

TENDER BRIEF
29 MARCH 2022
TENDER REF NO: JTC/AMC/STW/290322/TS6621

PUBLIC TENDER FOR TEMPORARY OCCUPATION LICENCE
(SHORT TENURE WATERFRONT LAND)

- 1 The Jurong Town Corporation (the "Corporation") is inviting tenders for the licence to occupy and use one of the land parcel lot (the "Said Land¹") as set out in the table in paragraph 1 hereof on a **temporary** basis (the "Tender"):

No	Location & Plot Code	Zoning /Usage*	Site Area (sqm)	Water front Length (m)	Tenure	Estimated Licence Commencement Date ⁺	Tender Sum	Tender Deposit
1	Tuas South (Finger One) TS6621	B2	18,000	81	About 13 years and 6 months until 30 December 2035	6 June 2022	Tender Sum shall be submitted on the basis of the licence fee payable per month	\$60,000.00

* Please refer to Factsheet for list of prohibited usage.

⁺ The Licence Commencement Date stated in the table is an estimated date. The actual Licence Commencement Dates for the parcel of land will be stated in the tender acceptance letter to be issued by the Corporation.

- 2 The Said Land is intended to be used for short-term industrial purposes that requires waterfront usage as permitted by the Corporation. The Corporation reserves the right to accept or reject any tender for the Said Land whatever and also reserves the right to not accept any tenders nor grant any licence in respect of the Said Land whatever. The Corporation's decision is final and the Corporation is not obliged to disclose any reason for its decision.
- 3 Information relating to the Invitation to Tender for the Said Land is contained in the Tender Packet which comprises of:
- Factsheet and Conditions of Tender (including all documents attached thereto);
 - Site Plan; and
 - other relevant information is available at www.jtc.gov.sg/TOL
- 4 The Tender process will be held in **ONE** stage only, whereby interested Tenderers shall submit their Tenders to the Corporation through GeBIZ (www.gebiz.gov.sg) for the licence to occupy and use the Said Land. The Corporation reserves the right to not accept the highest Tender. The Corporation's decision is final and the Corporation is not obliged to disclose any reason for its decision.

¹ The Said Land refers to the Plot (MK07-05126VPt), which includes a waterfront.

5 All Tenders shall be submitted:

- (a) in accordance with the Tender Brief, Site Plan, Factsheet, Conditions of Tender, Appendices to the Conditions of Tender, Corrigendum, Addendum Letters issued by the Corporation (if any) and such other requirements and/or directions as may be stipulated by the Corporation;
- (b) via GeBIZ at www.gebiz.gov.sg for the Said Land and the Tenderer shall fill in the Tender Sum at <Unit Price> field and the Proposed Usages of i) Land comprised in the Said Land and ii) Waterfront comprised in the Said Land and iii) Declared Site Coverage (%) at <Remark> field. Please attach a drawn-up site plan to support the proposed site coverage. Failure to indicate the Tender Sum and/or the Proposed Usages shall render the Tender disqualified;
- (c) by attaching an updated company profile from Accounting & Corporate Regulatory Authority (ACRA);
- (d) together with payment of the deposit for the amount of Singapore Dollars as set out in the table in the above paragraph 1 required by the Corporation for participating in the Tender ("Tender Deposit") to the Corporation by way of bank transfer to **JTC's Citibank N.A. Singapore Account No.: 0-020459-042** or such other bank account(s) as JTC may notify and instruct the bank to quote the tender deposit description, "[Company Name] TOL TD [Location & Plot Code which is indicated in the table in paragraph 1 above]" for the transaction; and
- (e) by the closing date and time at **12 April 2022 at 4 pm.**

Any Tender submitted after the said closing date and time or which otherwise does not meet any of the above conditions will not be accepted or considered.

6 All Tenders will remain valid for acceptance for **12 weeks** with effect from the above closing date for submission of Tenders ("Validity Period"). For the avoidance of doubt, the Licence Commencement Date for the Said Land can be after the Validity Period expires.

- 7
- (a) If a Tenderer withdraws or amends a Tender after submission of the same, during the Validity Period, the Tender Deposit of such Tenderer will be forfeited.
 - (b) If a Tenderer withdraws or amends a Tender after the award has been given to him ("the Successful Tenderer") or if the Successful Tenderer fails to, by Licence Commencement Date take up the licence of the Said Land based on the Corporation's terms and conditions and that of the Licence Agreement attached as **Appendix A** of the Conditions of Tender following the Corporation's acceptance of such Tender, then **in addition to the forfeiture of the Successful**

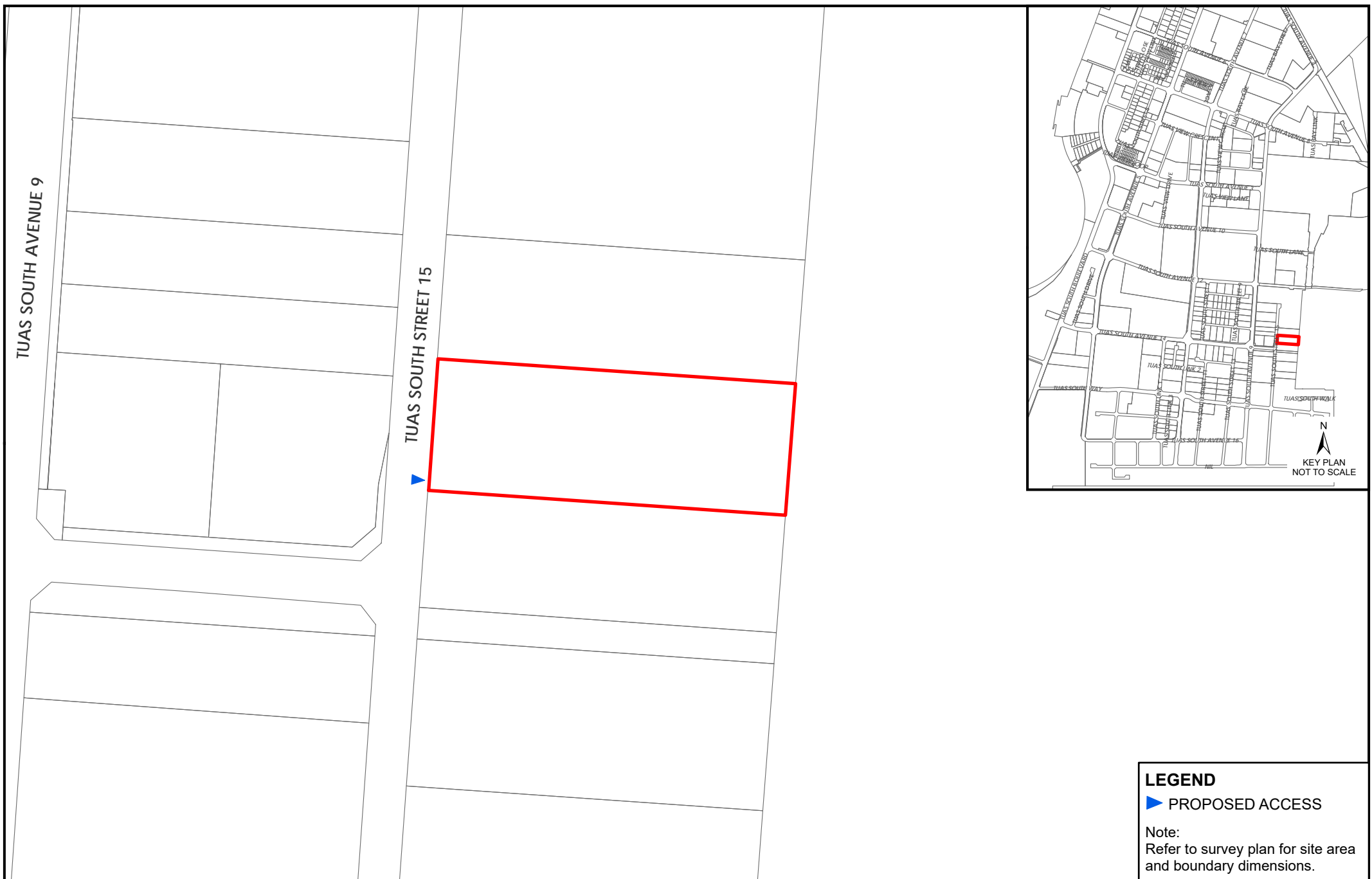
Tenderer's Tender Deposit, the Successful Tenderer shall also pay to the Corporation, the unpaid licence fee for the entire licence term and damages suffered by the Corporation.

