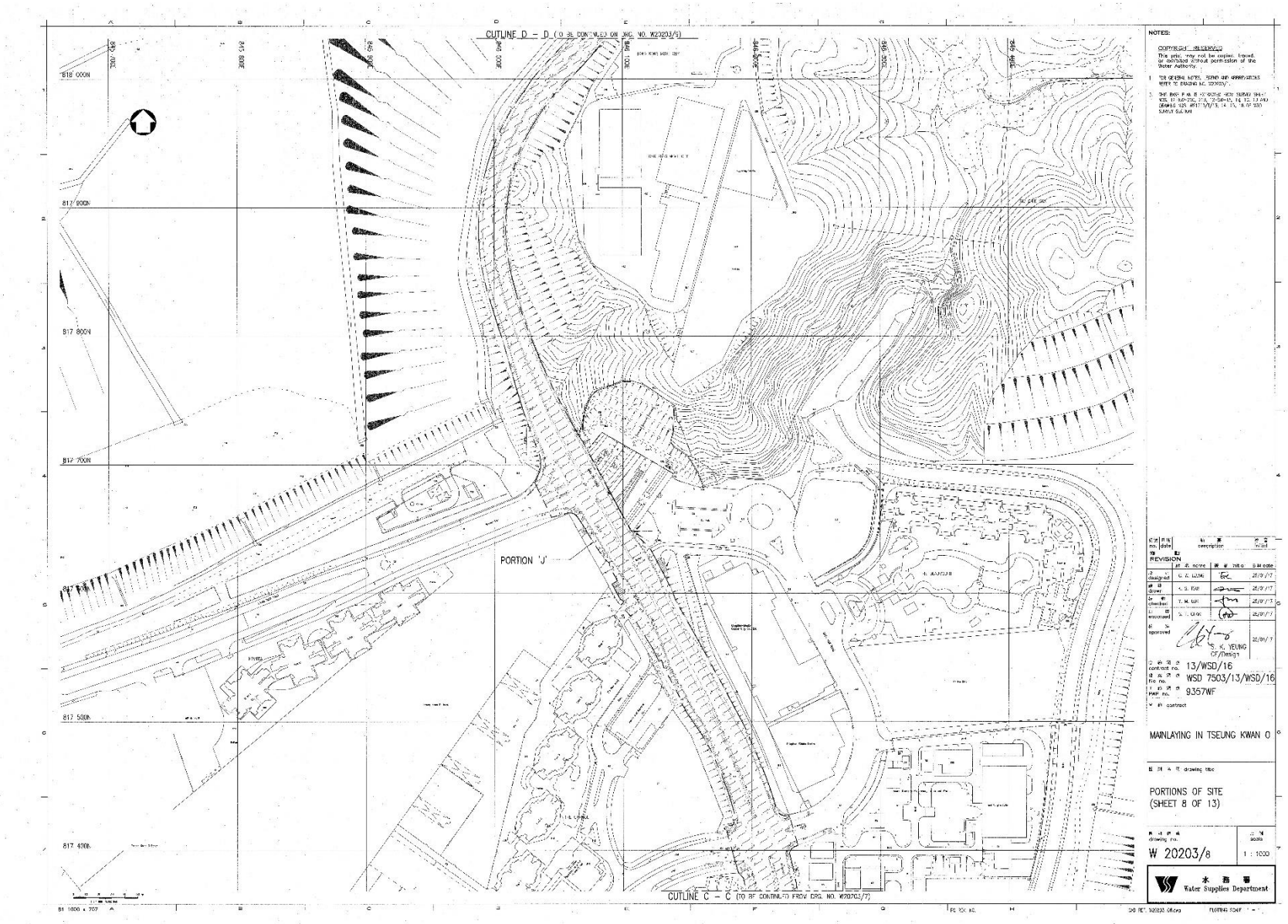
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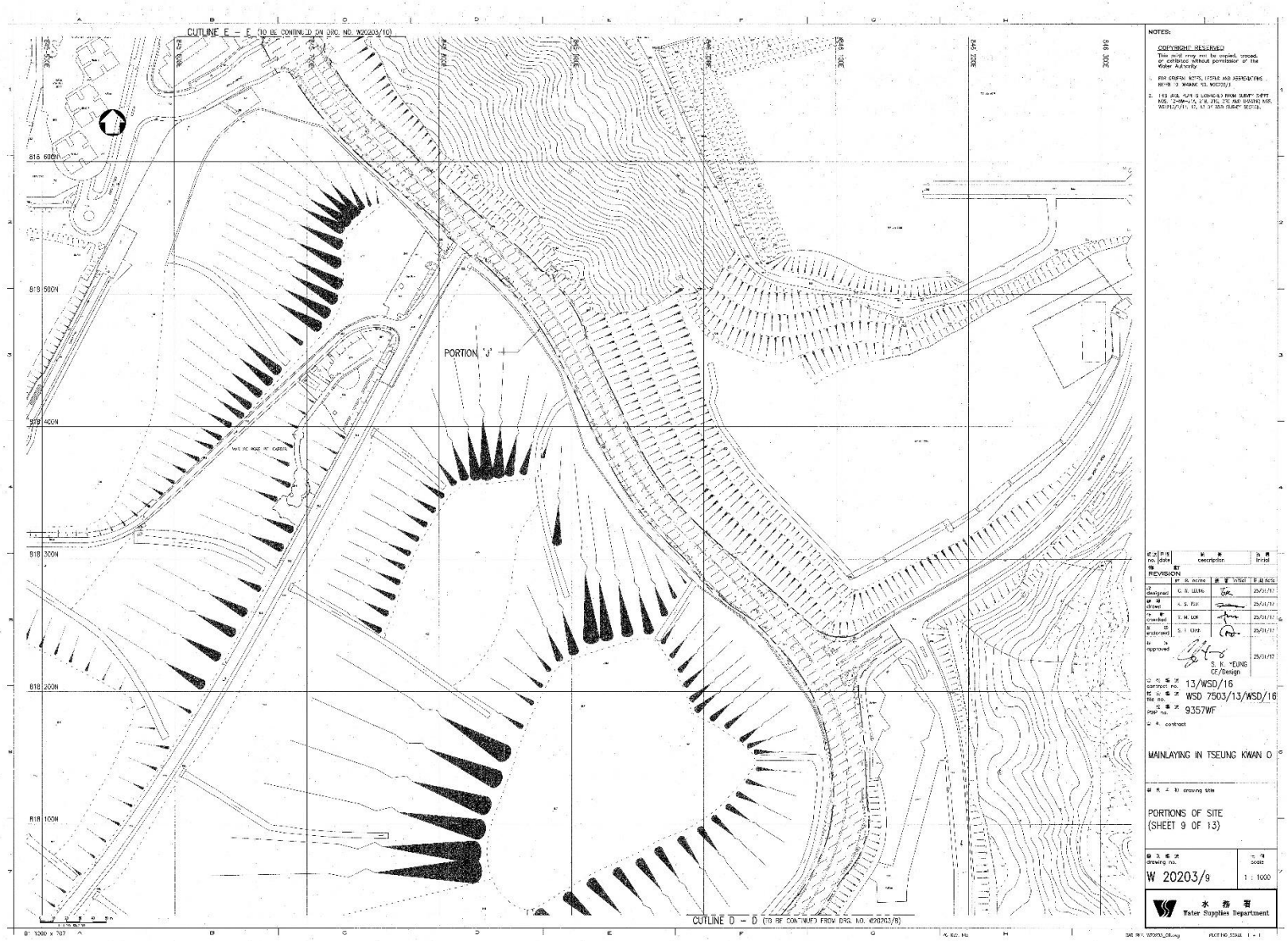
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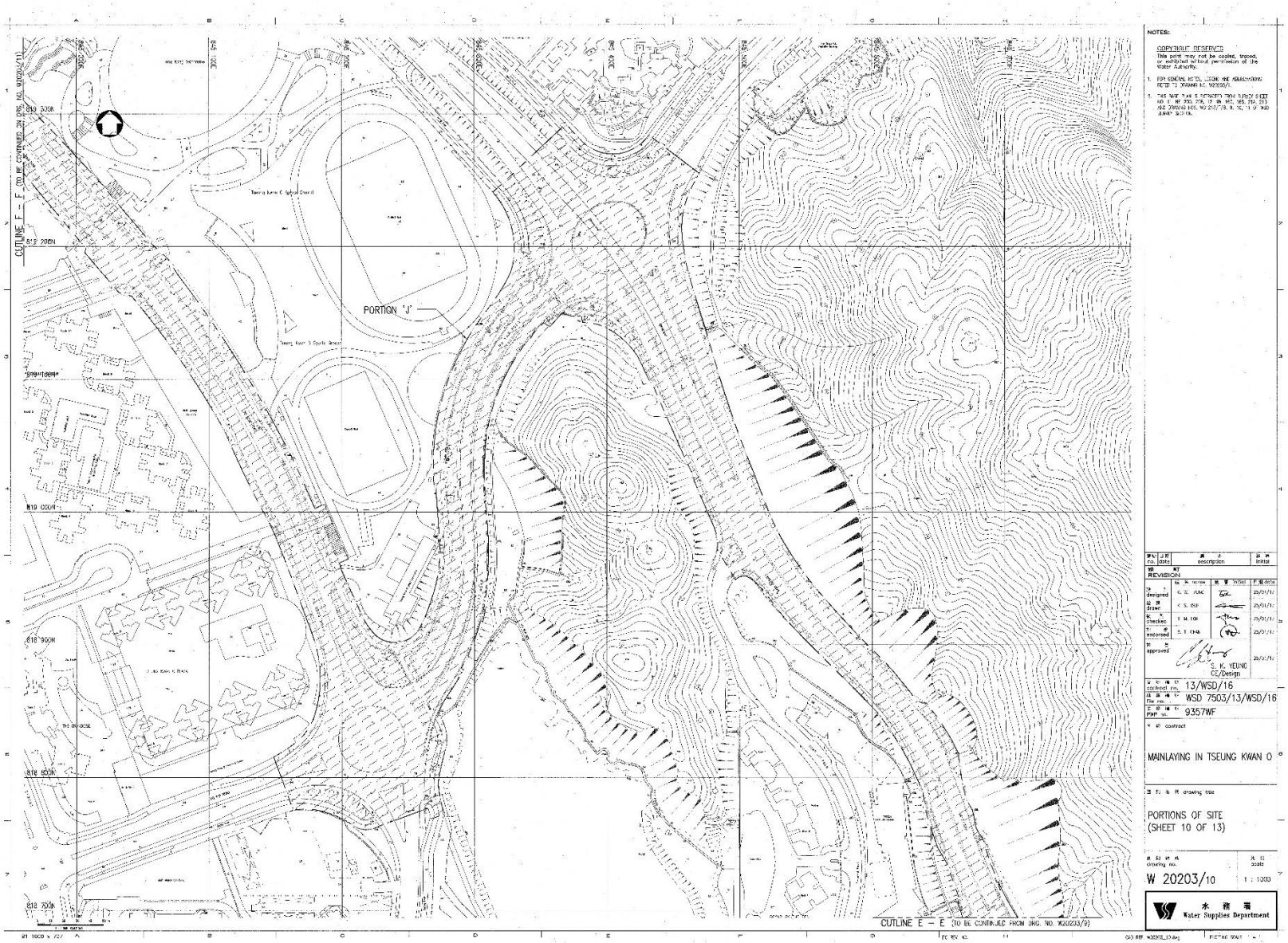
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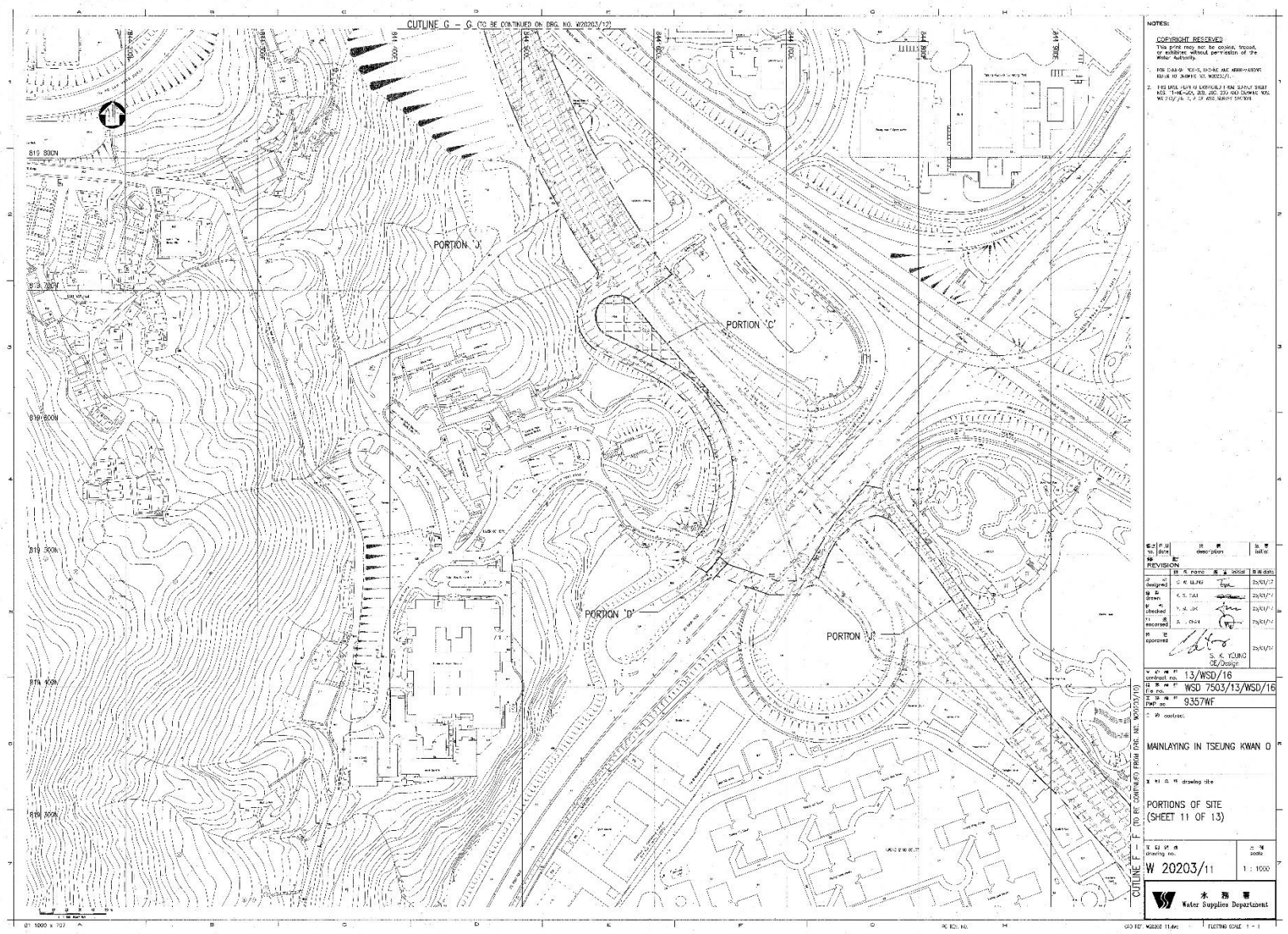
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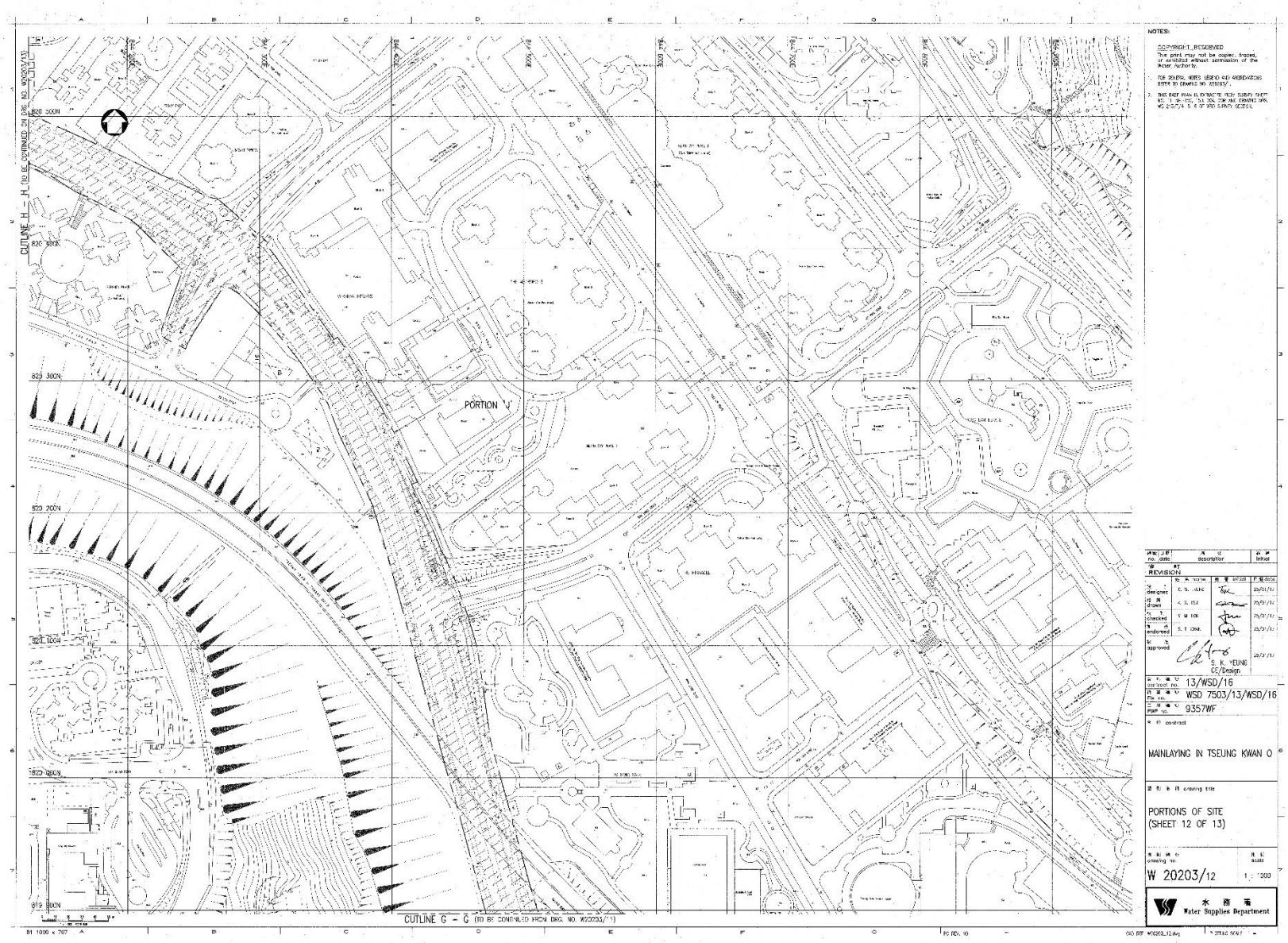
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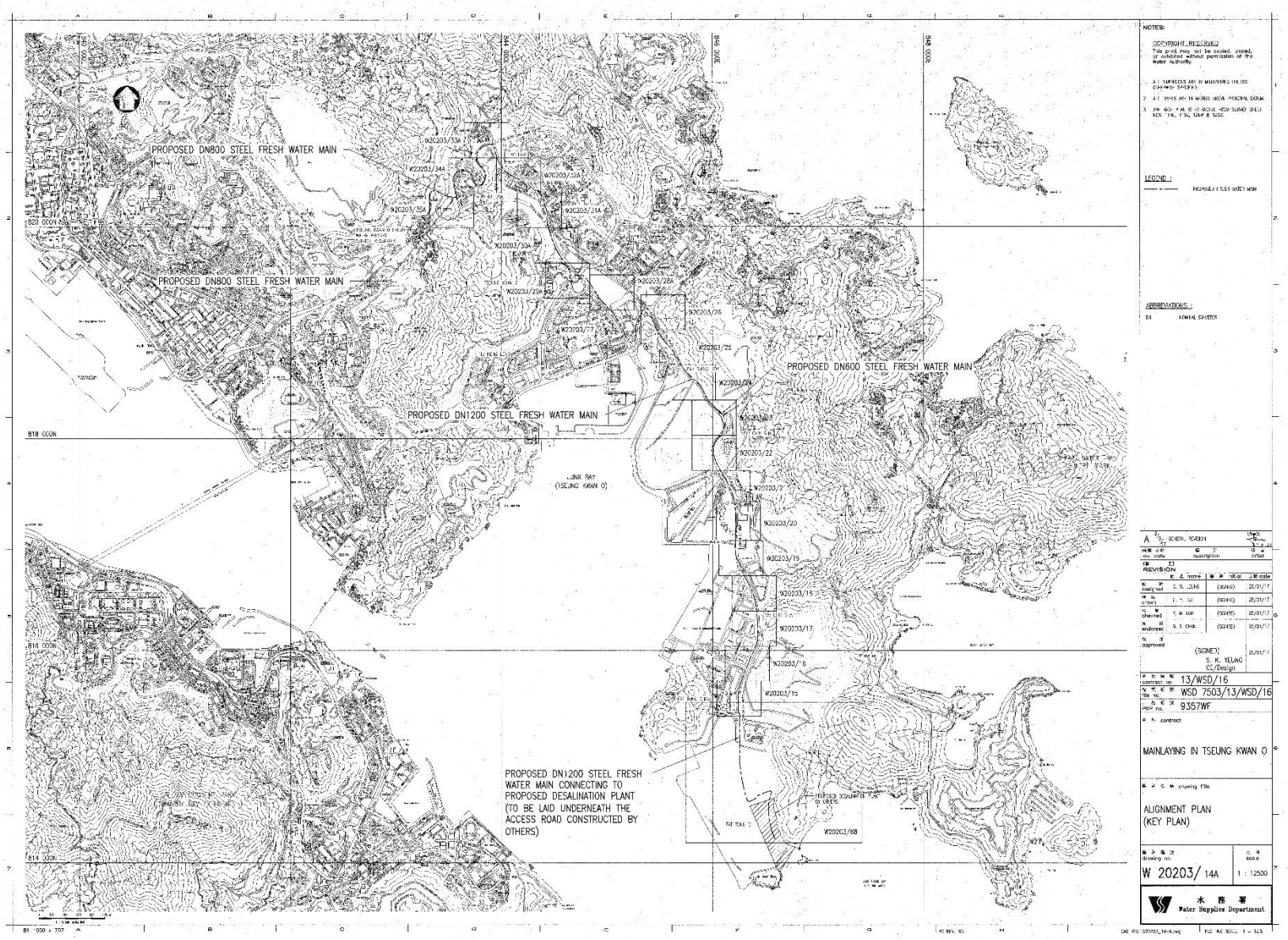
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PROPOSED DN800 STEEL FRESH WATER MAIN
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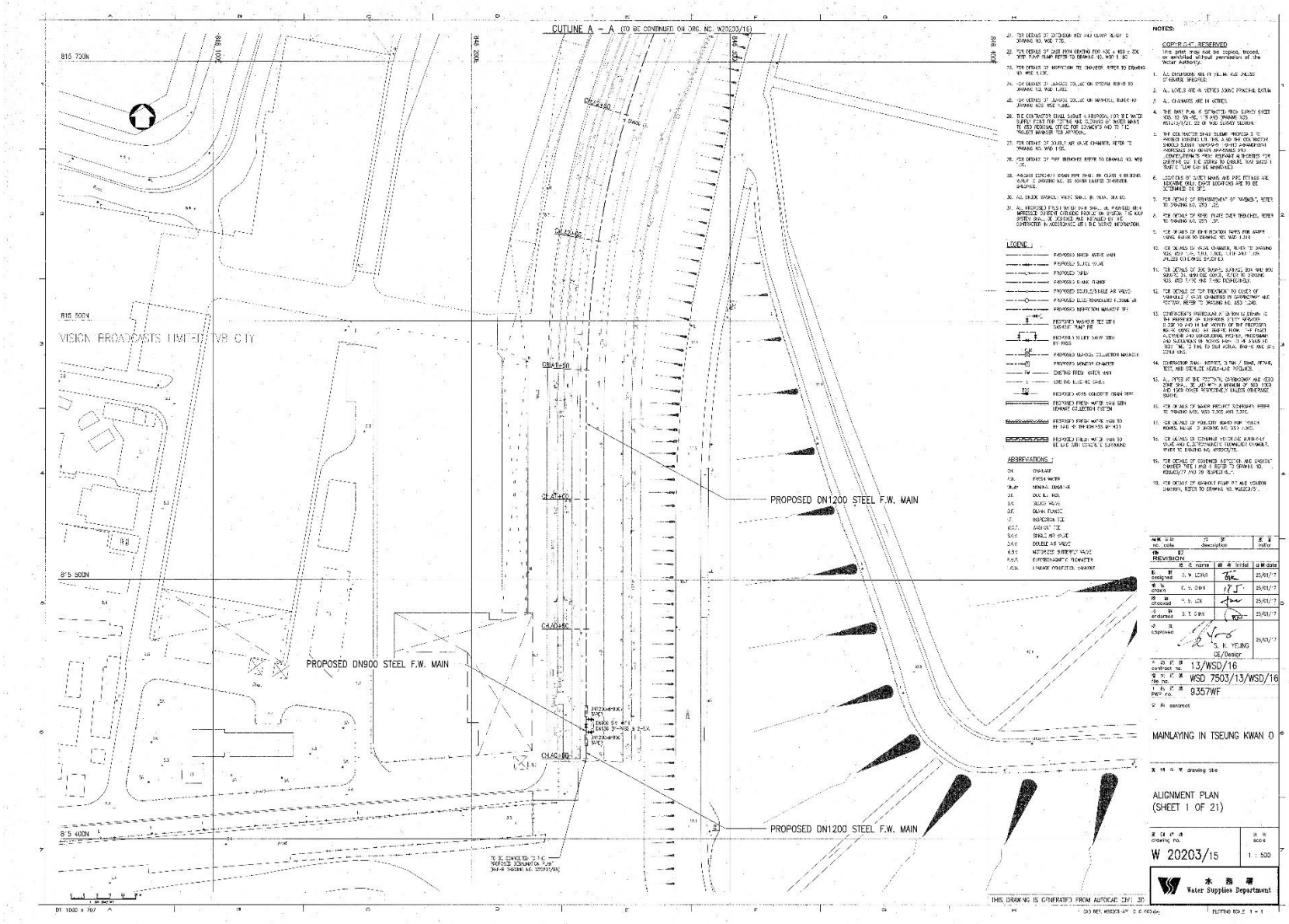
PROPOSED DN600 STEEL FRESH WATER MAIN
JUNK BAY (TSEUNG KWAN O)
PROPOSED DN1200 STEEL FRESH WATER MAIN CONNECTING TO PROPOSED DESALINATION PLANT (TO BE LAID UNDERNEATH THE ACCESS ROAD CONSTRUCTED BY OTHERS)
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN (KEY PLAN)
W 20203/ 14A
1 : 12500
Water Supplies Department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PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
NOTES:
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LEGEND :
ABBREVIATIONS :
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 1 OF 21)
W 20203/15
1 : 500
Water Supplies Department
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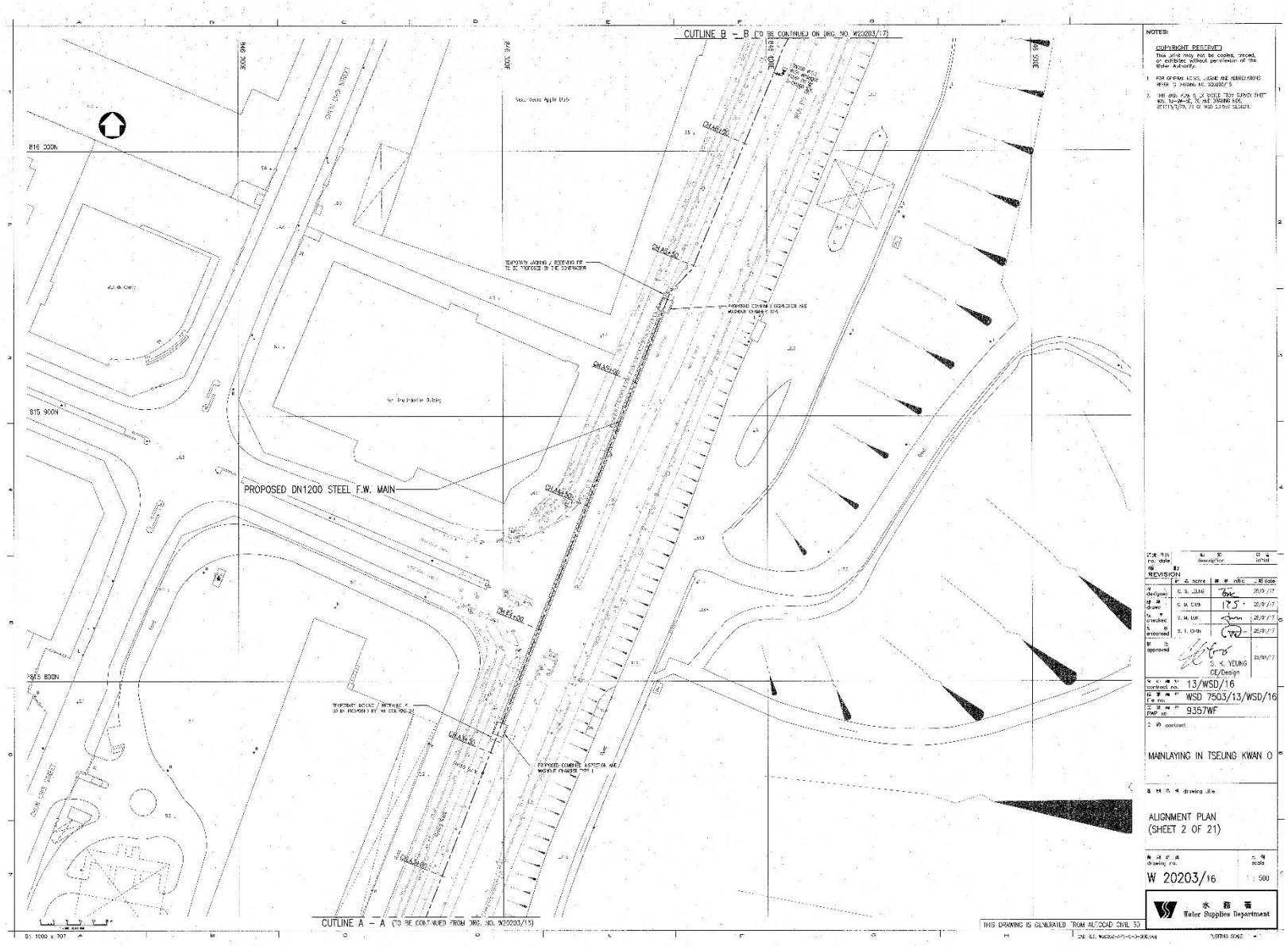
CUTLINE B – B (TO BE CONTINUED ON DRG. NO. W20203/17)
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE A – A (TO BE CONTINUED FROM DRG. NO. W20203/15)
NOTES:
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ALIGNMENT PLAN
(SHEET 2 OF 21)
W 20203/16
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WSD 7503/13/WSD/16
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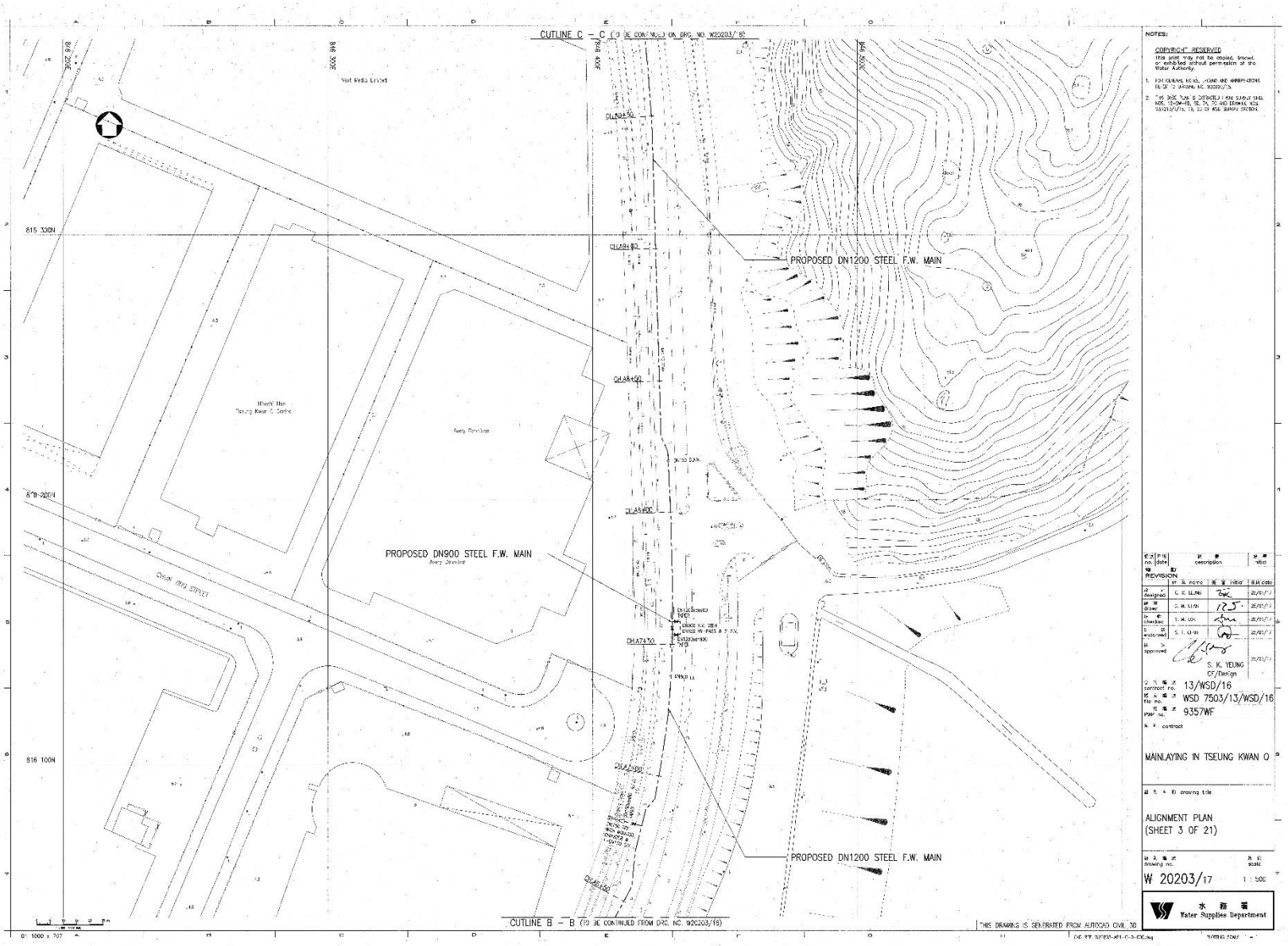
Water Supplies Department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PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 3 OF 21)
W 20203/17
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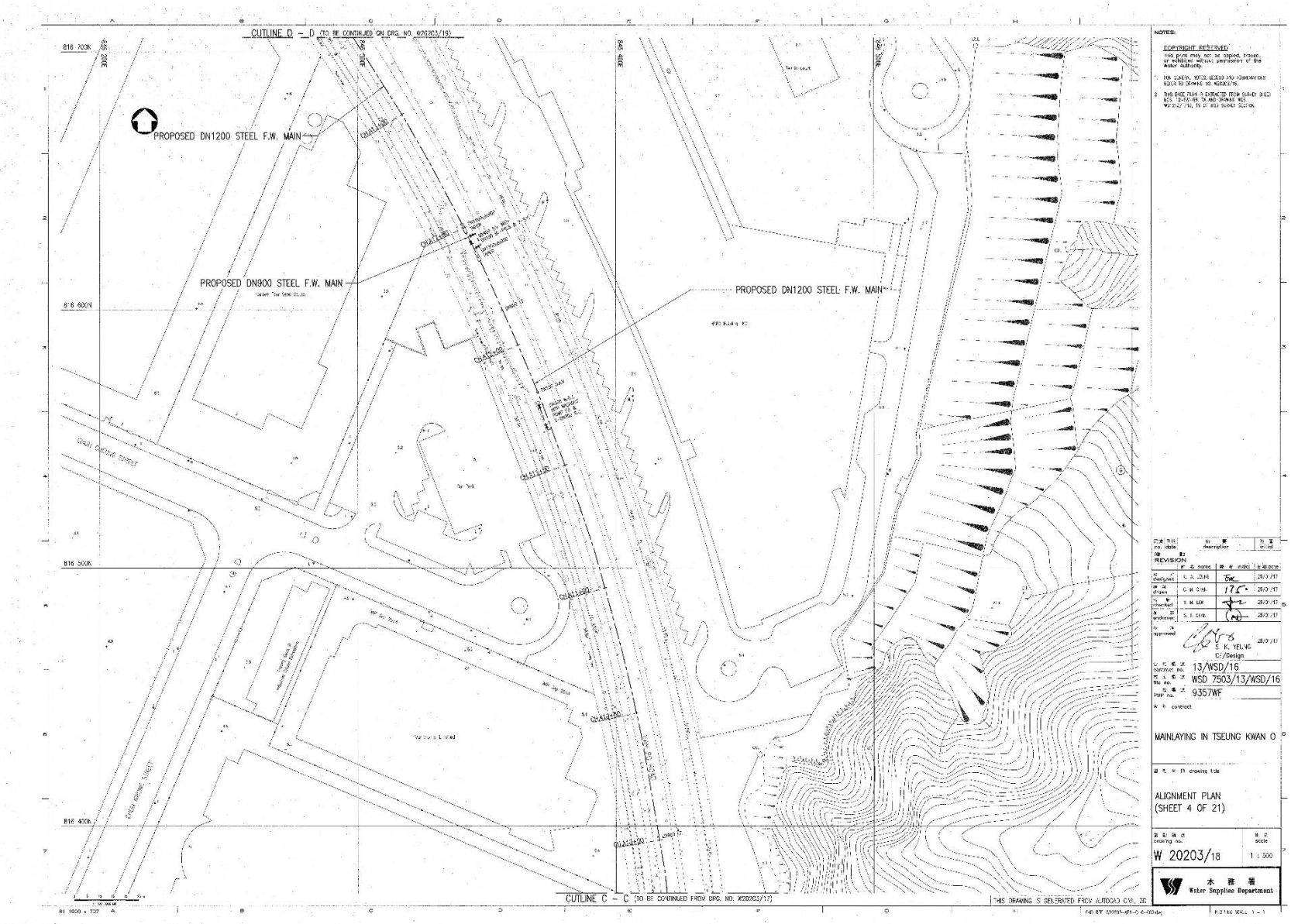
13/WSD/16
WSD 7503/13/WSD/16
9357WF
S. K. YEUNG
CF/Design
Water Supplies Department