The Successful Tenderer who fails to pay the Corporation the sums set out in paragraph 7(b) herein, shall in addition to any other remedies available to the Corporation, be debarred from tendering for all Government Ministries' or Departments' and Statutory Boards' projects for all lines of business for a period to be determined by the Standing Committee On Debarment (SCOD).

- 7A The Corporation reserves the right to request the Successful Tenderer to submit a TOL Land Proposal Application Form (as attached as **Appendix B** of the Conditions of Tender) to NEA for advisory clearance by a stipulated date ("Submission Date"), failing which the Successful Tenderer is deemed to have withdrawn the Tender.
- 8 The Successful Tenderer will enter into a Licence Agreement with the Corporation in respect of the Said Land by the Licence Commencement Date as stated in the table in paragraph 1. A specimen copy of the Licence Agreement is attached as **Appendix A** to the Conditions of Tender. The terms of the specimen Licence Agreement may be amended at any time by the Corporation at its sole discretion.
- 9 The Licence Agreement executed by the Successful Tenderer will be based on:
- (i) the terms and conditions of the specimen licence agreement is attached as **Appendix A** of the Conditions of Tender or any amendments thereto as required by the Corporation;
 - (ii) the relevant terms and conditions as set out in the documents comprising the Invitation to Tender (in particular Factsheet and paragraph 3 of this Tender Brief); and
 - (iii) such other terms and conditions as the Corporation shall impose.
- 10 For more information, please contact:
JTC Contact Centre
1800- 5687000

This Tender Brief is meant to highlight some of the terms of the Invitation to Tender. All Tenderers shall strictly comply with the terms and requirements as stipulated in the Invitation to Tender. The Invitation to Tender shall comprise of the following documents:

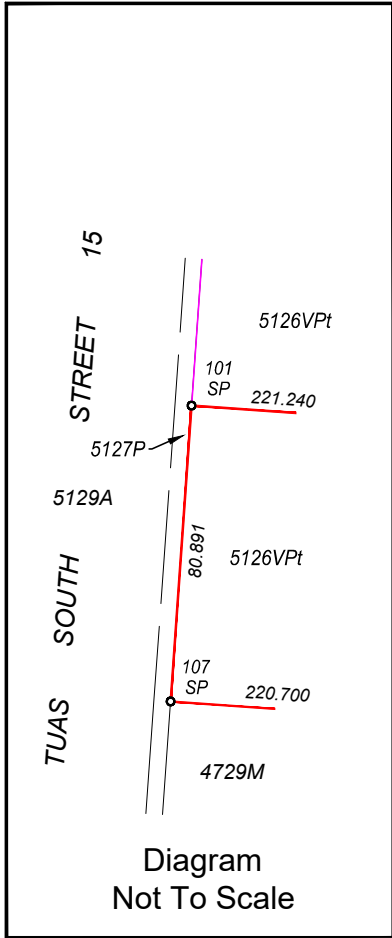
- a Tender Brief;*
- b Location Plan;*
- c Prelim Survey Plan;*
- d Factsheet;*
- e Conditions of Tender;*
- f Appendices to the Conditions of Tender; and*
- g Corrigendum, Addendum Letters issued by the Corporation (if any).*



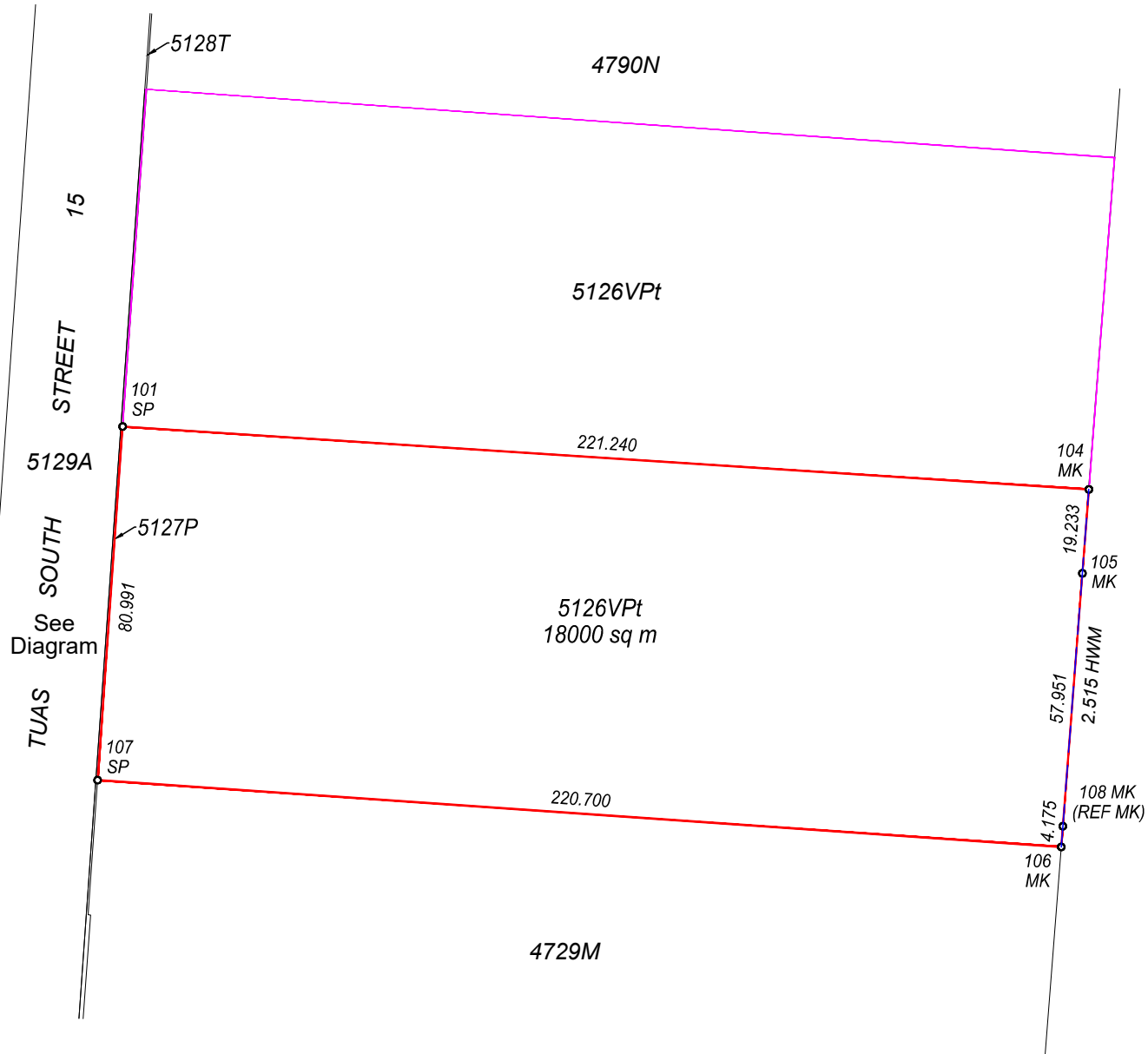
LEGEND

 PROPOSED ACCESS

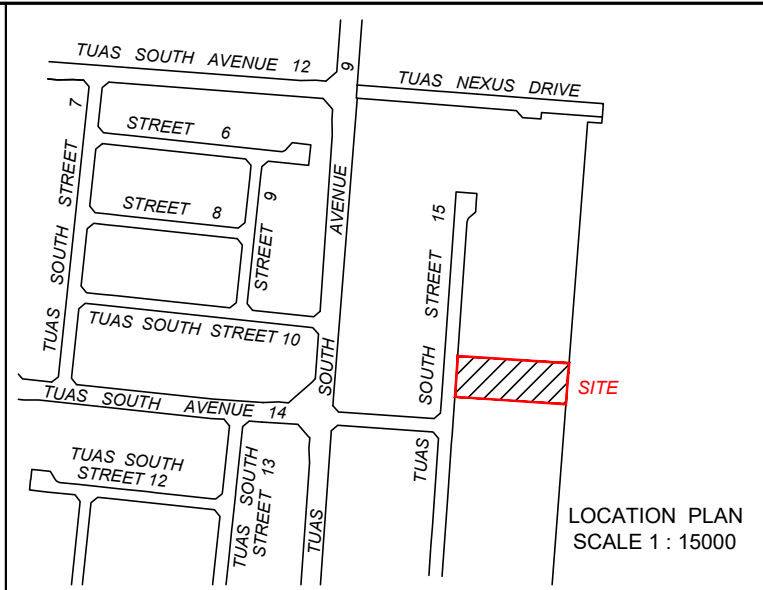
Note:
Refer to survey plan for site area
and boundary dimensions.