CUTLINE D – D (TO BE CONTINUED ON DRG. NO. W20203/19)
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE C – C (TO BE CONTINUED FROM DRG. NO. W20203/17)
NOTES:
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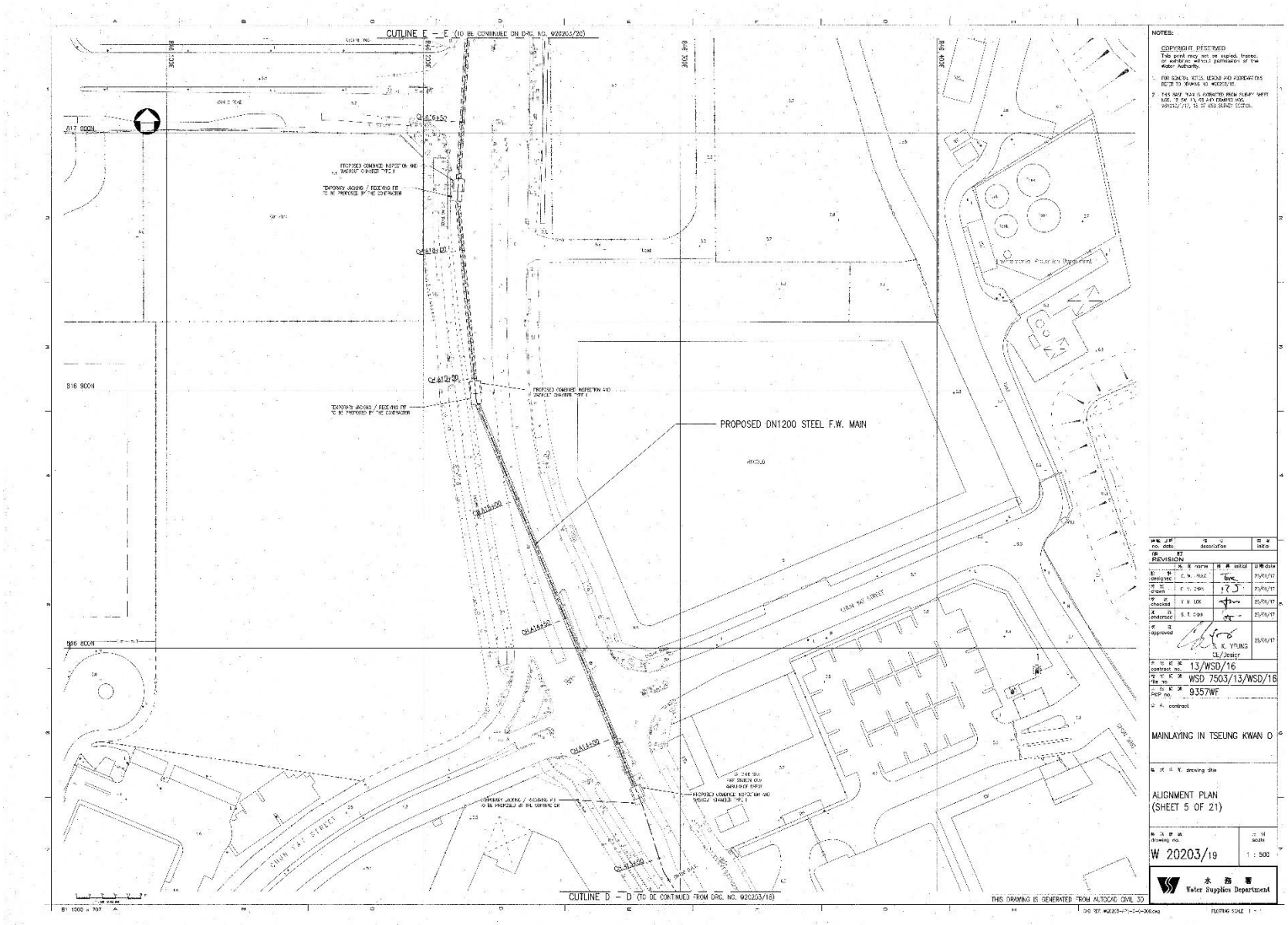
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 4 OF 21)
W 20203/18
1 : 500
水 務 署
Water Supplies Department