Stn No	Northing	Easting
101	28596.120	6276.491
104	28581.756	6497.264
105	28562.581	6495.776
106	28500.067	6490.944
107	28515.331	6270.772
108	28504.802	6491.310



- Legend :
- SLA Cadastral Boundary (lot MK07-05126V)
 - Allocated Boundary
 - Actual Waterfront Boundary Line (2.515m HWM surveyed as on 13-1-2022)



NOTE :

This plan is constructed based on SVY-21 Datum.

All Distances are in metres.

Areas, boundaries and dimensions shown hereon are provisional and subject to alteration on final survey.



JTC Corporation
8 Jurong Town Hall Road
Singapore 609434
Tel : 6560 0056 Fax : 6565 5301



Customer Feedback survey



Encroachment Guidelines



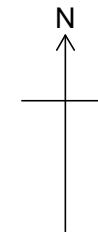
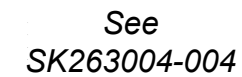
Surbana Jurong Consultants Pte. Ltd.
168 Jalan Bukit Merah #01-01 Connection One, Singapore 150168
Tel: +65 62481288 Fax: +65 62739090
www.surbanajurong.com
Company Regn No: 200304951Z



21-1-2022
LEONG KIN WENG
REGISTERED SURVEYOR

PRELIMINARY SURVEY PLAN FOR ENCROACHMENT CHECK FOR PLOT ON LOT 5126VPt

SJCPL Ref : 500-09-50-0263-004	Surveyed By : Tham Choon Poh 13-1-2022
JTC Ref : IS08-2022	Drawn By : S N Tan
Scale : 1 : 1500	Checked By : Tan Kim Lian
Mukim No. 07	Cadastral Map : 2283
Location : Tuas South Street 15	Drawing No.
SB-50LS-LCTS-S21015-004-1	
Metres 15 0 15 30 45 60 75 Metres	



Not To Scale

Only Plot 1 (TS6621) is put up for the Short Tenure Waterfront Land (STWL) Tender. The Sketch is for illustrative purposes only and reflects only permanent features within 0.5m of the boundaries indicated therein. Tenderer's attention is drawn to Conditions 11(c) and 11(d) of the Conditions of Tender.



Not To Scale

Short Tenure Waterfront Land Tender - Factsheet



-
1. Date : 29 March 2022
 2. Location : Tuas South (Finger One)
 3. Plot Code : TS6621
 4. Mukim/Lot No. : MK07-05126VPt
 5. Land Area : 18,000 sqm
 6. Waterfront Length : 81 m
 7. Waterfront Channel Depth : The water channel leading to the site has a depth that ranges from 8m to 10m indicatively. Tenderers are required to obtain or purchase hydrographic information from MPA for more data on waterfront depth to verify matters to the Tenderer's own satisfaction.
 8. Available Tenure : About 13 years 6 months from Licence Commencement Date till the expiry date on 30 December 2035
 9. Tender Deposit : As set out in Paragraph 1 of the Tender Brief
 10. Usage Zoning : Business 2
 11. Aesthetic Guidelines : Some aesthetic guidelines on the subject site, such as:
 - (i) All unsightly activities including loading/unloading areas shall be hidden from view from the main road/roads and immediate neighbour by locating these away from direct view or be screened from view by proper landscaping.
 - (ii) Landscape is encouraged to enhance the overall environment. For visually sensitive locations such as the portion facing public roads, appropriate landscape treatment such as well-designed shrubs, flowering plants and other softscape are encouraged in addition to trees.
 12. Prohibited Usage : The following usage will not be permitted on the subject site unless otherwise specified:
 - Non-manufacturing activities such as chartering and parking of vessels

- All trades involving any types of liquids (including diesel & liquefied petroleum gas), goods, materials or things of an offensive, dangerous, toxic, corrosive, explosive or combustible nature*
- Workers' quarters/dormitory
- Repair and servicing of motor vehicles/machinery/construction equipment
- Concrete batching
- Concrete precasting
- Sand, grit and copper blasting except conducted in chambers**
- All trades involving food waste
- All trades involving construction and demolition waste, wood or horticultural waste, and other recycling activities which generate dust and odour; and storage of scrap metal, waste paper and other waste materials**
- Car park for heavy vehicles and trailers***
- Logistics & warehousing***

* Storage of diesel can be allowed if the same is (i) required for the approved usage of the subject site and (ii) for the successful tenderer's own operations only and not for sale to the public, subject always to approvals being obtained from the relevant agencies.

** Can be allowed subject to relevant agencies' approvals (e.g. NEA) and implementation of required mitigating measures to mitigate the effects of dust and odour arising from these activities.

*** Can be allowed subject to LTA's approval.

The above list of non-permissible usage serves only as a guide and is by no means exhaustive or final.

13. State and Condition of Said Land, Building and Waterfront

: The Successful Tenderer may use the existing building including structure(s) erected or found on the Said Land¹. In the event of any alteration or addition to the existing building including structure(s) on the Said Land, the Successful Tenderer shall seek the Licensor's prior written consent.

The Said Land and building including structure(s) is to be taken on an "as is where is", including any defects (latent, inherent or otherwise) and each Tenderer shall be deemed to have full notice and knowledge, inter alia, of:

- (i) The actual state and condition of the Said Land and building including structure(s) including but not limited to its ground levels, topography, subterranean conditions, soil contaminants, compounds, characterization and conditions as

¹ The Said Land refers to the Plot (MK07-05126VPt), which includes a waterfront.

well as matters with regards to access, ingress and egress, drainage and utility services, affecting the Said Land and building including structure(s);

- (ii) The existence of any encroachment, structure or thing on or within the Said Land and building including structure(s), any easements, rights of way and all other encumbrances, if any, affecting the Said Land and building including structure(s);
- (iii) The cables, wires, pipes, pipelines, trenches and other structures or facilities carrying, transporting, conveying or delivering services of sewage, water, electricity, telecommunications and gas (collectively “Services Infrastructure”) belonging to the relevant Competent Authorities and third-party service providers exist adjacent to, across, around, on, under or within the Said Land and building including structure(s) and the relevant Competent Authorities and third party service providers may require the Services Infrastructure to be protected or diverted. In this regard, the Successful Tenderer shall comply with all such requirements of the relevant Competent Authorities and third party service providers in connection with the Services Infrastructure, as well as that the Development and all activities at the Said Land and building including structure(s) shall not in any way affect the Services Infrastructure;
- (iv) The waterfront shall be taken on an “as is where is” basis. Any waterfront adjustment works would be subject to the Licensor’s approval, the Successful Tenderer shall at his own cost and expense carry out all necessary works with the terms and conditions in **Appendix C and D** concerning waterfront adjustment works.
- (v) The Successful Tenderer shall not raise any objection or requisition whatsoever in respect thereof regardless of whether the Successful Tenderer has inspected the Said Land and building including structure(s) AND further, the Successful Tenderer shall execute such works as may be required to be done or as may be deemed necessary.

14. Height Constraints : The site is subject to a Developmental Height Constraint of 85m SHD. All structure/fixtures on the rooftop such as water tanks, lift motor rooms, TV antennas etc. are subject to the same height limit. Please note that the same height limit is applicable to construction equipment and temporary structures etc. The Development Height Constraint indicated herein is subject to change. No sensitive receptors are allowed.

Company is to comply with NEA's Building Height Constraint requirement.

15. Viewing Time : The site will be available for viewing on **4 and 5 April 2022, from 10 am to 12 pm.**

16. Company Visit / Interview : JTC may visit / interview selected Tenderers in to clarify the Tenderers' activities. JTC shall inform the selected Tenderers in advance the exact dates and time of the visits / interviews. In the event any of the selected Tenderers cannot accommodate JTC's visit / interview on the allocated date and time, the said Tenderer's tender for the Said Land and building including structure(s) shall be based solely on the information submitted.

17. Some of the Terms & Conditions (non-exhaustive) : Traffic

- (i) Relevant approvals from LTA/DC shall be obtained in the event the proposed activities/usage by the Tenderers are deemed to generate high traffic volume.
- (ii) JTC reserves the right not to award the tender to any tenderer whose proposed activities/ usage, including but not limited to container depot/yard and other logistics uses, are deemed to generate high traffic volume.

Access & Condition of the Subject Site

- (i) Access to the subject site shall be from the interim road along Tuas South Street 15, as indicated in the attached location plan.
- (ii) The subject site is taken on an "as is where is" basis and there shall not be any objection or requisition in respect thereof.

Road Reserve

Activities shall be restricted within the subject site and shall not encroach onto the road reserve. Stock piling of building materials or equipment within the existing road reserve and carriageway are strictly not allowed.

Works at End of Licence

The successful tenderer is required to carry out such works as required by JTC, to JTC's satisfaction, before the expiry or earlier termination of the licence period, at the successful tenderer's own cost.

Existing structures

There are patches of concrete stand on site.

Trees

There are trees found at the subject site. The Successful Tenderer may remove them at their own costs.

Removal of Trees/Plants etc / Tree Felling

Approvals from the relevant agencies must be obtained before any works are carried out to remove trees/ plants at the subject site.

CONDITIONS OF TENDER

(for land lot parcel TS6621 at Tuas South (Finger One))

- 1 The Jurong Town Corporation (hereinafter referred to as “the Licensor”) is inviting offers by tenders (hereinafter referred to as “Tender”) for the licence to occupy the land parcel lot described in paragraph 1 of the Tender Brief (hereinafter referred to as “the Said Land”) subject to the Factsheet and Conditions of Tender.
- 2 “Tender Packet” for the Said Land¹ containing Tender Brief, Factsheet, Conditions of Tender, Site Plan, Prelim Survey Plan, Appendices to the Conditions of Tender, Corrigendum, Addendum Letters issued by the Licensor (if any) and other relevant documents may be obtained from JTC’s website www.jtc.gov.sg/TOL .
- 3 The successful tenderer for the Said Land (hereinafter referred to as “the Successful Tenderer”) shall in addition to the Factsheet, Conditions of Tender, Tender Brief, Appendices to the Conditions of Tender, Corrigendum and Addendum Letters issued by the Licensor (if any) comply with the conditions, if any, stipulated on the Site Plans relating to the Said Land supplied in the Tender Packet, which is intended to be a guide on the requirements of the Licensor in respect of the use of the Said Land.
- 4 The Successful Tenderer shall, subject to the terms of the Factsheet, Tender Brief and Conditions of Tender, be granted a licence (with existing building and structures hereinafter referred to as “Structures”, and each a “Structure”) to use the Said Land for a term of **an estimated 13 years 6 months** from the Licence Commencement Date based on the terms and conditions of the specimen Licence Agreement attached as **Appendix A** hereto (hereinafter referred to as “Licence”) and such other terms and conditions as the Licensor imposes.
- 5 Each Tenderer shall be taken to have read and shall be bound with full notice and knowledge of the contents of:
 - the specimen Licence Agreement, and
 - the Factsheet, Conditions of Tender, Tender Brief, Appendices to the Conditions of Tender, Site Plan, Prelim Survey Plan, Corrigendum and Addendum Letters issued by the Licensor (if any)

including all additions, variations and amendments to the said documents, as well as any plans, drawings, reports and other documents referred to, mentioned in, appended or annexed to the said documents, made by the Licensor prior to the closing date and time for submission of Tenders as hereinafter mentioned. The additions, variations and amendments to the said documents, if any, will be announced on GeBIZ and JTC website prior to the closing date and time for submission of Tenders. All references herein to the specimen Licence Agreement and the Factsheet and Conditions of Tender shall be deemed to mean such documents as added to, varied or amended as aforesaid.

Submission of Tender

¹ The Said Land refers to the Plot (MK07-05126VPt), which includes a waterfront.

- 6
- (a) The Tenderer shall login to GeBIZ at www.gebiz.gov.sg, fill in the Tender Sum at <Unit Price> field and the Proposed Usages of i) Land comprised in the Said Land and ii) Waterfront comprised in the Said Land and iii) Declared Site Coverage (%) at <Remark> field. Please attach a drawn-up site plan to support the proposed site coverage. Failure to indicate the Tender Sum, the Proposed Usages and/or Site Coverage shall render the Tender **disqualified**.
 - (b) In submitting the Tender, the Tenderer shall attach an updated company profile from Accounting & Corporate Regulatory Authority (ACRA):
 - (i) where the Tenderer is a sole proprietor, the particulars of the proprietor himself;
 - (ii) where the Tenderer is a partnership, the particulars of such partnership and at least one of the partners of such partnership; and
 - (iii) where the Tenderer is a company, the particulars of such Company and its duly authorised representative who must be a Singapore citizen or permanent resident in Singapore and who shall be required to stand as guarantor for all payments payable by the Tenderer.
 - (c) The Tender shall be submitted on the basis of the licence fee payable per month (hereinafter referred to as “the Tender Sum”) for the first twelve months of the licence term. The Tender Sum shall not include any amount of Goods & Services Tax (hereinafter referred to as “GST”) chargeable under the Goods and Services Tax Act (Chapter 117A) in relation to the Licence of the Said Land and which is payable by the Successful Tenderer.

The licence fee shall be increased at the rate of 3% of the annual licence fee for each immediate preceding year.
 - (d) The Tenderer shall submit the tender via GeBIZ before the closing date and time for the submission of the Tender set out in paragraph 5 of the Tender Brief. Any Tender submitted after the said date and time shall not be considered.
 - (e) The Licensor reserves the right to request the Successful Tenderer to submit a **TOL Land Proposal Application Form** (as attached as **Appendix B** of the Conditions of Tender) to NEA for advisory clearance by a stipulated date (“Submission Date”), failing which the Successful Tenderer is deemed to have withdrawn the Tender.
 - (f) All costs and expenses incurred by the Tenderer in preparing and submitting the Tender shall be borne entirely by the Tenderer.
- 7 For the purposes of submitting a Tender, the Tenderer is required to put up a tender deposit for the amount of Singapore Dollars as set out in paragraph 1 of the Tender Brief for the Said Land (hereinafter referred to as “the Tender Deposit”).

- 8 (a) The Tender Deposit shall be paid at the time of submission of the Tender in the following manner:-
- (i) by way of bank transfer to **JTC's Citibank N.A. Singapore Account No.: 0-020459-042** or such other bank account(s) as JTC may notify the tenderer; and
 - (ii) to instruct the bank to quote the tender deposit description as "[Company Name] TOL TD [Location & Plot Code]" for the transaction.
- Payment in CASH or by CHEQUE or any other means WILL NOT BE ACCEPTED.**
- (b) Failure to effect payment of the Tender Deposit in the manner set out in Condition 8 hereof by the closing date and time for the submission of the Tender shall render the Tender disqualified and the Tender will accordingly not be considered.
- (c) (i) the Tender Deposit shall be refunded without interest to all unsuccessful Tenderers within **Twelve (12) weeks** from the closing date for the submission of Tender till **5 July 2022** subject to such deductions from the Tender Deposit that the Licensor shall be entitled to make under the terms of the Factsheet, Conditions of Tender, Tender Brief, Appendices to the Conditions of Tender, Site Plans, Corrigendum and Addendum Letters issued by the Licensor (if any). Such refund shall be made to the bank account from which the Tender Deposit was paid. Thereafter, such unsuccessful tenderers shall, apart from the refund of the Tender Deposit, have no other claim whatsoever against JTC.
- (ii) Any amendment by the Tenderer of his Tender or any part thereof after the closing date and time for submission of Tender shall unless expressly allowed by the Licensor be deemed to be a withdrawal of such Tender.
- 9 The Tenders submitted shall remain valid for a period of **Twelve (12) weeks** with effect from 4.00pm on the tender closing date up to and including **5 July 2022** ("Tender Validity Period").
- 10 The Licensor reserves the right at any time to withdraw the Invitation to Tender without being liable for any costs, expenses, losses and/or damages incurred by the Tenderers whatsoever.