CUTLINE E – E (TO BE CONTINUED ON DRG. NO. W20203/20)
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE D – D (TO BE CONTINUED FROM DRG. NO. W20203/18)
NOTES:
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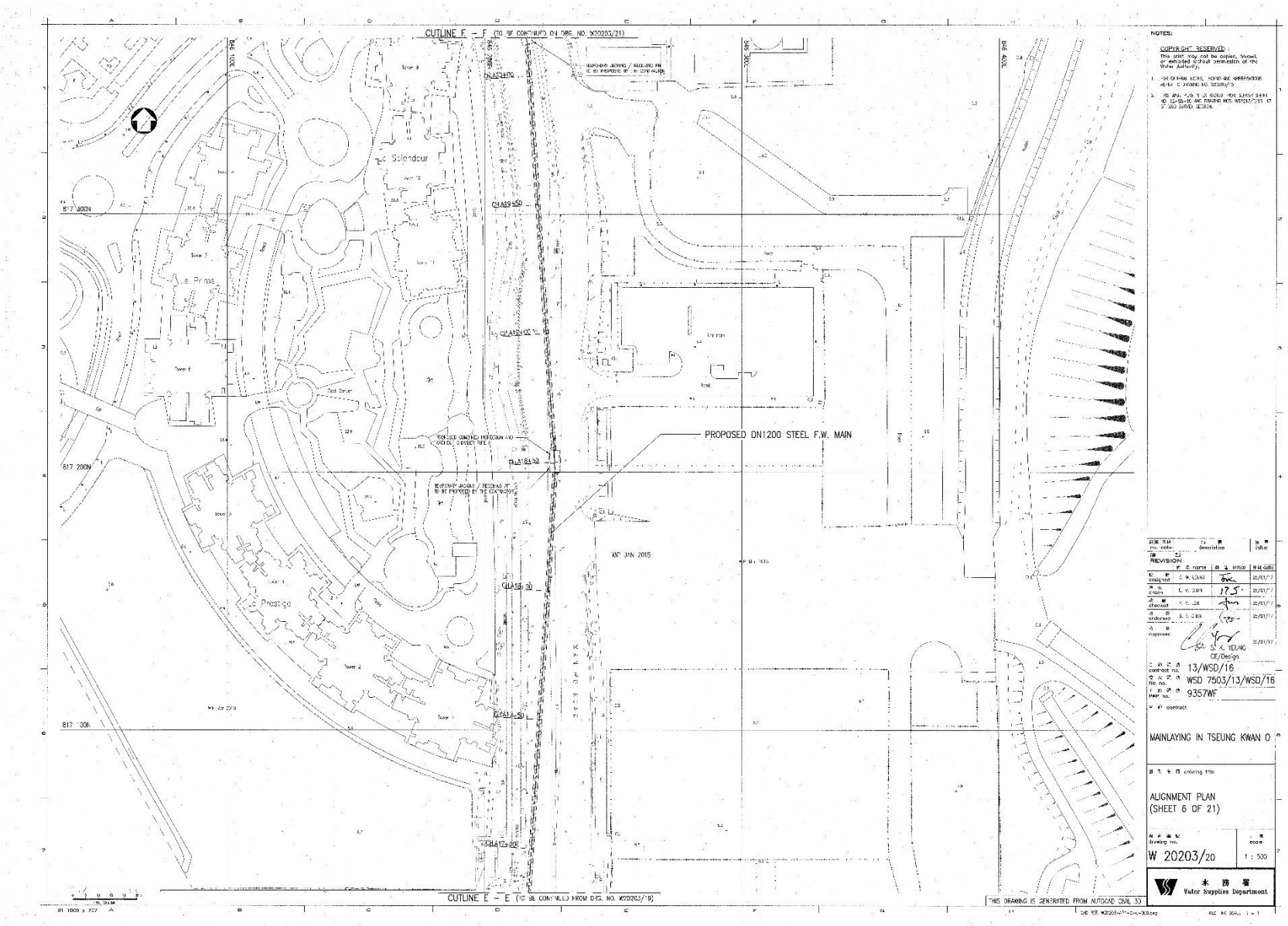
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 5 OF 21)
W 20203/19
1 : 500
水 務 署
Water Supplies Department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MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 6 OF 21)
W 20203/20
1 : 500
Water Supplies Department
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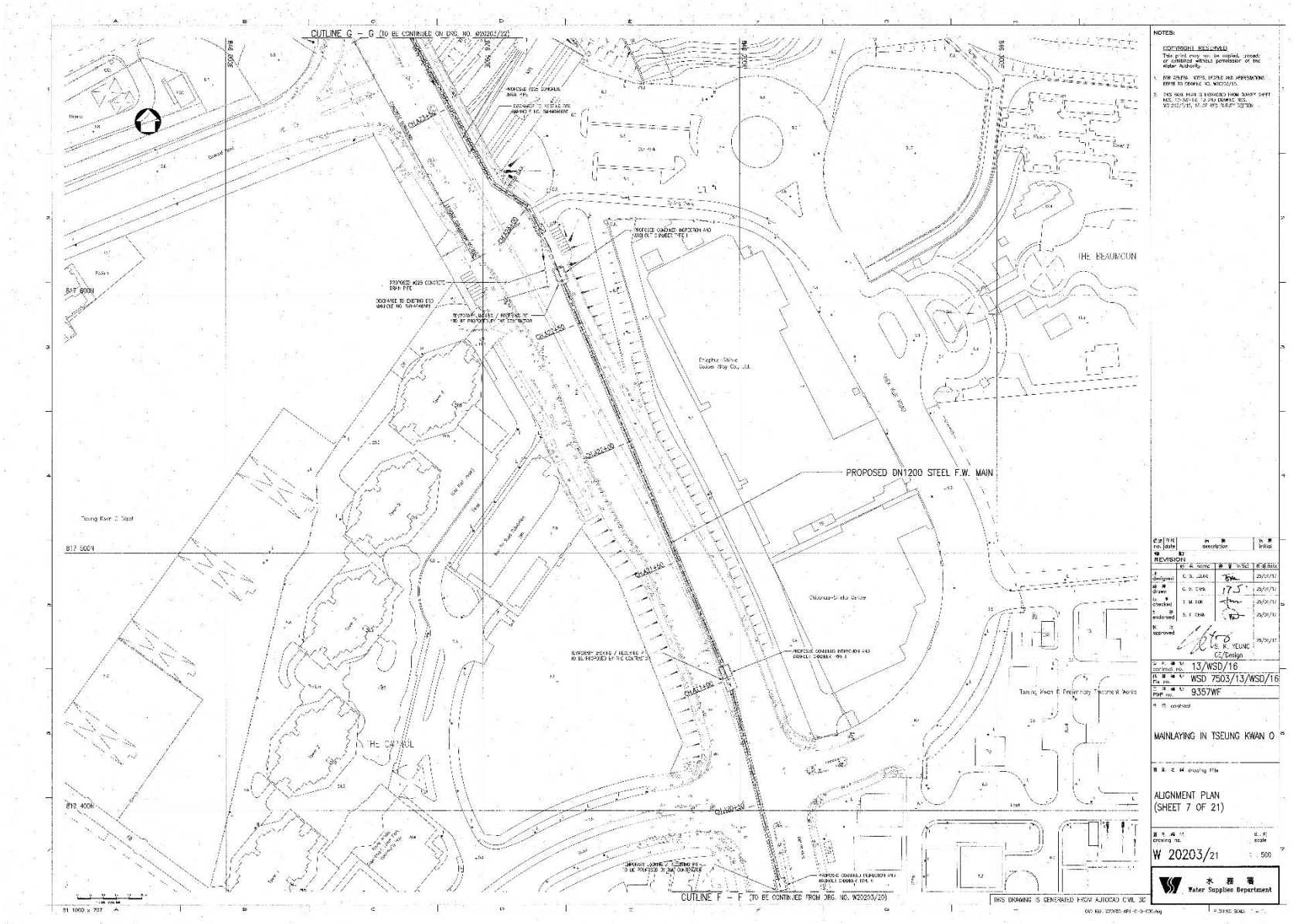
CUTLINE G – G (TO BE CONTINUED ON DRG. NO. W20203/22)
PROPOSED DN1200 STEEL F.W. MAIN
THE BEAUMONT
CUTLINE F – F (TO BE CONTINUED FROM DRG. NO. W20203/20)
NOTES:
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WSD 7503/13/WSD/16
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MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 7 OF 21)
W 20203/21
1 : 500
水務署
Water Supplies Department
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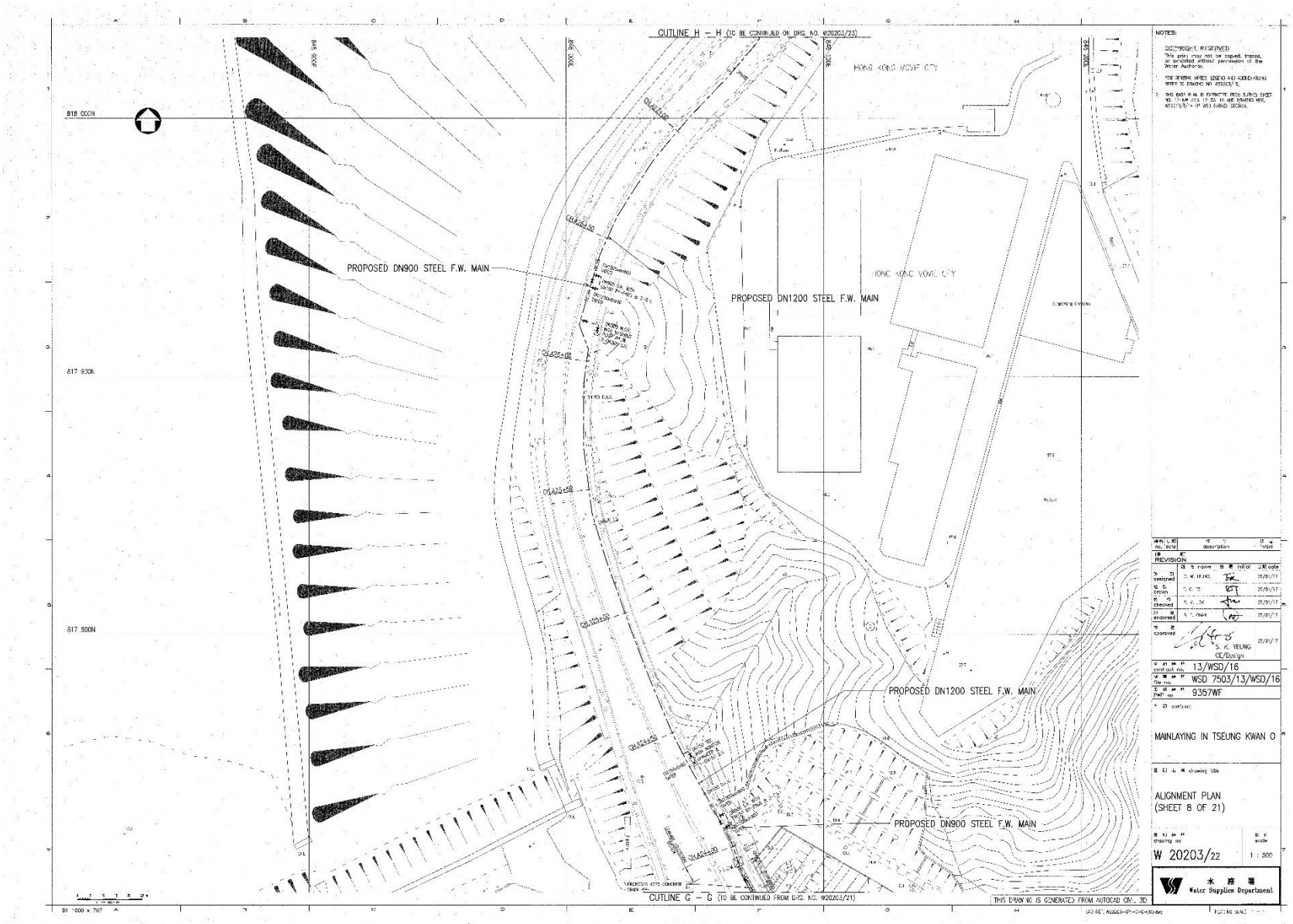
CUTLINE H – H (TO BE CONTINUED ON DRG. NO. W20203/23)
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PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
818 000N
817 930N
817 800N
CUTLINE G – G (TO BE CONTINUED FROM DRG. NO. W20203/21)
NOTES:
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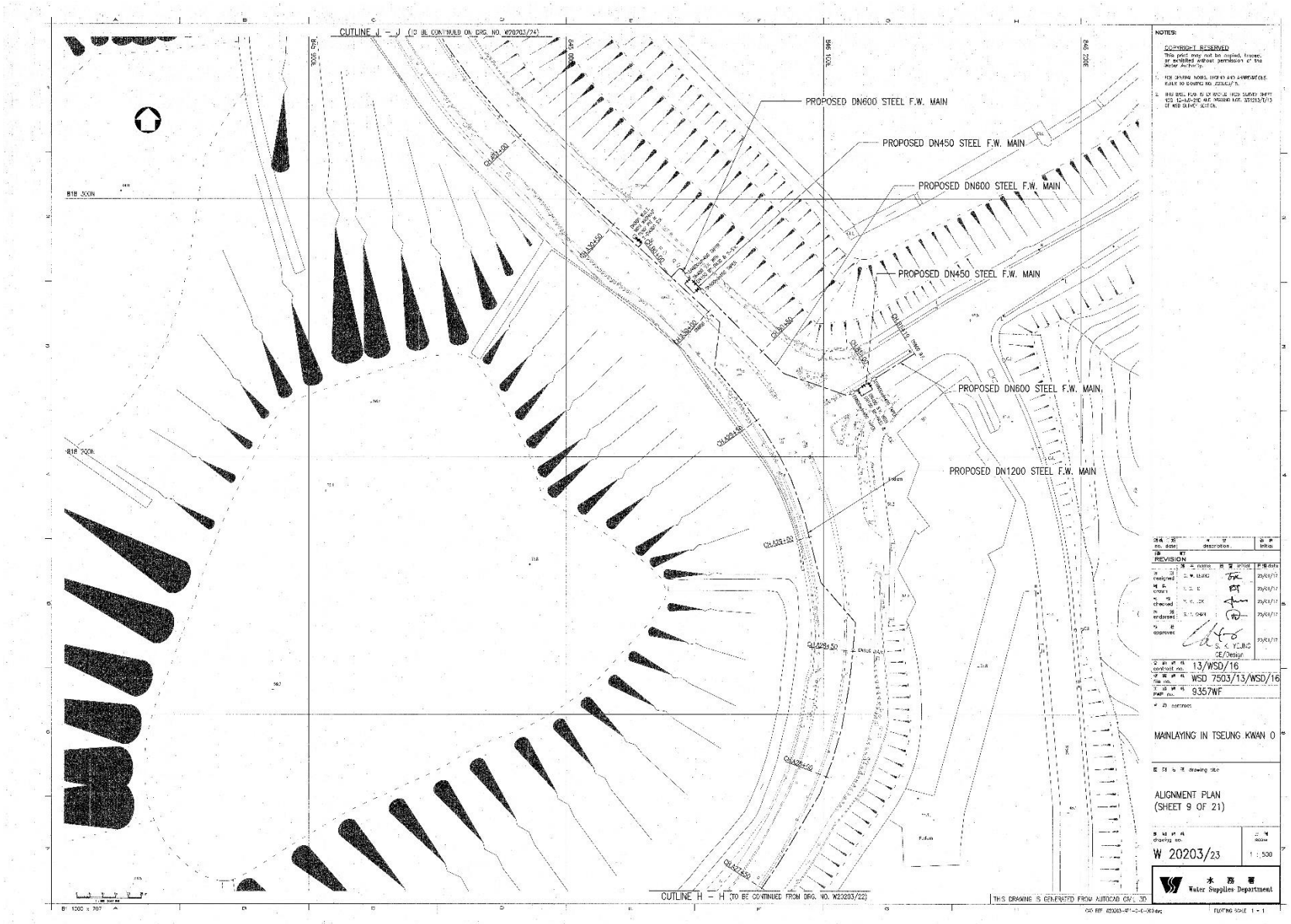
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 8 OF 21)
W 20203/22
1 : 500
Water Supplies Department


PROPOSED DN600 STEEL F.W. MAIN
PROPOSED DN450 STEEL F.W. MAIN
PROPOSED DN600 STEEL F.W. MAIN
PROPOSED DN450 STEEL F.W. MAIN
PROPOSED DN600 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE J – J (TO BE CONTINUED ON DRG. NO. W20203/24)
CUTLINE H – H (TO BE CONTINUED FROM DRG. NO. W20203/22)
NOTES:
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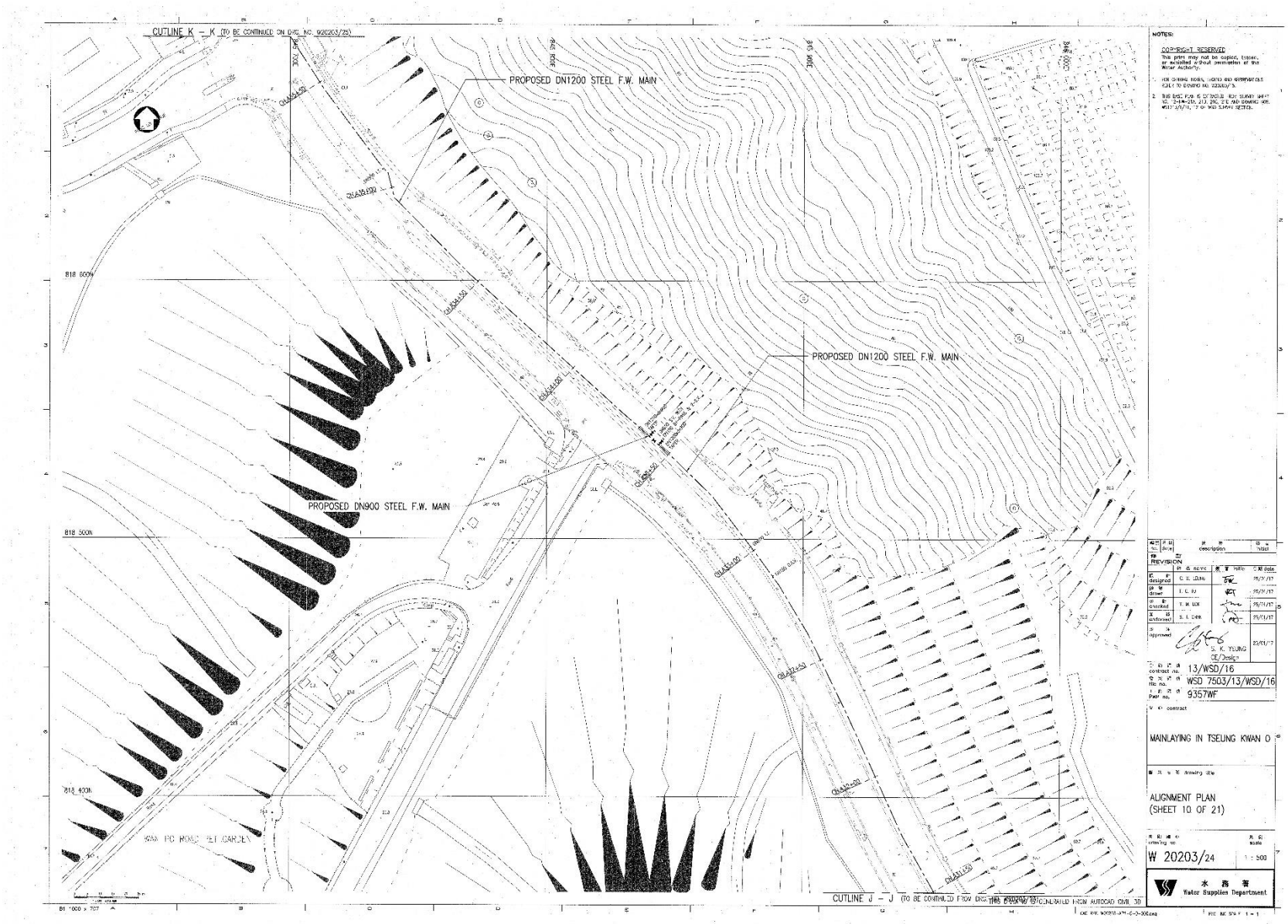
9357WF
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 9 OF 21)
W 20203/23
1 : 500
Water Supplies Department


CUTLINE K – K (TO BE CONTINUED ON DWG. NO. W20203/25)
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
CUTLINE J – J (TO BE CONTINUED FROM DWG. NO. W20203/23)
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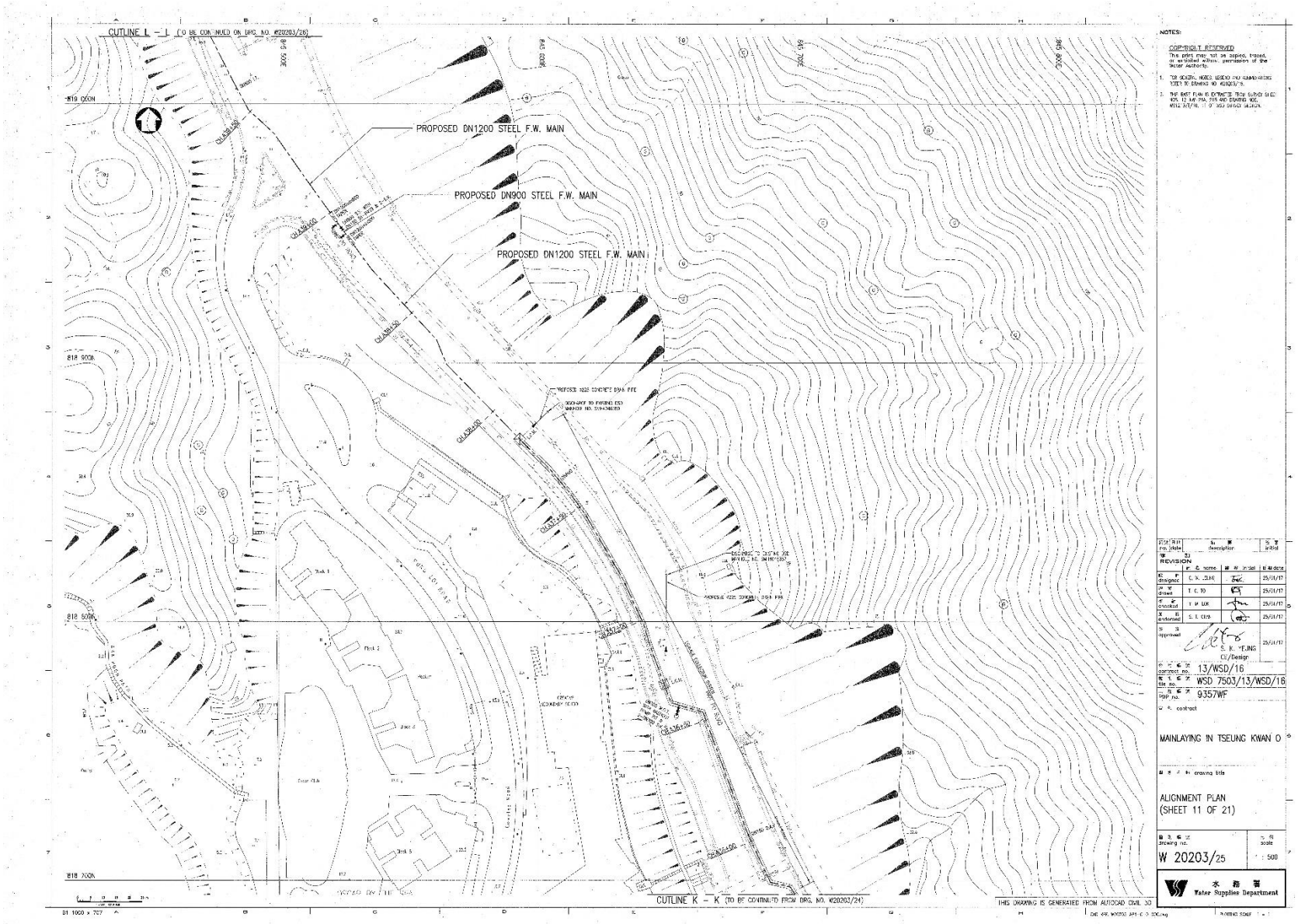
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 10 OF 21)
W 20203/24
1 : 500
Water Supplies Department


CUTLINE L – L (TO BE CONTINUED ON DRG. NO. W20203/26)
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE K – K (TO BE CONTINUED FROM DRG. NO. W20203/24)
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ALIGNMENT PLAN
(SHEET 11 OF 21)
W 20203/25
13/WSD/16
WSD 7503/13/WSD/16
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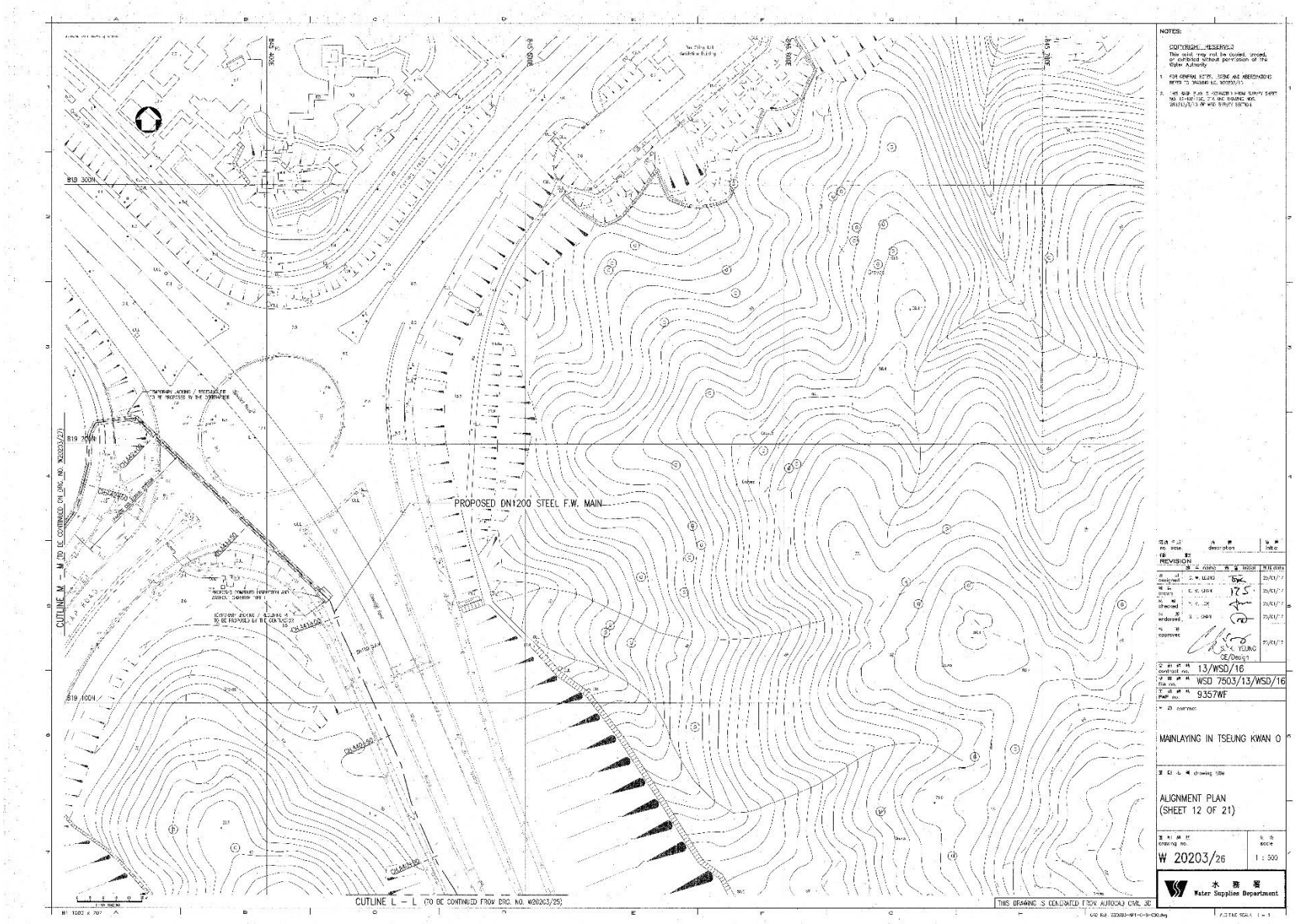
Water Supplies Department


PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE L – L (TO BE CONTINUED FROM DRG. NO. W20203/25)
CUTLINE M – M (TO BE CONTINUED ON DRG. NO. W20203/27)
NOTES:
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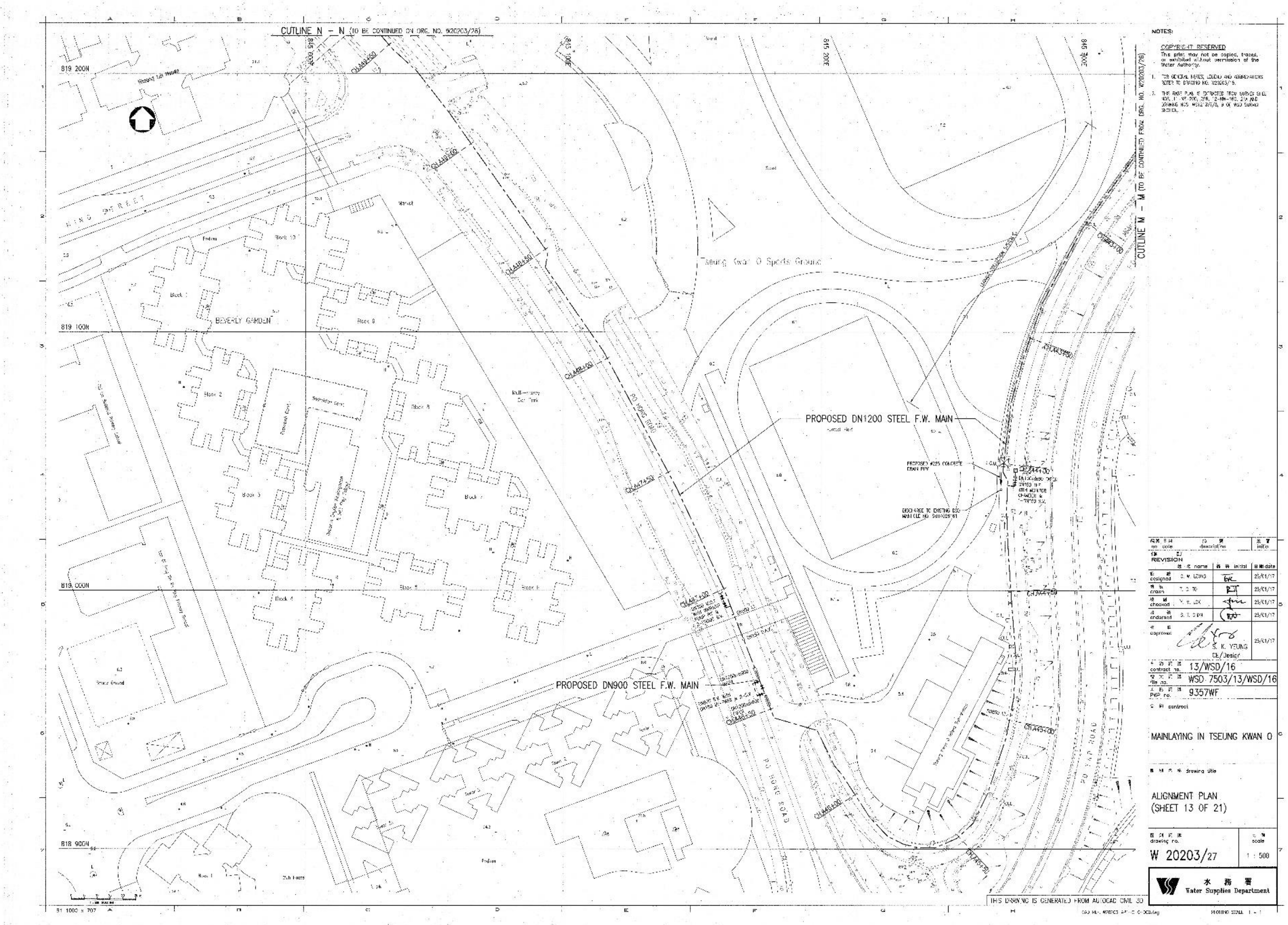
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 12 OF 21)
W 20203/26
1 : 500
13/WSD/16
WSD 7503/13/WSD/16
9357WF
水務署
Water Supplies Department


CUTLINE N – N
NOTES:
COPYRIGHT RESERVED
CUTLINE M – M
Tseung Kwan O Sports Ground
BEVERLY GARDEN
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
PO HONG ROAD
PO YAP ROAD
REVISION
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MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 13 OF 21)
W 20203/27
1 : 500
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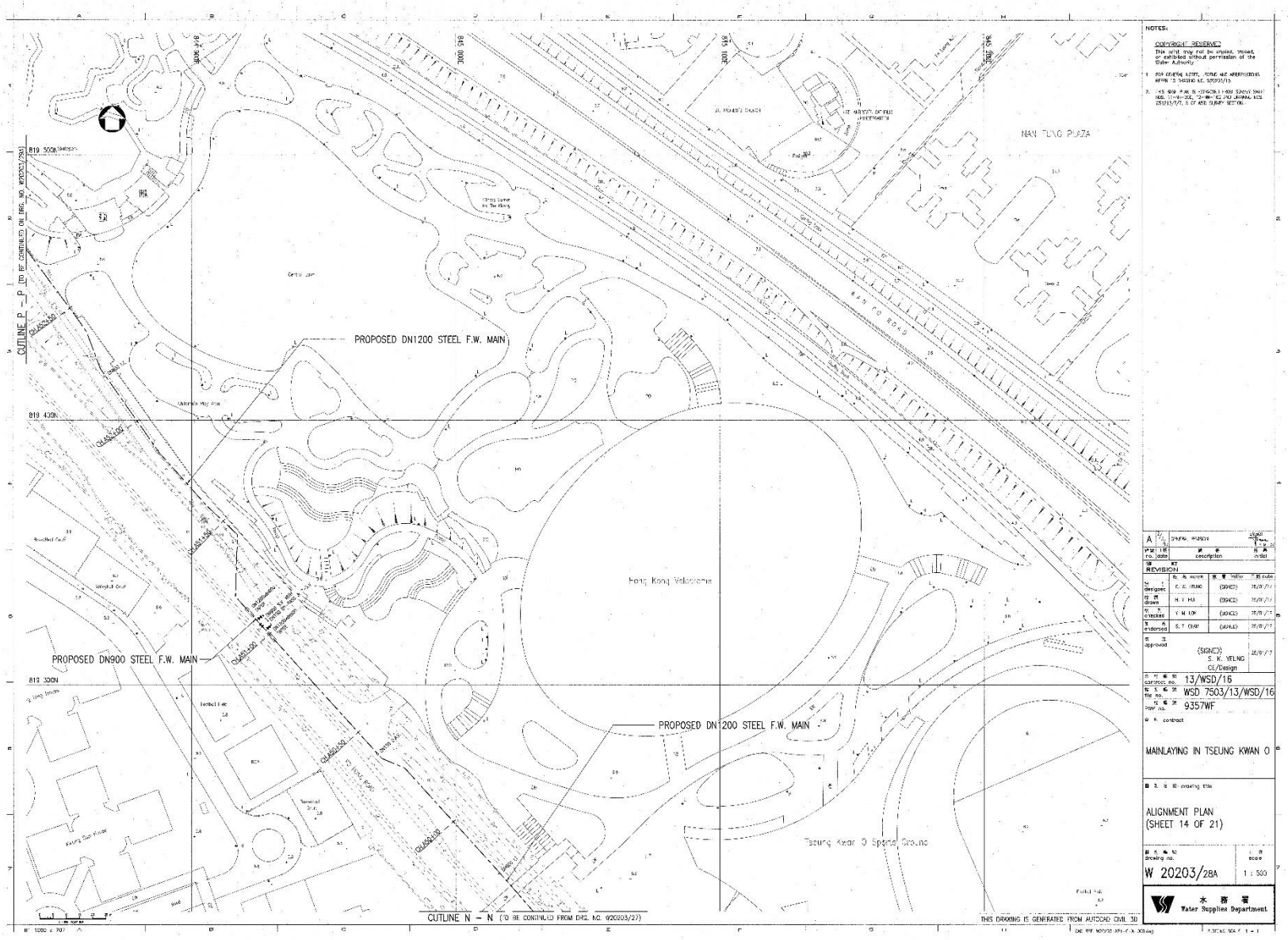
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
NAN TUNG PLAZA
Hong Kong Velodrome
Tseung Kwan O Sports Ground
CUTLINE P – P (TO BE CONTINUED ON DRG. NO. W20203/26)
CUTLINE N – N (TO BE CONTINUED FROM DRG. NO. W20203/27)
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{SIGNED}
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CE/Design
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ALIGNMENT PLAN
(SHEET 14 OF 21)
W 20203/28A
1 : 500
水務署
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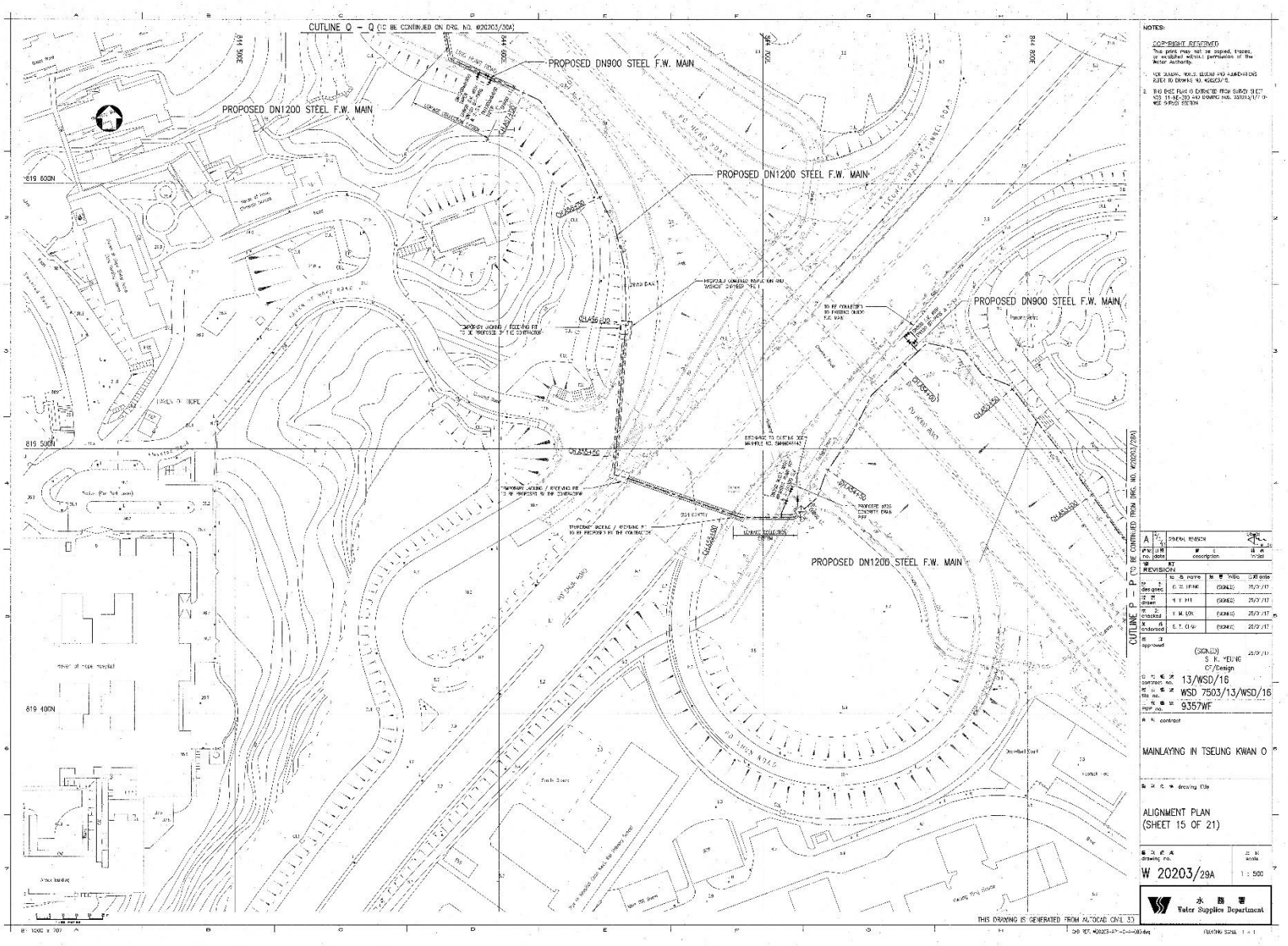
PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE Q – Q (TO BE CONTINUED ON DRG. NO. W20203/30A)
CUTLINE P – P (TO BE CONTINUED FROM DRG. NO. W20203/29A)
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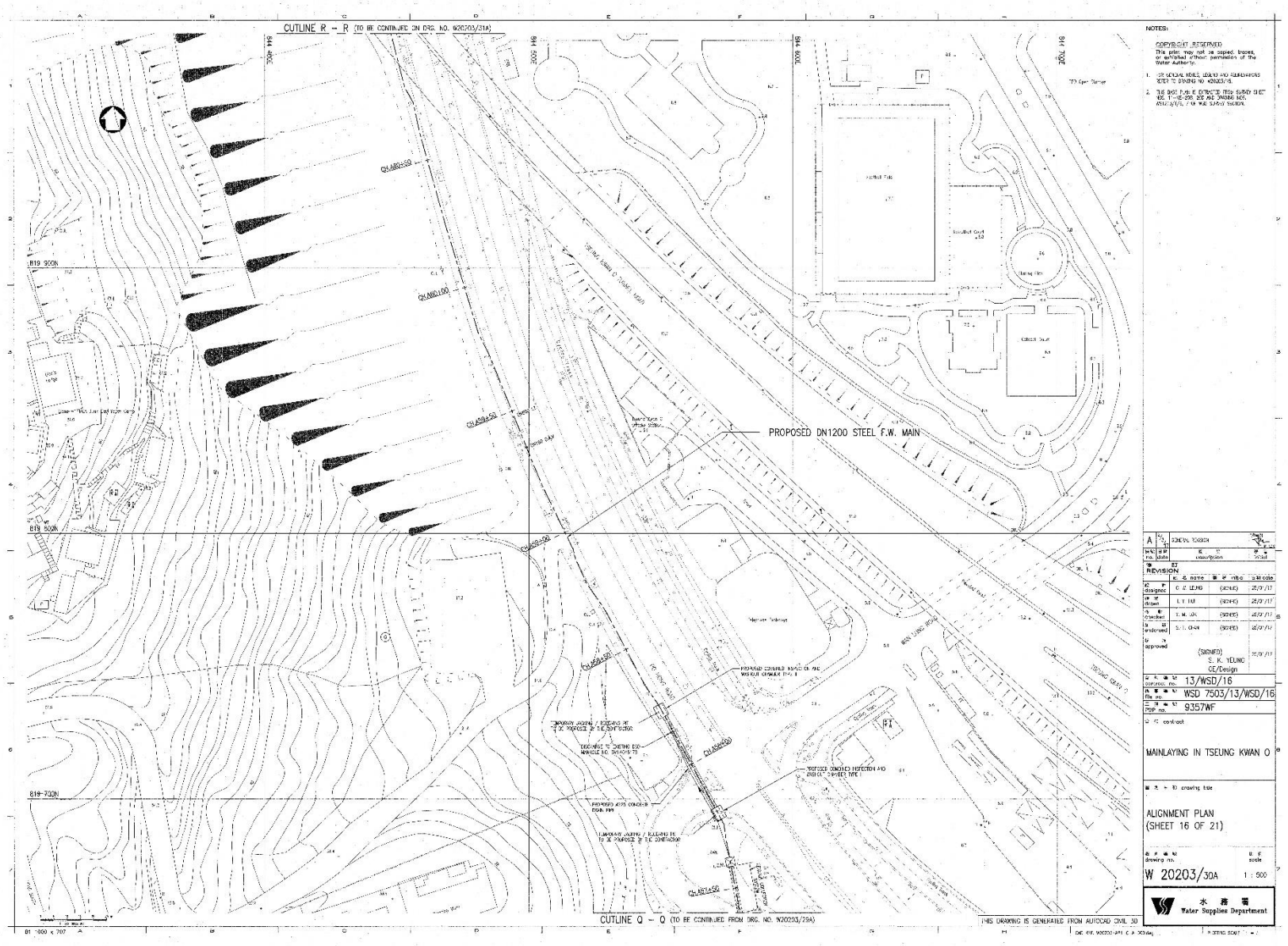
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 15 OF 21)
W 20203/29A
1 : 500
Water Supplies Department