Description, Condition and Area of Land

- 11 In submitting the Tenders, the Tenderers agree and acknowledge that:
- (a) the Said Land shall be deemed to be correctly described with respect to its configuration and other physical parameters (including but not limited to the Structures) as indicated in the Location Plan and Survey Plan enclosed herewith;

- (b) the Said Land shall be licensed subject to all easements and rights (if any) subsisting thereon and without any obligations on the part of the Licensor to define the same respectively;
- (c) the Said Land shall be licensed on an “as is where is” basis and the Tenderer shall be deemed to have notice of the actual state and condition of the Said Land including but not limited to matters as regards access, ingress and egress, drainage, utility services, easements, rights of way and all other encumbrances, if any, affecting the same;
- (d) no error, omission, mis-statement or mis-description in the Conditions of Tender (including the specimen Licence Agreement, any plans, drawings, reports or other documents referred to, mentioned in, appended or annexed to these Conditions of Tender) as well as Factsheet, Tender Brief, Appendices to the Conditions of Tender, Location Plans, Corrigendum and Addendum Letters issued by the Licensor (if any) shall invalidate any Tender submitted or entitle the Successful Tenderer to terminate any Licence Agreement executed pursuant to the Conditions of Tender by the Successful Tenderer nor shall the same discharge the Successful Tenderer from its obligations pursuant to any agreement between the Successful Tenderer and the Licensor or entitle the Successful Tenderer to any compensation whatsoever or to any reduction of amounts payable under the Licence Agreement.
- (e) The Said Land may be viewed by Tenderers on such date and time as may be determined by the Licensor.

Evaluation Criteria

- 12 The Licensor shall evaluate the Tenders submitted based on several criteria, including but not limited to the following:
- (a) the Tenderer shall be a company incorporated or a firm registered in Singapore or if an individual, a citizen or permanent resident of Singapore.
 - (b) the Tenderer shall have the legal capacity to enter into and form contracts under the applicable laws and in any event, if the Tenderer is an individual, he shall not be under 21 years of age.
 - (c) the Tenderer shall have duly completed the Tender in the manner prescribed by the Licensor and shall have provided the Licensor with all required information which shall be accurate, up-to-date and complete, and maintained and updated promptly so as to ensure the accuracy at all times.
 - (d) the Tenders submitted shall comply fully with the Factsheet and Conditions of Tender and other requirements as contained in the documents in the Tender Packet, including all additions, variations and amendments to the said documents, as well as any plans and drawings, reports and other documents referred to, mentioned in, appended or annexed to the Conditions of Tender.

(e)(i) the Said Land shall not be used for any of the following usage which are strictly **not** permitted unless otherwise specified:

- Non-manufacturing activities such as chartering and parking of vessels
- All trades involving any types of liquids (including diesel & liquefied petroleum gas), goods, materials or things of an offensive, dangerous, toxic, corrosive, explosive or combustible nature*
- Workers' quarters/dormitory
- Repair and servicing of motor vehicles/machinery/construction equipment
- Concrete batching
- Concrete precasting
- Sand, grit and copper blasting except conducted in chambers**
- All trades involving food waste
- All trades involving construction and demolition waste, wood or horticultural waste, and other recycling activities which generate dust and odour; and storage of scrap metal, waste paper and other waste materials**
- Car park for heavy vehicles and trailers***
- Logistics & warehousing***

* Storage of diesel can be allowed if the same is (i) required for the approved usage of the subject site and (ii) for successful tenderer's own operations only and not for sale to the public, subject always to approvals being obtained from the relevant agencies.

** Can be allowed subject to relevant agencies' approvals (e.g. NEA) and companies putting in the required mitigating measures to mitigate the dust and odour arising from these activities.

***Can be allowed subject to LTA's approval.

The above list of non-permissible usage serves only as a guide and is by no means exhaustive or final.

(e)(ii) Relevant approvals from LTA/DC shall be obtained in the event the proposed activities/uses by the Tenderers are deemed to generate high traffic volume. Please note that the Licensor reserves the right not to award to any tenderer whose proposed activities/usage(including but not limited to container depot/yard and other logistics uses, are deemed by the Licensor to generate high traffic volume.

(e)(iii) the Tenderer is required to use the Said Land based on the proposed use by the Tenderer.

(e)(iv) for the proposed activities/uses, the Tenderer is required to propose a minimum site coverage of 60%.

(f) the Tenderer shall have put up and maintained the required Tender Deposit in the manner and for the duration as stipulated in Condition 8.

- (g)(i) the Tenderer shall not have any outstanding debts due to the Licensor as at the date of the Tender.
- (g)(ii) previous breach of any terms and conditions of the Licensor's legal agreement for other plot of land by any Tenderer may affect the particular Tenderer's Tender for the Said Land.
- (h) the Tenderer shall not be suspended or debarred by the Standing Committee on Debarment, c/o Ministry of Finance, from participating in public sector tender.
- (i) the Tenderer shall have met any other criteria as may be stipulated by the Licensor in its sole discretion in connection with the Tender.
- (j) The Licensor reserves the right to accept or reject any tender for the Said Land whatever and also reserves the right to not accept any tenders nor grant any licence in respect of the Said Land whatever. The Licensor also reserves the right to not accept the highest of any tender offer or bid. The Licensor's decision is final and the Licensor is not obliged to disclose any reason for its decision.

Acceptance of Tender

- 13 Selection of the Successful Tenderer shall be at the absolute discretion of the Licensor. The Licensor reserves the sole and exclusive right to select the Successful Tenderer in its sole discretion based on the Licensor's selection criteria and may be subject to:

- (a) verification of the identity and capacity of the Tenderer; and
- (b) the said Tenderer satisfying such conditions as may be stipulated by the Licensor and not being in breach of any of the Tender Brief, Factsheet and Conditions of Tender or any other contractual obligation to the Licensor,

without being liable for any costs, expenses, losses and/or damages incurred by the Tenderer whatsoever. The Licensor's decision thereto shall be taken as final and the Licensor shall not be obliged to divulge or furnish any reason for its decision.

- 14 As soon as the Licensor has selected the Successful Tenderer, the Licensor shall inform the Successful Tenderer of the acceptance of his Tender and award of the Tender to him by a letter (hereinafter referred to as "the Tender Acceptance Letter") to be sent by post to the address given in the Tender and such a letter so sent shall be deemed to have been received by the addressee in due course of post. The date of the Tender Acceptance Letter to the Successful Tenderer shall be deemed to be the date of acceptance by the Licensor of the Tender.

- 15 [Not Used]

Successful Tenderer

- 16 The issuance of the Tender Acceptance Letter constitutes the acceptance of the Successful Tenderer's Tender by the Licensor, whereupon the Successful Tenderer shall be bound by and deemed to have executed the Licence Agreement in respect of the Said

Land at the Tender Sum contained in the Successful Tenderer's Tender, based on the terms and conditions as set out in the specimen Licence Agreement and such other terms and conditions that may be imposed by the Licensor. Notwithstanding the above, The Successful Tenderer shall not enter into any arrangements or contracts relating to the Said Land until such time when the Licence Agreement has been executed pursuant to Condition 19.

- 17 Following the Licensor's acceptance of the Successful Tenderer's Tender pursuant to Condition 16 and subject to the Licensor being satisfied that the Successful Tenderer has fulfilled the conditions as stipulated by the Licensor the Successful Tenderer shall procure that:
- (a) if the Successful Tenderer is an individual, the relevant company or firm for which the Successful Tenderer participated in the Tender will be incorporated (with such paid-up capital acceptable to the Licensor) or registered, as the case may be, no later than ten (10) days from the date of the Tender Acceptance Letter, failing which (and in any event until the said company or firm, as the case may be, executes and returns the Licence Agreement as provided in Condition 19) the individual Successful Tenderer shall be responsible for compliance with, as well as any losses, costs, expenses and liabilities arising from any non-compliance with, the terms of all documents in the Tender Packet;
 - (b) all required regulatory or other approvals, consents and licences shall be obtained and that the Successful Tenderer shall at all times at his own cost and expense observe and comply with the provisions of all Acts of Parliament, rules, regulations, orders and other statutory provisions in force from time to time and applicable in respect of the Said Land and/or any development or activities thereon (including but not limited to those related to traffic clearance or removal of trees or plants on the Subject Land) and shall also observe and comply with all terms, conditions, requirements, notices and directions imposed or issued by any relevant Authorities or bodies in respect of the Said Land and/or any development or activities thereon from time to time; and
 - (c) all other requirements and directions specified by the Licensor for the purposes of the Licence of the Said Land (including as may be stated in the Tender Acceptance Letter) will be complied with, including but without limitation to Condition 19.