CUTLINE R – R (TO BE CONTINUED ON DRG. NO. W20203/31A)
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE Q – Q (TO BE CONTINUED FROM DRG. NO. W20203/29A)
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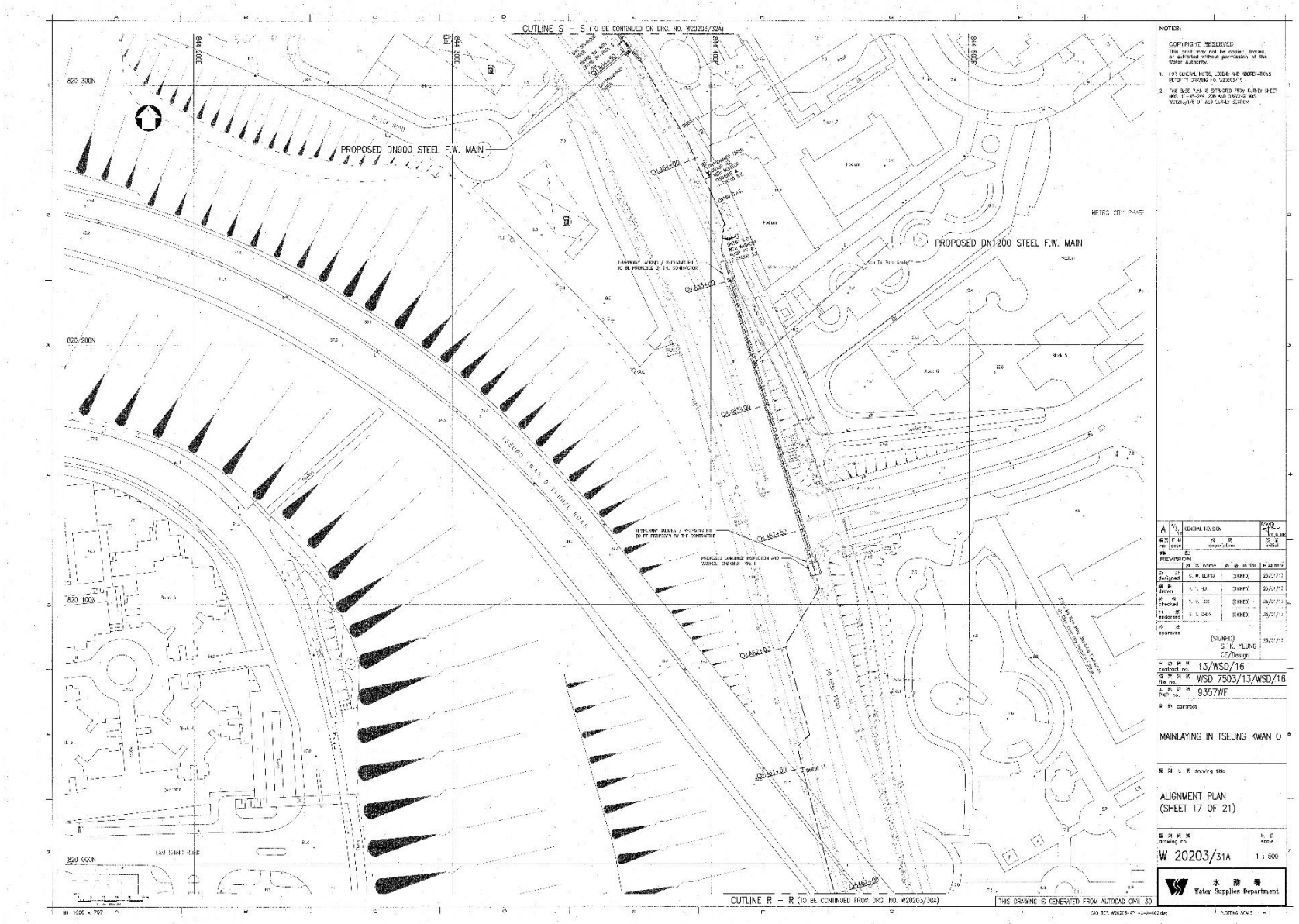
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 16 OF 21)
W 20203/30A
1 : 500
水務署
Water Supplies Department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PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE R – R (TO BE CONTINUED FROM DRG. NO. W20203/30A)
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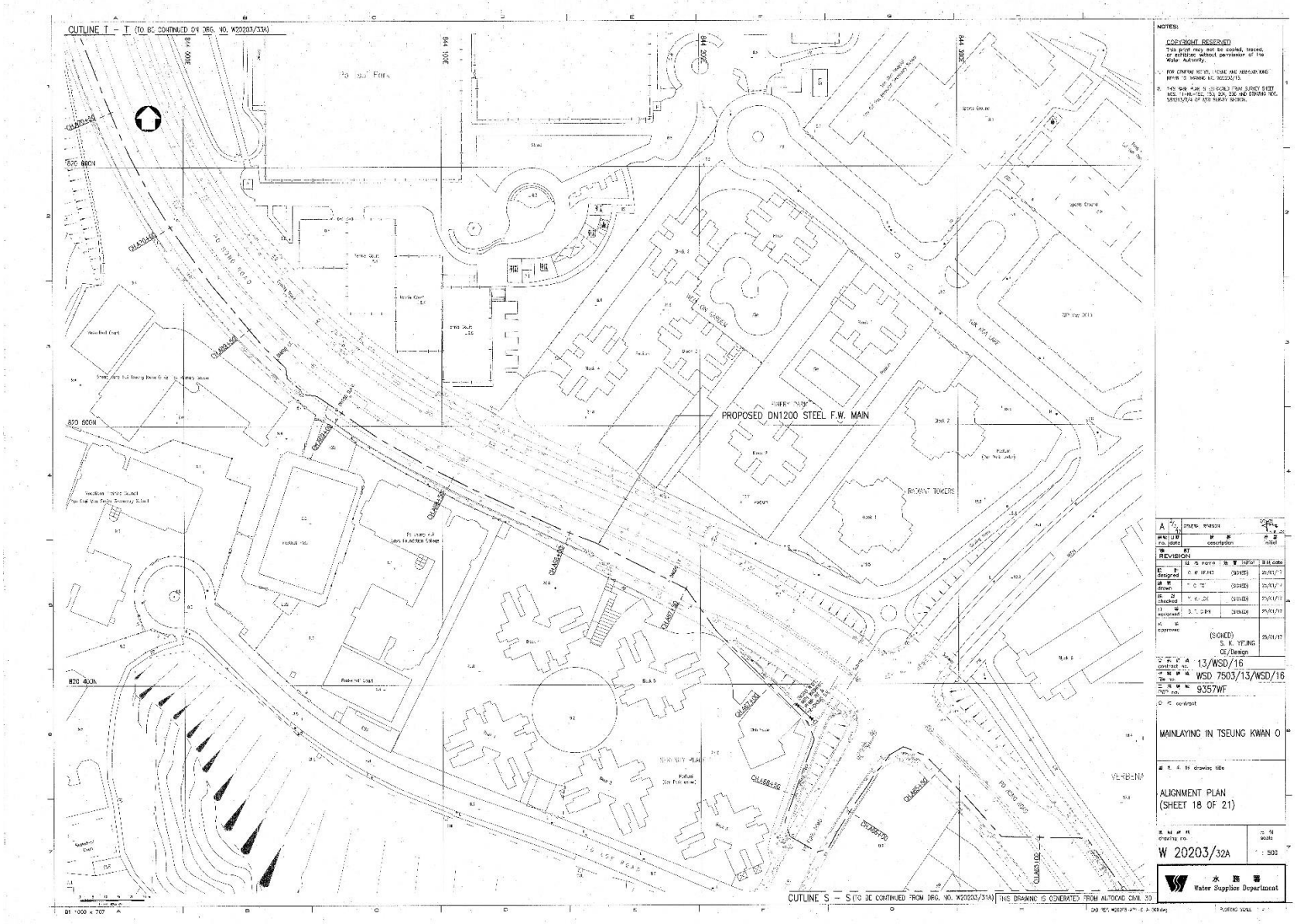
ALIGNMENT PLAN
(SHEET 17 OF 21)
13/WSD/16
WSD 7503/13/WSD/16
9357WF
W 20203/31A
1 : 500
水務署
Water Supplies Department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CUTLINE S – S (TO BE CONTINUED FROM DRG. NO. W20203/31A)
THIS DRAWING IS GENERATED FROM AUTOCAD CIVIL 3D
NOTES:
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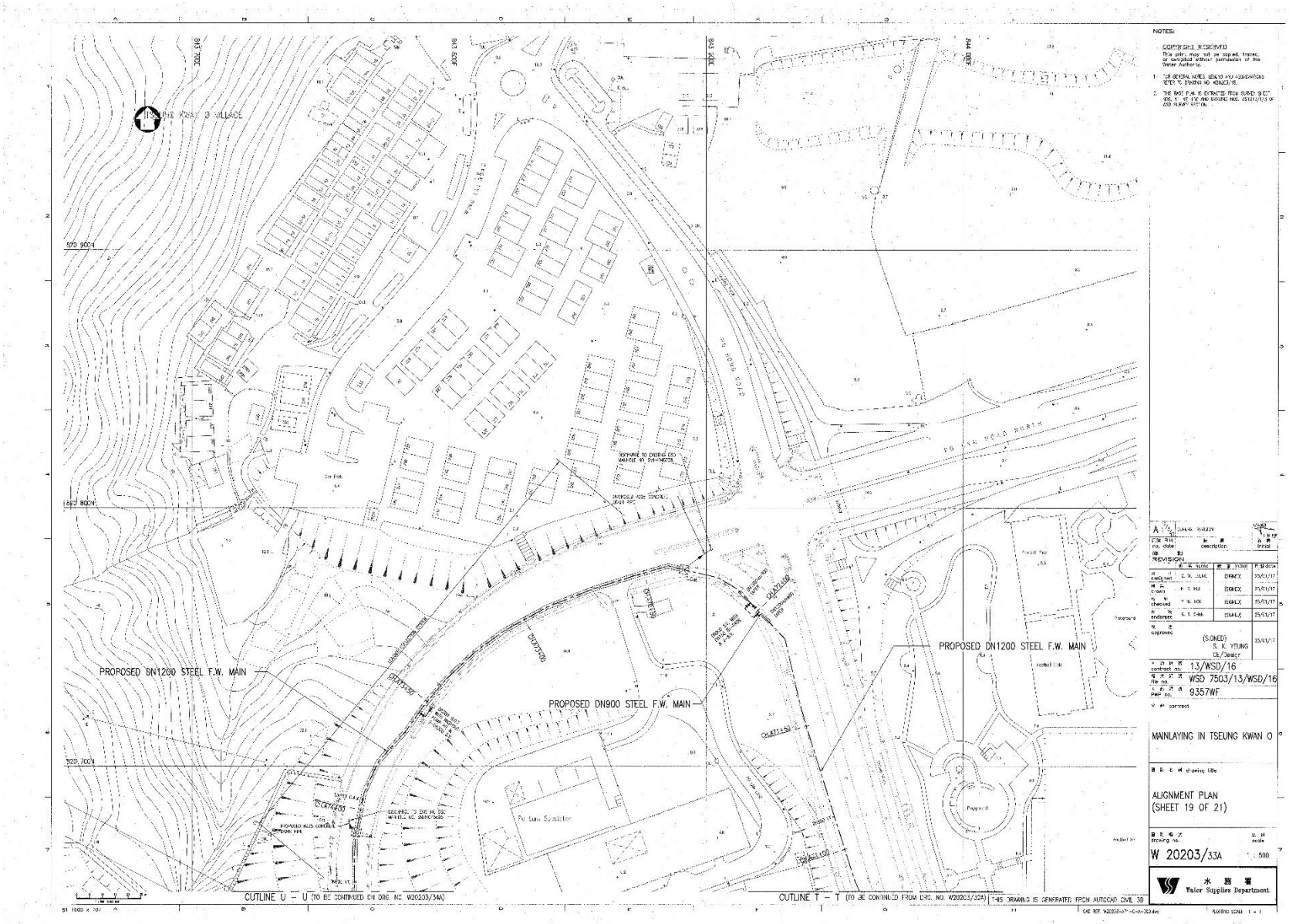
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 18 OF 21)
W 20203/32A
1 : 500
Water Supplies Department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PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
CUTLINE U – U (TO BE CONTINUED ON DRG. NO. W20203/34A)
CUTLINE T – T (TO BE CONTINUED FROM DRG. NO. W20203/32A)
NOTES:
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WSD 7503/13/WSD/16
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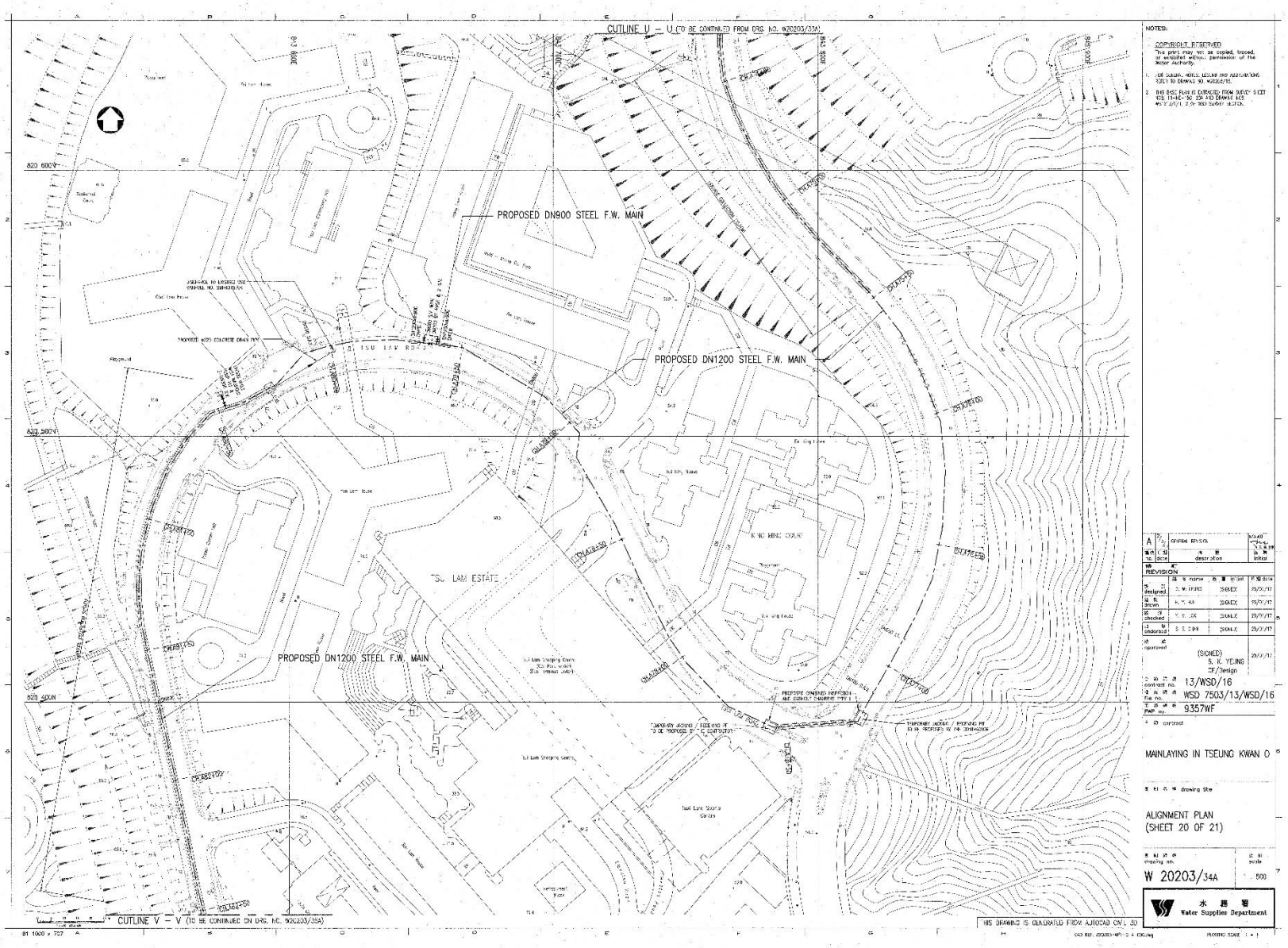
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 19 OF 21)
W 20203/33A
1 : 500
水務署
Water Supplies Department


CUTLINE U – U (TO BE CONTINUED FROM DRG. NO. W20203/33A)
PROPOSED DN900 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
TSUI LAM ESTATE
CUTLINE V – V (TO BE CONTINUED ON DRG. NO. W20203/35A)
NOTES:
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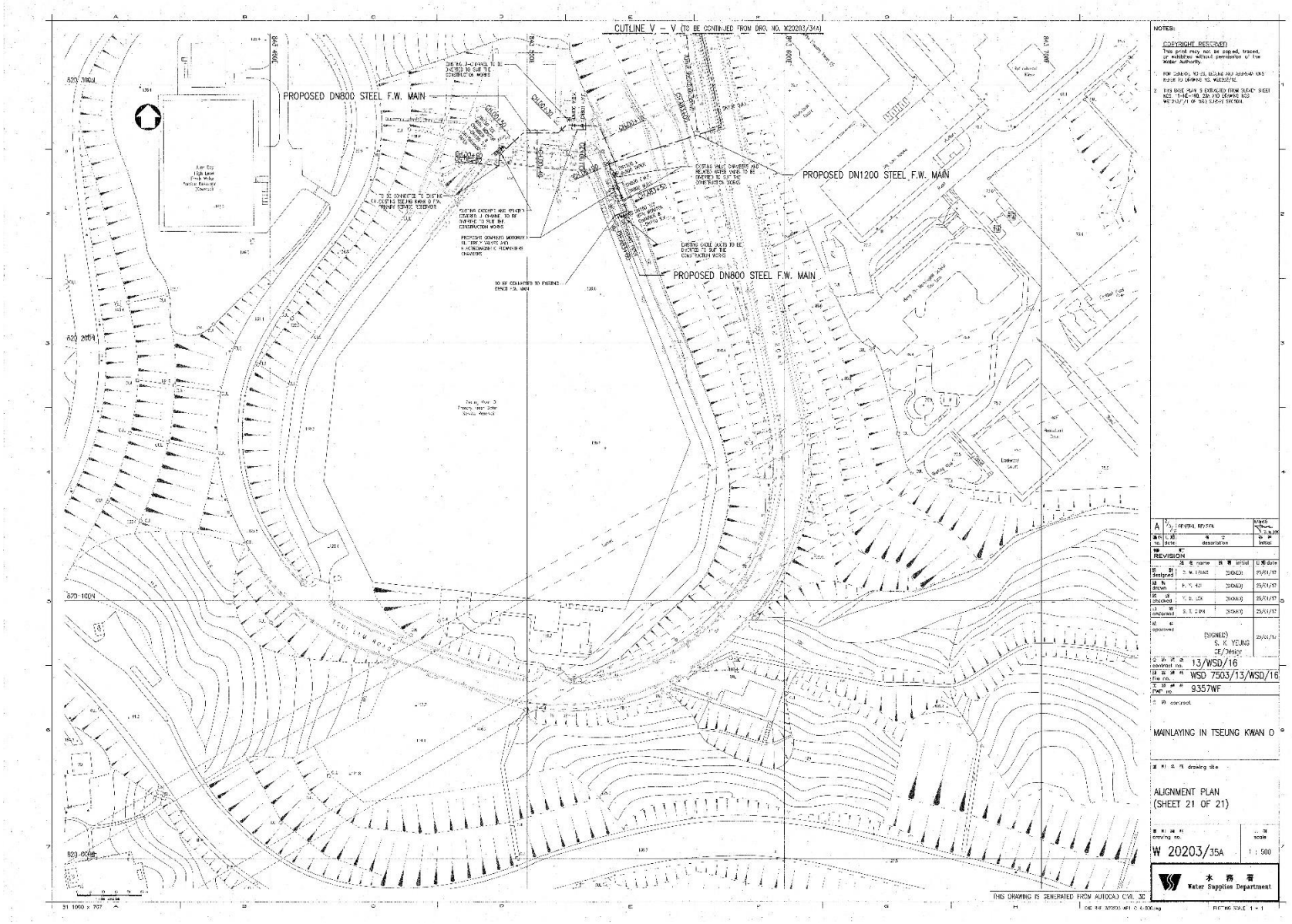
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 20 OF 21)
W 20203/34A
13/WSD/16
WSD 7503/13/WSD/16
9357WF
水務署
Water Supplies Department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PROPOSED DN800 STEEL F.W. MAIN
PROPOSED DN1200 STEEL F.W. MAIN
PROPOSED DN800 STEEL F.W. MAIN
NOTES:
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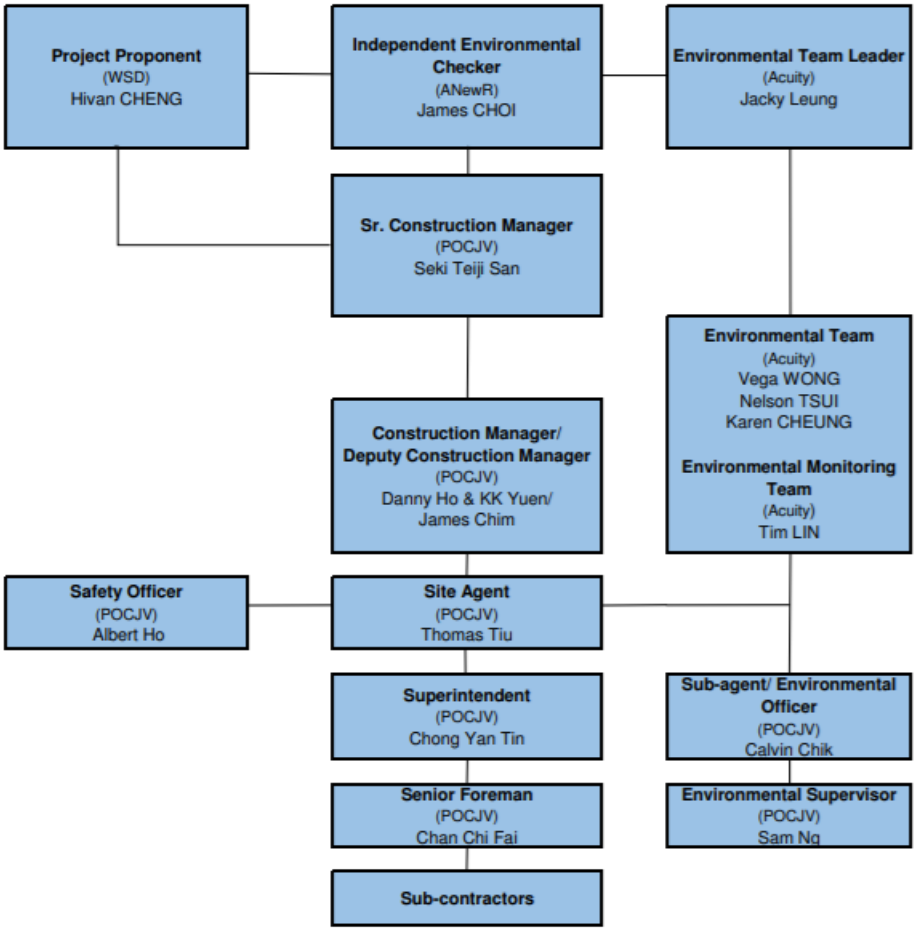
MAINLAYING IN TSEUNG KWAN O
ALIGNMENT PLAN
(SHEET 21 OF 21)
W 20203/35A
1 : 500
Water Supplies Department