Provided that the Successful Tenderer acknowledges and agrees that, without prejudice to the terms herein and subject to Condition 19, the acceptance of the Successful Tenderer's Tender and right to the Licence of the Said Land as set out in the Tender Acceptance Letter shall be personal to the Successful Tenderer and shall not be transferable nor assignable.

Payment of Tender Sum in Successful Tender

- 18 The Successful Tenderer shall:

- (a) within ten (10) days of the date of the Tender Acceptance Letter, check with the relevant Authority whether *ad valorem duty* is payable on the Tender Acceptance Letter and the Licence Agreement (in duplicate) and to furnish the said letter to the Licensor. If *ad valorem duty* is payable, to pay to the Licensor the proper amount of *ad valorem duty* on the Tender Acceptance Letter and on the Licence Agreement (in duplicate) so that the Licensor may arrange for payment of stamp duty chargeable on the said documents;
- (b) pay by way of bank transfer to **JTC's Oversea Chinese Banking Corporation Limited Account No.: 501-104970-001** or such other bank account(s) as JTC may notify the tenderer the one-month licence fees (less quantum of Tender Deposit which has not been deducted by the Licensor) for the Said Land, Survey fee, cost for the preparation of the Licence Agreement, stamp duties and any other incidental cost as stated in the Tender Acceptance Letter within fourteen (14) days from the date of the Tender Acceptance Letter (time in this respect being the essence of the contract) together with the amount of GST chargeable in relation to such payments; and
- (c) pay on demand all costs, fees, stamp duties and all other expenses and disbursements more particularly set out in Condition 22 hereof as soon as the amount thereof is ascertained.

Completion of Licence Agreement

- 19 (a) Upon the Successful Tenderer complying with Condition 18 hereof to the satisfaction of the Licensor, the Licensor shall prepare the Licence Agreement substantially in the form set out in the specimen Licence Agreement as **Appendix A** hereto subject to any amendments or modifications at the Licensor's absolute discretion and shall thereafter forward the Licence Agreement in duplicate to the Successful Tenderer.
- (b) The Successful Tenderer shall following receipt of the physical copies of the Licence Agreement from the Licensor:-
 - (i) within the time period stipulated by the Licensor:
 - sign or otherwise procure that the relevant company or firm referred to in Condition 17(a) sign the said Licence Agreement (in duplicate) as licensee, and
 - if applicable, provide to the Licensor a certified true copy of the Certificate of Incorporation or Business Registration relating to the company or firm (as the case may be) which signs the Licence Agreement;
 - (ii) return the duly signed Licence Agreement to the Licensor before delivery of possession of the Said Land in accordance with Condition 26 hereof or commencement date of the licence term, whichever is earlier; and

- (iii) forward to the Licensor reasonably satisfactory evidence of standing instructions or direct debit authorisation having been issued to the Successful Tenderer's bank to remit payment of the monthly licence fees in respect of the Said Land together with GST thereon to the Licensor, by interbank GIRO or any other mode as may be determined by the Licensor for the term of the Licence of the Said Land.

20 If the Successful Tenderer shall for whatever reason fail to observe or perform or shall fail to ensure the due observance or performance of any of these Conditions of Tender, the Licensor may forfeit the Tender Deposit and all other monies paid under the provisions hereof which shall thereupon belong to the Licensor and the Licensor shall be entitled to:

- (a) dispose of, and where possession of the Said Land has been delivered to the Successful Tenderer in accordance with Condition 26 hereof, to re-enter upon and resume possession and to dispose of the Said Land and any interest therein as if the Successful Tenderer had never submitted a Tender under these Conditions of Tender; and
- (b) whether by public auction, private treaty, tender or any other mode of allocation to obtain a licensee for the Said Land, subject to such conditions and generally in such manner as the Licensor may in its absolute discretion think fit with power to vary or rescind any contract, buy in any auction and/or to dispose of the same,

and the deficiency in the proceeds, if any, arising on such disposal or attempted disposal shall be made good and paid for by the Successful Tenderer to the Licensor on demand and shall be recoverable by the Licensor against the Successful Tenderer as damages but any increase of proceeds on a disposal shall belong to the Licensor absolutely.

21 Nothing herein or in the Licence Agreement shall be construed to exempt the Successful Tenderer from otherwise complying with the conditions and requirements of all relevant authorities or bodies in force from time to time and applicable in respect of the Said Land and/or any intended developments and activities thereon. The Successful Tenderer shall ascertain the exact and detailed conditions and requirements of all relevant authorities or bodies in respect of any development or activities on the Said Land and shall at his own costs and expenses observe and comply with the same.

Payment of Costs and Expenses

22 The Successful Tenderer shall forthwith pay on demand:-

- (a) all legal costs and all other expenses incurred or to be incurred by the Licensor in connection with the preparation, finalisation and completion of these Tender documents for and any other documents relating to the Said Land and in respect of matters incidental thereto or arising therefrom;

- (b) all stamp duties payable on the Licence of the Said Land and all other costs and expenses incurred or to be incurred in connection with the preparation and completion of the said Licence Agreement and matters incidental thereto or arising therefrom;
- (c) a cash deposit equivalent to **three (3) months'** licence fees calculated based on the Tender Sum or in lieu thereof, an acceptable Banker's Guarantee for the equivalent amount, as security against breach by the Successful Tenderer of any terms and conditions of the Licence Agreement; and
- (d) the amount(s) of GST charged or chargeable in relation to the Licence of the Said Land and the supply of any goods or services by or on behalf of the Licensor to the Successful Tenderer.
- (e) a non-refundable administrative fee based on the Licensor's then prevailing policies if –
 - (i) the Successful Tenderer does not have any standing instructions or direct debit instructions for payment of monthly fees by GIRO (as required under clause 19(b)(iii)); or
 - (ii) at any time, the Successful Tenderer's standing instructions or direct debit instructions for GIRO arrangement is not effected, or is discontinued, for whatever reason.

Statutory Provisions and Requirements of Relevant Authorities and Bodies

- 23 The Successful Tenderer shall at all times at his own costs and expense observe and comply with the provisions of all Acts of Parliament, rules, regulations, orders and other statutory provisions in force from time to time and applicable in respect of the Said Land and/or any development or activities thereon and shall also observe and comply with all terms, conditions, requirements, notices and directions imposed or issued by any relevant Authority or body in respect of the Said Land and/or any development or activities thereon from time to time.
- 24 Nothing herein or in the foregoing specimen Licence Agreement shall be construed to exempt the Successful Tenderer from otherwise complying with the conditions and requirements of all relevant Authorities and bodies in force from time to time and applicable in respect of the Said Land and/or any intended developments and activities thereon. The Successful Tenderer shall ascertain the exact and detailed conditions and requirements of all relevant Authorities and bodies in respect of any development or activities on the Said Land and shall at his own costs and expense observe and comply with the same. It is advised that Tenderers should consult relevant Authorities and bodies in respect of the intended development or activities on the Said Land prior to submitting their Tenders. The Licensor shall not be liable to the Successful Tenderer for any loss, damage or inconvenience caused by having to comply with such conditions and requirements of the relevant Authorities or bodies or if the Successful Tenderer is unable to occupy and use the Said Land for his intended purposes or part thereof in

whatsoever manner due to such conditions and requirements imposed by the relevant Authorities and bodies.

- 25 In the event that there are existing utility services such as pipes, cables, etc within the Said Land, the Successful Tenderer may be required to divert, repair or protect such existing utility services and the cost of diversion, repair or protection, if any, shall be borne by the Successful Tenderer and shall be paid by him forthwith on demand to the relevant Authorities or bodies.

Possession of Land Parcel

- 26 (a) Vacant possession of the Said Land shall be delivered to the Successful Tenderer following the receipt by the Licensor of the payments and completion of the Licence Agreement mentioned under Conditions 18 and 19 respectively.
- (b) Possession of the Said Land shall be given to the Successful Tenderer by delivering to him a letter stating that possession of the Said Land or such part thereof as mentioned shall be deemed to be handed over to him with effect from such date as specified in the said letter and the manner of delivery of vacant possession.
- (c) The Successful Tenderer shall not be entitled for any reason whatsoever to:-
- (i) withhold any payment;
 - (ii) object to or refuse the delivery of possession of the Said Land or any part thereof to him; or
 - (iii) delay or refuse to observe or perform any of these present Conditions of Tender and/or the terms of the Licence Agreement.