Appendix B

Project Organization Chart


Project Proponent
(WSD)
Hivan CHENG
Independent Environmental Checker
(ANewR)
James CHOI
Environmental Team Leader
(Acuity)
Jacky Leung
Sr. Construction Manager
(POCJV)
Seki Teiji San
Environmental Team
(Acuity)
Vega WONG
Nelson TSUI
Karen CHEUNG
Environmental Monitoring Team
(Acuity)
Tim LIN
Construction Manager/ Deputy Construction Manager
(POCJV)
Danny Ho & KK Yuen/ James Chim
Safety Officer
(POCJV)
Albert Ho
Site Agent
(POCJV)
Thomas Tiu
Superintendent
(POCJV)
Chong Yan Tin
Sub-agent/ Environmental Officer
(POCJV)
Calvin Chik
Senior Foreman
(POCJV)
Chan Chi Fai
Environmental Supervisor
(POCJV)
Sam Ng
Sub-contractors

Appendix C

Construction Programme

13/WSD/16 - Mainlaying in Tseung Kwan O

Outline Construction Programme (As on 31 Aug 2018)

YEAR	LOCATION		FROM	TO	2018												2019												2020												2021											
MONTH	PJ-ID	ROAD			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Section A (TKO137 to Wan Po Road)																																																				
Section A1 (Open-trench)	-	Wan Po Road	0	362																																																
Section A2 (Pipe-Jacking)	A	Wan Po Road	362	530																																																
Section A3 (Open-trench)	-	Wan Po Road	530	1379								#																																								
Section A4 (Pipe-Jacking)	B	Wan Po Road	1379	2268																																																
Section A5 (Open-trench)	-	Wan Po Road	2268	4113																																															
Section B (Po Yap Road to Po Hong Road)																																																			
Section B1 (Pipe-Jacking)	C	Po Yap Road	4113	4200																																																
Section B2 (Open-trench)	-	Po Yap & Po Hong Rd	4200	5500																																																
Section B3 (Pipe-Jacking)	D1 & D2	Po Hong & Ling Hong Rd	5500	5600																																																
Section B4 (Open-trench)	-	Ling Hong Road	5600	5799																																																
Section B5 (Pipe-Jacking)	E	Po Hong Road	5799	5838																																																
Section B6 (Open-trench)	-	Po Hong Road	5838	6254																																															
Section B7 (Pipe-Jacking)	F	Po Hong Road	6254	6368																																																
Section B8 (Open-trench)	-	Po Hong Road	6368	7250																																															
Section C (Po Lam Road to Tsui Lam to TKOFWPSR*)																																																			
Section C1 (Open-trench)	-	Po Lam Road	7250	7740																																																
Section C2 (Pipe-Jacking)	G	Tsui Lam Road	7740	7770																																																
Section C3 (Open-trench)	-	Tsui Lam Road	7770	8300																																																
Section C4 (Slope)	-	TKOFWPSR	8300	8376																																															

 # Commencement of works at CH.A 720 on 30 Aug 2018.

*TKOFWPSR - Tseung Kwan O Fresh Water Primiary Service Reservoir

**Remaining 1581m within TKO137 with site possession from Nov 2019

Appendix D

Waste Flow Table

Monthly Summary Waste Flow Table
Name of Department: WSD Contract No. / Works Order No.: 13/WSD/16
Monthly Summary Waste Flow Table for August 2019 to December 2019

Month	Actual Quantities of Inert Construction Waste Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects	Disposed of as Public Fill	Imported Fill (see Note 1)
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Aug 2019	0.359	0.005	0.000	0.000	0.359	0.133
Sep 2019	0.030	0.000	0.000	0.000	0.030	0.421
Oct 2019	0.078	0.009	0.000	0.000	0.078	0.542
Nov 2019	0.033	0.000	0.000	0.000	0.033	0.504
Dec 2019	0.052	0.000	0.000	0.000	0.052	0.504
Total	0.552	0.014	0.000	0.000	0.552	2.104

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly				
	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. General Refuse disposed at Landfill
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Aug 2019	0.000	0.000	0.000	0.000	0.001
Sep 2019	0.000	0.000	0.000	0.000	0.000
Oct 2019	0.000	0.000	0.000	0.000	0.001
Nov 2019	0.000	0.000	0.000	0.000	0.001
Dec 2019	0.000	0.062	0.000	0.000	0.002
Total	0.000	0.062	0.000	0.000	0.005

Notes:
1. The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
2. Plastic refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
3. Broken concrete for recycling into aggregate.

Monthly Summary Waste Flow Table

Name of Department: WSD Contract No. / Works Order No.: 13/WSD/16

Monthly Summary Waste Flow Table for January 2020 to August 2020

Month	Actual Quantities of Inert Construction Waste Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects	Disposed of as Public Fill	Imported Fill (see Note 1)
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Aug-Dec 2019	0.552	0.014	0.000	0.000	0.552	2.104
Jan 2020	0.153	0.003	0.000	0.000	0.153	0.077
Feb 2020	0.186	0.010	0.000	0.000	0.186	0.170
Mar 2020	0.282	0.005	0.000	0.000	0.282	0.201
Apr 2020	0.497	0.016	0.000	0.000	0.497	0.069
May 2020	1.294	0.306	0.291	0.000	1.003	0.030
Jun 2020	0.948	0.076	0.000	0.000	0.948	0.200
Jul 2020	1.514	0.021	0.000	0.000	1.514	0.078
Aug 2020	1.272	0.071	0.000	0.000	1.272	0.111
Total	6.698	0.522	0.291	0.000	6.407	3.040

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly				
	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. General Refuse disposed at Landfill
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Aug-Dec 2019	0.000	0.062	0.000	0.000	0.005
Jan 2020	0.000	0.055	0.000	0.000	0.002
Feb 2020	0.000	0.050	0.000	0.000	0.001
Mar 2020	0.000	0.052	0.000	0.000	0.001
Apr 2020	0.000	0.043	0.000	0.000	0.002
May 2020	0.000	0.058	0.000	0.000	0.020
Jun 2020	0.000	0.057	0.000	0.000	0.003
Jul 2020	0.000	0.050	0.000	0.000	0.001
Aug 2020	0.000	0.048	0.000	0.000	0.000
Total	0.000	0.475	0.000	0.000	0.035

Notes:
4. The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
5. Plastic refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
6. Broken concrete for recycling into aggregate.

Appendix E

Summary of Implementation Status of Environmental Mitigation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Air Quality								
S4.8.1	Impervious dust screen or sheeting will be provided to enclose scaffolding from the ground floor level of building for construction of superstructure of the new buildings.	Land site/ During Construction	Contractor(s)		✔		N/A	Air Pollution Control (Construction Dust)
S4.8.1	Impervious sheet will be provided for skip hoist for material transport.	Land site/ During Construction, particularly dry season	Contractor(s)		✔		Implemented	
S4.8.1	The area where dusty work takes place should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after dusty activities as far as practicable.	Land site/ During Construction	Contractor(s)		✔		Implemented, rectified after observation	
S4.8.1	All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation.	Land site/ During Construction	Contractor(s)		✔		Implemented, rectified after observation	
S4.8.1	Dropping heights for excavated materials should be controlled to a practical height to minimise the fugitive dust arising from unloading.	Land site/ During Construction	Contractor(s)		✔		Implemented	
S4.8.1	During transportation by truck, materials should not be loaded to a level higher than the side and tail boards, and should be dampened or covered before transport.	Land site/ During Construction	Contractor(s)		✔		Implemented	
S4.8.1	Wheel washing device should be provided at the exits of the work sites. Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty material from its body and wheels as far as practicable.	Land site/ During Construction	Contractor(s)		✔		Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S4.8.1	Road sections between vehicle-wash areas and vehicular entrance will be paved.	Land site/ During Construction	Contractor(s)		✔		Implemented	
S4.8.1	Hoarding of not less than 2.4m high from ground level will be provided along the length of the Project Site boundary.	Land site/ During construction	Contractor(s)	✔	✔		Implemented	
S4.8.1	Haul roads will be kept clear of dusty materials and will be sprayed with water so as to maintain the entire road surface wet at all times.	Land site/ During construction	Contractor(s)		✔		Implemented, rectified after observation	
S4.8.1	Temporary stockpiles of dusty materials will be either covered entirely by impervious sheets or sprayed with water to maintain the entire surface wet all the time.	Land site/ During construction	Contractor(s)		✔		Implemented, rectified after observation	
S4.8.1	Stockpiles of more than 20 bags of cement, dry pulverised fuel ash and dusty construction materials will be covered entirely by impervious sheeting sheltered on top and 3-sides.	Land site/ During construction	Contractor(s)		✔		Implemented	
S4.8.1	All exposed areas will be kept wet always to minimise dust emission.	Land site/ During construction	Contractor(s)		✔		Implemented, rectified after observation	
S4.8.1	Ultra-low-sulphur diesel (ULSD) will be used for all construction plant on-site, as defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites.	Land site/ During construction/ During Operation	Contractor(s)		✔	✔	Implemented	Environment, Transport and Works Bureau Technical Circular (ETWB- TC(W)) No 19/2005 on Environmental Management on Construction Sites
S4.8.1	The engine of the construction equipment during idling will be switched off.	Land site/ During construction	Contractor(s)		✔		Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S4.8.1	Concrete batching plant will be required on site. control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be implemented. The control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be implemented.	Land site/ During construction	Contractor(s)		✔		N/A	Guidance Note on a Best
S4.8.1	Regular maintenance of construction equipment deployed on-site will be conducted to prevent black smoke emission.	Land site/ During construction	Contractor(s)		✔		Implemented	
S4.10	To ensure proper implementation of the recommended dust mitigation measures and good construction site practices during the construction phase, environmental site audits on weekly basis is recommended throughout the construction period.	Land site/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✔		Implemented	

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Noise								
S5.7	Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction phase.	All area/ During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Silencers or mufflers on construction equipment will be utilised and will be properly maintained during the construction phase.	Noise control/ During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Mobile plant, if any, will be sited as far away from NSRs as possible.	Noise control/ During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum.	Noise control/ During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Plants known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Noise control/ During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	Noise control/ During construction	Contractor(s)		✔		N/A	A Practical Guide for the Reduction of Noise from Construction Works,

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S5.7	Use of Quite Powered Mechanical Equipment (QPME).	Noise control/ During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Movable noise barriers of 3m in height with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers. The length of the barrier should be at least five times greater than its height. The noise barrier material should have a superficial surface density of at least 7 kg m^{-2} and have no openings or gaps.	Noise control/ During construction	Contractor(s)		✔		N/A	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	The noise insulating sheet should be deployed such that there would be no opening or gaps on the joints.	Noise control/ During construction	Contractor(s)		✔		N/A	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Construction activities (e.g. excavation/shoring, reinstatement (asphalt), and pipe jacking) will be planned and carried out in sequence, such that items of PME proposed for these activities will not be operated simultaneously.	Noise control/ During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works
S5.7	PMEs will not be used at the works areas near educational institutions with residual impact (ie the "influence area" within a radius of 40m) during school hours in order to reduce impact to the educational institutions.	Noise control / During construction	Contractor(s)		✔		Implemented	A Practical Guide for the Reduction of Noise from Construction Works

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S5.7	Noise enclosures or acoustic sheds would be used to cover stationary PME such as generators. Portable/Movable noise enclosure made of material with superficial surface density of at least 7 kg m^{-2} may be used for screening the noise from operation of the saw/groover, concrete.	Noise control/ Pre-construction/ During construction	Contractor(s)	✔	✔		Implemented	
S5.9	Sawcutting pavement, breaking up of pavement, excavation /shoring, pipe laying, backfilling, reinstatement (concrete) and pipe jacking shall be scheduled outside the examination period.	Noise control/ Pre-construction/ During construction	Contractor(s)	✔	✔		Implemented	
S5.9	In view the duration of noise exceedance at Creative Secondary School, PLK Laws Foundation College, TKO Kei Tak Primary School and School of Continuing and Professional Studies-CUHK is limited to 8 weeks, the construction work in the influence areas near the four schools shall be scheduled during long school holidays (eg summer holiday, Easter holiday or Christmas holiday, etc) as far as practicable. Scheduling the construction work for the four schools.	Noise control/ Pre-construction/ During construction	Contractor(s)	✔	✔		Implemented	
S5.10	A noise monitoring programme shall be implemented for the construction phase.	Designated monitoring stations as defined in EM&A Manual/During construction phase	Environmental Team (ET)		✔		Implemented	
S5.10	The effectiveness of on-site control measures could also be evaluated through the regular site audits.	All facilities/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✔		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Water Quality								
S6.9	Dredged marine sediment will be disposed of in a gazetted marine disposal area in accordance with marine dumping permit conditions of the Dumping at Sea Ordinance (DASO).	Marine Dredging/ During construction	Contractor(s)		✔		N/A	Dumping at Sea Ordinance (DASO)
S6.9	Disposal vessels will be fitted with tight bottom seals in order to prevent leakage of material during transport.	Marine Dredging/ During construction	Contractor(s)		✔		N/A	-
S6.9	Barges will be filled to a level, which ensures that material does not spill over during transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action.	Marine Dredging/ During construction	Contractor(s)		✔		N/A	-
S6.9	After dredging, any excess materials will be cleaned from decks and exposed fittings before the vessel is moved from the dredging area.	Marine Dredging/ During construction	Contractor(s)		✔		N/A	-
S6.9	All vessels should be well maintained and inspected before use to limit any potential discharges to the marine environment.	Marine Dredging/ During construction	Contractor(s)		✔		N/A	-
S6.9	All vessels must have a clean ballast system.	Marine Dredging/ During construction	Contractor(s)		✔		N/A	-
S6.9	No discharge of sewage/grey wastewater should be allowed. Waste water from potentially contaminated area on working vessels should be minimized and collected. These kinds of wastewater should be brought back to port and discharged at appropriate collection and treatment system.	Marine Dredging/ During construction	Contractor(s)		✔		N/A	-
S6.9	No soil waste is allowed to be disposed overboard.	Marine Dredging/ During construction	Contractor(s)		✔		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S6.9	Silt removal facilities such as silt traps or sedimentation facilities will be provided to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities will be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.	Land site & drainage/ During construction	Contractor(s)		✔		Implemented, rectified after observation	ProPECC PN 1/94 TM Standard under the WPCO
S6.9	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land site & drainage/ During construction	Contractor(s)		✔		Implemented, rectified after observation	-
S6.9	Appropriate surface drainage will be designed and provided where necessary.	Land site & drainage/ During construction	Contractor(s)		✔		N/A	-
S6.9	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94.	Land site & drainage/ During construction	Contractor(s)		✔		Implemented	ProPECC PN 1/94
S6.9	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Land site & drainage/ During construction	Contractor(s)		✔		Implemented, rectified after observation	-
S6.9	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, will be adequately designed for the controlled release of storm flows.	Land site & drainage/ During construction	Contractor(s)		✔		Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S6.9	The temporary diverted drainage, if any, will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land site & drainage/ During construction	Contractor(s)		✔		N/A	-
S6.9	Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.	Land site & drainage/ During construction	Contractor(s)		✔		Implemented	-
S6.9 and S6.12	The sterilization water should be dechlorinated with total residual chlorine (TRC) level below 1 mg/L before discharge to public sewer. In situ testing of TRC should also be conducted for the discharge of chlorinated water for pipeline disinfection to ensure sufficient dechlorination before discharge to public sewer.	Sterilization of water mains prior to commissioning	Contractor(s)		✔	✔	N/A	Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems Inland and Coastal Waters
S6.9	The cleaning and flushing water should also be treated and desilted to the relevant discharge requirement stipulated in TM-DSS before discharging.	Sterilization of water mains prior to commissioning	Contractor(s)		✔	✔	N/A	Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems Inland and Coastal Waters
S6.9	Site drainage should be well maintained and good construction practices should be observed to ensure that oil, fuels, solvents and other chemicals are managed, stored and handled properly and do not enter the nearby water streams.	Land site & drainage/ During construction/ During operation	Contractor(s)		✔	✔	Implemented, rectified after observation	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S6.12	Regular site inspections will be carried out in order to confirm that regulatory requirements are being met and that contractors are implementing the standard site practice and mitigation measures as proposed to reduce potential impacts to water quality.	During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✔		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Waste Management								
S8.5	Nomination of approved personnel to be responsible for standard site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site.	Contract mobilisation/ During construction	Contractor(s)		✔		Implemented	-
S8.5	Training of site personnel in proper waste management and chemical handling procedures. Training will be provided to workers on the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling at the beginning of the construction works.	Contract mobilisation/ During construction	Contractor(s)		✔		Implemented	-
S8.5	Provision of sufficient waste disposal points and regular collection for disposal.	All area/ During construction/ During operation	Contractor(s)		✔	✔	Implemented rectified after observation	DEVB TC(W) No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All area/ During construction	Contractor(s)		✔		Implemented	DEVB TC(W) No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	A waste management plan (WMP) as stated in the "*ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites"* for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established and implemented during the construction phase as part of the Environmental Management Plan (EMP). The Contractor will be required to prepare the EMP and submits it to the Architect/ Engineer under the Contract for approval prior to implementation.	All area/ During construction	Contractor(s)		✔		Implemented	ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites
S8.5	Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre at Tsing Yi.	All area/ During construction	Contractor(s)		✔		Implemented	Chapters 2 & 3 Code o Practice on the Packaging, Labelling Storage of Chemical Wastes published und