Debarment

- 27 Without prejudice to any right of action or other remedy which the Government of Singapore (hereinafter referred to as “the Government”) and/or the Licensor may have or any proceedings, civil or criminal, which the Government and/or the Licensor may decide to initiate or take -
- (a) the Government and/or the Licensor shall debar the Successful Tenderer and any Tenderer that is found guilty of corruption, regardless of the amount involved, from participating in all future tenders and auctions of the Ministries and Departments of the Government and Statutory Boards for a minimum period of **Five (5) years**;
 - (b) the Government and/or the Licensor reserve the right to debar the Successful Tenderer from participating in all future tenders and auctions of the Ministries and Departments of the Government and Statutory Boards for such period as the Government and/or the Licensor may at their discretion determine for any

failure on the part of the Successful Tenderer to observe or perform any of the terms and conditions contained or referred to in these present Conditions of Tender; and

- (c) the Successful Tenderer shall on demand pay such amount as the Licensor may determine as compensation for any loss and damage that may be suffered, directly or indirectly, by the Licensor as a result of any failure to observe or perform any of the terms and conditions contained or referred to in these present Conditions of Tender on the part of the Successful Tenderer or the employees or agents of the Successful Tenderer.

Withdrawal of Tender

28 Without prejudice to the Licensor's other rights and remedies, in the event the Tenderer/Successful Tenderer withdraws his Tender, the following shall apply:

- (a) if the Tenderer withdraws his Tender during the Tender Validity Period, his Tender Deposit will be forfeited; or
- (b) if the Successful Tenderer withdraws his Tender after the award has been given to him, his Tender Deposit will be forfeited and he shall also pay on demand to the Licensor the unpaid licence fee for the entire licence term and damages suffered by the Licensor as well as be subject to debarment under Condition 27.

Period of Debarment for Terminating the Licence Agreement

29 In the event the Successful Tenderer terminates the Licence Agreement without giving notice as required under the Licence Agreement, the period of debarment as provided in Condition 27 shall be for a period of one (1) year or any period exceeding one year, at the discretion of the Licensor.

Period of Debarment for Breach of the Licence Agreement

30 In the event the Successful Tenderer is in breach of the terms and conditions of the Licence Agreement, which results in the termination of the same, such Successful Tenderer may be debarred as provided in Condition 27 up to a maximum of five (5) years at the discretion of the Licensor.

Giving False Information

31 Tenderers who give false information for purposes of gaining advantage for securing award will be debarred from participating in all tenders as provided in Condition 27 for two (2) years regardless of value of licence, tenancy or lease agreements.

General Provisions

- 32 Payment of any amount payable under or pursuant to these Conditions of Tender shall unless otherwise expressly stated be made in such manner and by such means as the Licensor may notify to the Successful Tenderer in writing.
- 33 Without prejudice to any terms and conditions stipulated in these Conditions of Tender, if there is any conflict between the provisions of the Licence Agreement executed pursuant to these Conditions of Tender the provisions of the Licence Agreement shall take precedence.
- 34 The headings to these Conditions of Tender shall not be deemed to form part of the same and shall not affect the interpretation or construction of any of the provisions herein.
- 35 The terms “Authority” “Authorities” “bodies” and “body” shall be deemed to include government ministries, departments, agencies, companies or Licensors having the authority over or being in charge of the matter.
- 36 The Factsheet, Conditions of Tender, Tender Brief, Site Plans, Appendices to the Conditions of Tender, Corrigendum, Addendum Letters issued by the Licensor (if any) and the Licence Agreement shall be subject to, governed by and interpreted in accordance with the laws of the Republic of Singapore for every purpose.
- 37 Except for the Government, a person (which reference shall include a body corporate) who is not a party to this Tender shall have no right under the Contracts (Rights of Third Parties) Act (as amended or revised from time to time) to enforce any of the terms, covenants and stipulations of this Tender.

Special Provisions

- 38 The Successful Tenderer shall not be permitted to include dormitories as part of the development on the land parcel.
- 39 In respect of new proposed building works including Addition & Alteration works by the Successful Tenderer, there shall be a requirement for the formal submission of building plans to the relevant Authorities.
- 40 The Successful Tenderer shall at its own costs and expense conduct Environmental Baseline Study on the Said Land. The Successful Tenderer shall submit to the Licensor a written copy of the results of the Environmental Baseline Study within four (4) months from the commencement date of the Licence term. The Guidelines for the Environmental Baseline Study are set out in **Appendix E**.
- 41 The Successful Tenderer shall undertake to remove any encroachments, existing or otherwise, when required by the Licensor to do so.
- 42 The Successful Tenderer shall at the termination of the term, reinstate and restore the Said Land to a bare state and condition and carry out all necessary works to adjust the waterfront boundary line to the SLA Cadastral Boundary as set out in Clause 39 of the Licence Agreement at **Appendix A** before returning the Said Land to JTC.

- 43 The Licence Term shall **not be extended** and for the avoidance of doubt, upon the expiry of the Licence Term, the Successful Tenderer shall **not be entitled to a replacement site or any form of compensation.**

Appendix A

LICENCE AGREEMENT
(*** TERM)**

AN AGREEMENT made this <day> day of <Month> <Year> between the Jurong Town Corporation a body corporate incorporated under the Jurong Town Corporation Act (Cap. 150) and having its registered office at The JTC Summit, 8 Jurong Town Hall Road, Singapore 609434 (hereinafter referred to as “the Licensor”) of the one part and <name of Tenderer> and having its registered office at <Registered Address> (hereinafter referred to as “the Licensee” which expression shall where the context so admits include its successors-in-title and permitted assigns (if any)) of the other part.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:-

1. The Licensor shall grant and the Licensee shall take a Licence for the use of the said land known as **Pte Lot <Pte Lot No.>** which includes a waterfront as indicated on the Site Plan enclosed herewith (hereinafter referred to as “the said land”) for temporary purposes for a term of ***** years from the <day> day of <Month> <Year> (hereinafter referred to as “the said term”) subject to the terms, covenants and stipulations in this Agreement.
2. THE LICENSEE HEREBY COVENANTS WITH THE LICENSOR TO OBSERVE AND PERFORM THE FOLLOWING:-

- (1) To pay the yearly licence fees of Singapore Dollars <Tender Sum multiplied by 12 months> Only (S\$) (hereinafter referred to as “the Yearly Licence Fee”) for the said term by equal monthly installments of <<S\$ insert figure>> clear of all deductions and in advance without demand on the 1st day of each calendar month in every year by GIRO to the Licensor’s designated bank account, or any other method as indicated on the Licensor’s website at <http://www.jtc.gov.sg>, details of which are as follows:-

Licence
Fees

Account Name	JTC Corporation
Bank Name	Oversea-Chinese Banking Corporation Limited
Bank Account Number	501104970001
SWIFT code	OCBCSGSG

- (1A) To submit a GIRO application form (which can be downloaded from the Licensor’s website at <http://www.jtc.gov.sg>) to the Licensor. If –
 - (i) the Licensee does not have any GIRO arrangement for payment of the amounts due to the Licensor; or
 - (ii) at any time, the GIRO payment is not effected, or the GIRO arrangement is discontinued for whatever reason (including in the event your designated bank account has any GIRO limit, or there are insufficient funds in the Licensee’s designated bank account),