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
								the Waste Disposal Ordinance (Cap 354), Section 35
S8.5	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	Land site/ During construction	Contractor(s)		✔		Implemented, rectified after observation	Waste Disposal Ordinance (Cap 354)
S8.5	A recording system for the amount of wastes generated/ recycled and disposal sites. The trip- ticket system will be included as one of the contractual requirements and implemented by the contractor(s).	Land site/ During construction	Contractor(s)		✔		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal.	Land site/ During construction/ During operation	Contractor(s)		✔		Implemented	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site
S8.5	Encourage collection of aluminium cans and waste paper by individual collectors during construction with separate labelled bins provided to segregate these wastes from other general refuse by the workforce.	Land site/ During construction	Contractor(s)		✔		Implemented	ETWB TCW No. 33/2002, Management of Construction and Demolition Material Including Rock
S8.5	Any unused chemicals and those with remaining functional capacity will be recycled as far as possible.	Land site/ During construction	Contractor(s)		✔		Implemented	-
S8.5	Use of reusable non-timber formwork to reduce the amount of C&D materials.	All areas/ During construction	Contractor(s)		✔		N/A	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site
S8.5	Prior to disposal of construction waste, wood, steel and other metals will be separated to the extent practical, for re-use and/or recycling to reduce the quantity of waste to be disposed of to landfill.	All areas/ During construction	Contractor(s)		✔		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	Proper storage and site practices to reduce the potential for damage or contamination of construction materials.	All areas/ During construction	Contractor(s)		✔		Implemented, rectified after observation	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste.	All areas/ During construction	Contractor(s)		✔		Implemented	-
S8.5	A Sediment Quality Report (SQR) for sampling and chemical testing of the sediment will be prepared and submitted to the EPD for approval. The approved detailed sampling and chemical testing will be carried out prior to the commencement of the dredging activities to confirm the sediment disposal method.	Marine works/ During construction	Contractor(s)		✔		N/A	ETWB TC(W) No. 34/2002 and Dumping at Sea Ordinance (DASO)
S8.5	The management of dredged/ excavated sediment management requirement from *ETWB TC(W) No. 34/2002* will be incorporated in the Specification of the Contract Documents.	Marine works/ During construction	WSD/ Contractor(s)		✔		Implemented	ETWB TC(W) No. 34/2002 and Dumping at Sea Ordinance (DASO)
S8.5	The contractor will open a billing account with EPD in accordance with the Waste Disposal (Charges for Disposal of Construction Waste) Regulation for the payment of disposal charges.	Contract mobilisation/ During construction	Contractor(s)		✔		Implemented	Cap 354N Waste Disposal (Charges for Disposal of Construction Waste) Regulation
S8.5	A trip-ticket system will be established in accordance with DEVB TC(W) No. 6/2010 to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at transfer facilities/ landfills, and to control fly-tipping.	Contract mobilisation/ During construction	Contractor(s)		✔		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	The project proponent will also conduct regular inspection of the waste management measures implemented on site as described in the Waste Management Plan.	All area/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✔		Implemented	ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	A recording system (similar to summary table as shown in Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005) for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established during the construction phase.	All area/ During construction	Contractor(s)		✔		Implemented	Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005
S8.5	Inert C&D materials (public fill) will be reused within the Project as far as practicable.	All area/ During construction	Contractor(s)		✔		N/A	-
S8.5	Public fill and construction waste shall be segregated and stored in different containers or skips to facilitate reuse or recycling of materials and their proper disposal.	All area/ During construction	Contractor(s)		✔		Implemented	-
S8.5	Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	All area/ During construction	Contractor(s)		✔		Implemented	-
S8.5	To reduce the potential dust and water quality impacts of site formation works, C&D materials will be wetted as quickly as possible to the extent practice after filling.	All area/ During construction	Contractor(s)		✔		Implemented	Air Pollution Control (Construction Dust) Regulation (Cap 311R); WPCO (Cap 358)
S8.5	Open stockpiles of excavated/ fill materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Land site/ During Construction, particularly dry season	Contractor(s)		✔		Implemented, rectified after observation	Air Pollution Control (Construction Dust) Regulation (Cap 311R)
S8.5	Chemical waste container shall be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Chemical waste container shall have a capacity of less	All area/ During construction/	Contractor(s)/		✔	✔	Implemented	Waste Disposal

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	than 450 L unless the specifications have been approved by the EPD.	During operation	WSD					(Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	A label in English and Chinese shall be displayed on the chemical container in accordance with instructions prescribed in Schedule 2 of the Regulations.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall be enclosed on at least 3 sides.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall have adequate ventilation.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste)

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
								(General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary).	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Storage areas for chemical waste shall be arranged so that incompatible materials are appropriately separated.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	General refuse will be stored in enclosed bins or compaction units separately from construction and chemical wastes.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes
S8.5	Adequate number of waste containers will be provided to avoid over-spillage of waste.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	DEVB TC(W) No. 8/2010 Enhanced

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
								Specification for Site Cleanliness and Tidiness.
S8.5	A reputable waste collector will be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	-
S8.5	Recycling bins will be provided at strategic locations within the Site to facilitate recovery of recyclable materials (including aluminium can, waste paper, glass bottles and plastic bottles) from the Site. Materials recovered will be sold for recycling.	All area/ During construction/ During operation	Contractor(s)/ WSD		✔	✔	Implemented	-
S8.5	To avoid any odour and litter impact, accurate number of portable toilets will be provided for workers on-site.	All area/ During construction	Contractor(s)		✔		Implemented	-
S8.5	The burning of refuse on construction sites is prohibited by law.	All area/ During construction	Contractor(s)		✔		Implemented	Air Pollution Control Ordinance (Cap 311)
S8.7	To facilitate monitoring and control over the contractors' performance on waste management, a waste inspection and audit programme will be implemented throughout the construction phase.	All facilities/ During construction	ET/ IEC		✔		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	Ecology							
S9.7	For slope mitigation works within the Clear Water Bay Country Park, to avoid tree felling and damages to trees, the exact locations of the flexible barrier foundation plates, soil nails and rock dowels can be adjusted during detailed design, and a setback distance from existing trees is recommended to be maintained as far as practical. A detailed specification describing the exact locations of the flexible barrier foundation plates, soil nails and rock dowels will be prepared to illustrate how the setback distance from existing trees would be implemented for tree avoidance.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✔	✔		Implemented	-
S9.7	Pruning of tree canopies along the alignment of the flexible barriers shall be limited to a minimum.	Slope mitigation works area/ During construction	Contractor(s)		✔		Implemented	
S9.7	The alignment of flexible barriers shall be optimized to preserve all species of conservation interest and minimize the impact to the existing vegetation as far as practicable. All individuals of *Marsdenia lachnostoma* within the slope mitigation areas shall be retained *in- situ*, by positioning the alignment of flexible barrier at a minimum 1.5m in a radius away from these individuals.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✔	✔		Implemented	-
S9.7 and 9.10	At the detailed design stage prior to the commencement of the slope mitigation works, a vegetation survey shall be carried out at the slope mitigation areas within the Clear Water Bay Country Park to assess the condition and identify the location of each individual of *Marsdenia lachnostoma* and other flora species of conservation interest that may be directly affected by the construction works.	Slope mitigation works area/ During detailed design/ During construction	Contractor(s)	✔	✔		N/A	-
S9.7	Temporary fencing will be installed to fence off the concerned species either in groups of individually within the works area and in the close proximity to prevent from being damaged and disturbed during construction. A sign identifying the site shall be attached to the fence and flagging tape shall be attached to the individuals to visualize their locations.	Slope mitigation works area/ During construction	Contractor(s)		✔		N/A	-
S9.7 and S9.10	A specification for fencing and demarcating individuals	Slope mitigation works area/	Contractor(s)		✔		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	of *Marsdenai lachnostoma* (or other flora species of conservation interest, if found) adjacent to the proposed alignment of the flexible barriers will be prepared to protect the species.	During construction						
S9.7	Induction training shall also be provided to all site personnel in order to brief them on this flora of conservation interest including the locations and their importance.	Slope mitigation works area/ During construction	Contractor(s)		✔		Implemented	-
S9.7	The resident site supervisory staff will closely monitor the conditions of concerned individuals during construction of flexible barriers in the close proximity.	Slope mitigation works area/ During construction	Contractor(s)		✔		Implemented	-
S9.7	Erect fences along the boundary of the works area before the commencement of works to prevent vehicle movements and encroachment of personnel onto adjacent areas.	All area/ During construction	Contractor(s)		✔		Implemented	-
S9.7	Regularly check the work site boundaries to ensure that they are not breached and that damage does not occur to surrounding areas.	All area/ During construction	Contractor(s)/ Environmental Team (ET)		✔		Implemented	-
S9.7	Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats through proper management of waste disposal.	All area/ During construction	Contractor(s)		✔		Implemented	-
S9.7	Reinstate temporarily affected areas, particularly the habitats of plantation and shrubland-grassland immediately after completion of construction works, through on-site tree/shrub planting. The tree/shrub species will be chosen with reference to those in the surrounding area.	All area/ During construction	Contractor(s)		✔		N/A	-
S9.7	Affected habitats within the Clear Water Bay Country Bay shall be reinstated by hydro-seeding and planting of climbers and native shrub seedlings where practical upon completion of the slope mitigation works.	All area/ During construction	Contractor(s)		✔		N/A	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Landscape & Visual								
S11.10 & 11.11	The construction area and area allowed for temporary structures, such as the contractor's office, will be minimized to a practical minimum. (MM1)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	Implemented	-
S11.10 & 11.11	At the detailed design stage, the design team will seek to minimize the landscape footprint of the Project and above ground facilities, while satisfying all other requirements. (MM2)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	Implemented	-
S11.10 & 11.11	Design principles will be adopted to take into account the surrounding area, particularly Clear Water Bay Country Park behind and the nearby waterfront, with due consideration given to: - green roofs where practical (ie without equipment on the roof); - roadside planting; - aesthetic treatment of all structures; - vertical greening; screen planting along application site; and - landscape enhancement with amenity planting where practical including planting along the edge (site boundary) fence with native shrubs where feasible, - to reduce their visual impact and blend them into the surrounding landscape. (MM3)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	Implemented	-
S11.10 & 11.11	All trees within the Project Site or the potential slope mitigation works area will be carefully protected during construction according to DEVB TCW No. 10/2013 – Tree Preservation (MM4)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	Implemented	ETWB TCW No. 3/2006 - Tree Preservation.
S11.10 & 11.11	No tree within the Country Park will be felled. Trees within the Site unavoidably affected by the works will be transplanted where necessary and practical. For trees that need to be felled, compensatory planting will be provided to the satisfaction of relevant Government departments. A compensatory tree planting proposal including locations of tree compensation will be submitted to seek relevant government department's approval, in accordance with DEVB TC(W) No. 10/2013.	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	Implemented	DEVB TC(W) No. 10/2013

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	(MM5)							
S11.10 & 11.11	Any slope mitigation works necessary to address natural terrain hazards, will be minimized to minimize any potential environmental impact to the Country Park e.g. soil nailing and rock stabilization will aim to avoid existing trees e.g. should any restoration of vegetation be necessary, the best planting matrix with native species will be established, with the aim of resembling the existing vegetation. (MM6)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	Implemented	
S11.10 & 11.11	Dredging works for the installation of intake structures and outfall diffusers should be minimized to avoid or reduce any potential environmental impacts to as low as reasonably practicable (ALARP). The intake and outfall structures (e.g. intake openings and diffuser heads) will be prefabricated and transferred to site for installation. (MM7)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	N/A	
S11.10 & 11.11	All night-time lighting will be reduced to a practical minimum both in terms of number of level and will be hooded and directional. (MM8)units and lux level and will be hooded and directional. (MM8)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✔	✔	✔	Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	Landfill Gas Hazard							
S12.7	During all works, safety procedures should be implemented to minimise the risks of fires and explosions, asphyxiation of workers and toxicity effects resulting from contact with contaminated soil and groundwater.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	-
S12.7	During trenching and excavation as well as creation of confined spaces at near to or below ground level, precautions should be clearly laid down and rigidly Gas detection equipment and appropriate breathing apparatus should be available and used when entering confined spaces or trenches deeper than 1 metre.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	
S12.7	The Contractor should make the workers are aware of potential hazards of working in confined spaces (any chamber, manhole or culvert which is large enough to permit access to personnel). Such work in confined spaces is controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance. Following the Safety Guide to Working in Confined Spaces ensures compliance with the above regulations.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	
S12.7	Safety officers, specifically trained with regard to landfill gas and leachate related hazards and the appropriate actions to take in adverse circumstances, should be present on the site throughout the works, in particular, when works are undertaken below grade.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	
S12.7	All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	
S12.7	Monitoring for landfill gas should be undertaken in all excavations, manholes, chambers (particularly during pipe jacking) and any confined spaces through the use of an intrinsically safe portable instrument, appropriately calibrated and capable of measuring the concentrations of methane. carbon dioxide and oxygen.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S12.7	Monitoring frequency and areas to be monitored should be specified prior to commencement of groundwork, either by the Safety Officer, or by an appropriately qualified person. All measurements should be recorded and documented.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	
S12.7	Proceed drilling with adequate care and precautions against the potential hazards which may be encountered.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	
S12.7	Prior to the commencement of the site works, the drilling contractor should devise a 'method-of- working' statement covering all normal and emergency procedures (including but not limited to number of operatives, experience and special skills of operatives, normal method of operations, emergency procedures, supervisors responsibilities, storage and use of safety equipment, safety procedures and signs, barriers and guarding). The site supervisor and all operatives must be familiar with this statement.	All area/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	
S12.7	Where below ground service entries are necessary to the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II), the entry point should be sealed to prevent gas entry. In addition, any below grade cable trenches entering the Incoming Switchgear Room and 132 kV Substation can become the pathway for landfill gas and hence grilled metal covers should be used.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	N/A	
S12.7	It is recommended regular landfill gas monitoring should be carried out at the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II). The monitoring frequency will be monthly for the first year of operation. If the monitoring results show no sign of landfill gas migration, reduce the monitoring frequency to once every six months.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	N/A	
S12.7	The manholes and utility pits within the Project Site and along the fresh water mains. Each manhole/ utility pit should be monitored with two measurements (at mid depth and base). Each measurement should be	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	monitored for a minimum of 10 minutes. A steady reading and peak reading should be recorded at each manhole/ utility pit and for each measurement. The need for venting the manhole/ utility pit and further monitoring will be reviewed after the initial monitoring.							
S12.7	All construction, operation and maintenance personnel working on-site as well as visitors should be made aware of the hazards of landfill gas and its possible presence on-site. This should be achieved through a combination of posting warning signs in prominent places and also by access to detailed information on landfill gas hazards and the designs and procedural means by which these hazards are being minimised on-site.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✔	✔	✔	Implemented	

Note: D – Design stage C – Construction O – Operation

Appendix F

Action and Limit Level for Noise and Landfill Gas

Action/ Limit Level for Noise Monitoring

Time Period	Action	Limit (dB(A))
0700-1900 on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers	• 70 dB(A) for school and • 65 dB(A) during examination period
Notes: (b) Limits specified in the GW-TM and IND-TM for construction and operation noise, respectively.		

Action Level for Landfill Gas Monitoring

Parameters	Level
Oxygen (O_2)	Action Level < 19% O_2 Limit Level < 19% O_2
Methane (CH_4)	Action Level >10% LEL Limit Level >20% LEL
Carbon Dioxide (CO_2)	Action Level >0.5% CO_2 Limit Level >1.5% CO_2

Appendix G

Complaint Log and Regulatory Compliance Proforma

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 Aug 2019-31 Aug 2020	0	0	N/A

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 Aug 2019-31 Aug 2020	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 Aug 2019-31 Aug 2020	0	0	N/A

Appendix H

Noise Impact Monitoring Result

Monitoring Location	:	NSR4 – Creative Secondary School
Monitoring Date	:	7, 11, 19, and 26 September 2019
Parameter	:	$L_{eq-30min}$, $L_{10-30min}$, $L_{90-30min}$
Major Site Activities	:	Trial Pit for underground utilities detection
Major Noise Source	:	Nearby traffic and school activities
Other Factors	:	NA

Noise Monitoring Data

Date	Time			Weather	$L_{eq-30min}$ dB(A)	$L_{10-30min}$ dB(A)	$L_{90-30min}$ dB(A)
7/9/2019	11:50	-	12:20	Sunny	60.9	63.9	51.5
11/9/2019	10:20	-	10:50	Sunny	61.0	64.0	57.1
19/9/2019	10:15	-	10:45	Sunny	61.2	64.6	57.8
26/9/2019	10:40	-	11:10	Sunny	60.0	63.3	51.0

Graphical Plot of Noise Monitoring Results