GIRO
arrangement

the Licensee must immediately pay to the Licensor –

- (iii) the amounts due to the Licensor by other electronic methods as indicated in the Licensor's website at <http://www.jtc.gov.sg>; and
 - (iv) an administrative fee based on the Licensor's then prevailing policies. Please refer to the Licensor's website at <http://www.jtc.gov.sg> for the applicable fee.
- (1B)
- (i) To pay to the Licensor a cash deposit of Singapore Dollars <**Tender Sum multiplied by 3 months**> Only (S\$) being three (3) months' Licence Fees, on or before the execution of this Agreement or commencement of the said term whichever is the earlier, as security against breach by the Licensee of any of the terms, covenants and stipulations of this Agreement which cash deposit shall be maintained at this figure during the said term and shall be repayable without interest to the Licensee on the termination of this licence by expiry or otherwise subject however to deductions such as damages, losses, costs, and expenses including reinstatement costs in respect of any or all such breach or breaches. 3 months' deposit
 - (ii) In lieu of the aforesaid cash deposit, to provide an acceptable banker's guarantee (please refer to **Appendix A1**) for the equivalent amount, which guarantee shall be valid and irrevocable for the whole of the said term or the unexpired portion of the said term, as the case may be, plus **Three (3) months** after the date of expiry of the said term and in a form approved by the Licensor, or to provide such other security as the Licensor may in his absolute discretion permit or accept. BG in lieu
 - (iii) On <**DateMonthYear**> and on <**date**> of every year hereafter, the Yearly Licence Fee shall be increased at the rate of **3%** of the Yearly Licence Fee for each immediate preceding year. Licence Fee increase
- (2) The said land shall be deemed to be correctly described with respect to its area, dimension, configuration and other physical parameters as indicated in the Site Plan enclosed herewith. Correct Description
- (3) The said land is to be licensed on an "As Is Where Is" basis subject to all easement and rights, if any, subsisting thereon and moreover without any obligations on the part of the Licensor to define the same respectively. "As Is Where Is"
- (4) The Licensee shall be deemed to have notice of the actual state and condition of the said land including matters as regards access, ingress and egress, drainage, utility services, easements, rights of way and all other encumbrances, if any, affecting the same. Deemed notice state & condition of land
- (5)
- (i) The Licensee shall at his own cost and expense and to the satisfaction of the Licensor erect a chain-link fence at the start of the said term along the entire boundary of the said land (save for points of ingress/egress), ensure such fence is well maintained and remains securely in place throughout the said term. Fence
 - (ii) The Licensee is not required to remove such fence upon termination of this licence by expiry or otherwise, unless otherwise required by the Licensor, in which event, such removal shall be at the Licensee's own cost and expense.

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- (5A) (i) The Licensee shall at his own cost and expense and to the satisfaction of the Licensor, maintain the boundary pegs (demarcating the boundary of the said land) placed by the Licensor at various locations along the boundary of the said land and ensure that all boundary pegs demarcating the boundary of the said land are well maintained and remains securely in place throughout the said term. Boundary pegs
- (ii) If any boundary peg cannot be found within such time as required by the Licensor, or has to be relocated for whatever reasons (including, without limitation, regularizing any permitted encroachment), the Licensee shall, on demand, reimburse the Licensor for all costs and expenses incurred by the Licensor related to the replacement, and (as the case may be) the relocation, of such boundary peg.
- (iii) Without affecting the above sub-clauses and in addition thereto, if required by the Licensor, the Licensee shall, before the Licensee delivers possession of the said land to the Licensor upon termination of this licence by expiry or otherwise, at this own cost and expense and to the satisfaction of the Licensor, engage a registered surveyor to replace any boundary peg which has not been well maintained.
- (6) The said land shall be occupied and used solely for the purpose(s) of **<usage as approved by the Licensor> only** and for no other purpose(s). Any change in the usage of or activity on the said land whether in whole or in part shall be subject to the consent in writing of the Licensor and such consent shall be without prejudice to the terms, covenants and stipulations as set out in this Agreement or which may be imposed by the Licensor in respect of such consent. Usage
- (7) The Licensee shall not occupy or use or permit to be occupied or use the said land in whole or in part for the purpose of a commercial office or storage unrelated to the approved activity or usage as governed by Clause 2(6) hereof. No unrelated usage or storage
- (8) The Licensee shall not use or permit to be used the said land in whole or in part for:- No illegal purpose or sale
- (i) any illegal or immoral purpose; and/or
- (ii) sale or hawking of food and/or beverages.
- (9) The Licensee shall not use or encroach or permit to be used or encroached upon the waterfront, if any, of the said land in whatsoever manner. No encroachment
- (10) The Licensee shall not assign, create a trust, sublet, grant a licence, part with, share the possession or occupation of the said land or any part thereof or leave the said land or any part thereof vacant and unoccupied at any time during the said term. No assignment, subletting
- (11) The Licensee shall not erect or permit to be erected any permanent building(s) or structure(s) on the said land. If however the consent in writing of the Licensor is granted for the erection of any temporary building(s) or structure(s) on the said land, the granting of such consent shall be subject to the Licensee also obtaining at his own cost and expense all necessary approvals of relevant Authorities, and shall be without prejudice to the terms, covenants and stipulations in this Agreement or which may be imposed by the Licensor in respect to the granting of such consent. The Licensee shall also Not to erect permanent structures

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place with the Licensor an additional deposit equivalent to such additional amount as the Licensor may deem sufficient as security for the reinstatement of the said land (if required) to the state and condition in accordance with the Licensor's absolute satisfaction.

- (12) The Licensee shall not do or suffer to be done upon the said land or any part thereof anything which is or may, or which in the opinion of the Licensor is or may at any time be or become a danger, nuisance or an annoyance to or interference with the operations, business, enjoyment, quiet or comfort of the occupants of adjoining land or inhabitants of the neighborhood, and to indemnify the Licensor in relation thereto PROVIDED ALWAYS that the Licensor shall not be responsible to the Licensee for any loss, damage or inconvenience as a result of danger, nuisance, annoyance or any interference whatsoever caused by the occupants of adjoining land or inhabitants of the neighborhood. **Nuisance**
- (13) The Licensee shall not alter the layout of the said land in whole or in part in whatsoever manner and shall keep his activities and operations and equipment, materials, goods or articles of whatever nature and description within the boundary of the said land. If the Licensee shall at any time be found to have encroached upon any area beyond the boundary of the said land, he shall at his own cost and expense, but without prejudice to any other right or remedy the Licensor may have against him, immediately or within the time specified, if any, by the Licensor rectify and remove the encroachment to the satisfaction of the Licensor and pay to the Licensor such compensation as may be specified by the Licensor. **Not to alter layout & keep within boundary**
- (14) If however and without prejudice to the provisions of Clause 2(13) hereof the Licensor in his absolute discretion permits the Licensee to regularise and retain the encroached area or any part thereof upon such terms and conditions as may be stipulated by the Licensor, the Licensee shall pay licence fees, tax and other amounts, if any, as specified by the Licensor on the encroached area with retrospective effect from the date of commencement of the said term, and the Licensee shall also pay all survey fees (including costs for new and replacement boundary pegs), amalgamation fees, legal fees (including solicitor and client costs and expense), and all other costs and charges relating thereto. **Regularising encroachment**
- (15) The Licensee shall at all times maintain the said land in a neat and tidy condition and forthwith to comply with the Licensor's direction to remove and clear any equipment, materials, goods or articles of whatever nature and description from the said land or such part thereof. **Neat & tidy Condition**
- (16) If any damage of whatsoever nature or description shall at any time occur or be caused to the said land or any part thereof, the Licensee shall forthwith give to the Licensor written notice of the damage. If required by the Licensor, the Licensee shall at his own cost and expense execute such works as may be deemed necessary by the Licensor in respect of the state and condition of the said land (especially its ground levels, topography and soil conditions) which the Licensee shall be deemed to have full knowledge. **Notice of damage & soil conditions**
- (17) The Licensee shall not at any time without the express consent in writing of the Licensor demolish or make any alteration or addition to or permit to be demolished or make any alteration or addition to any existing building(s) or structure(s) including such items as road(s), drain(s), fence(s) etc, if any, or any part thereof erected on the said land. **No demolition of existing structures**

- (18) The Licensee shall not install or permit to be installed any electrical or mechanical installations, machines or apparatus that cause or may cause heavy power surge, high frequency voltage or current, air-borne noise, vibration or any electrical or mechanical interference or disturbance whatsoever which prevent or may prevent in any way the service or use of any communication system or affects the operation of other equipment, installations, machinery, apparatus or plants of occupants of adjoining or neighboring land or inhabitants of the neighborhood and in connection therewith, to allow the Licensor or any authorised persons to inspect at all reasonable times, such installation, machine or apparatus in the said land to determine the source of the interference or disturbance and thereupon, to take suitable measures, at the Licensee's own cost and expense, to eliminate or reduce such interference or disturbance to the Licensor's satisfaction, if it is found by the Licensor or such authorised person that the Licensee's electrical or mechanical installations, machines or apparatus are causing or contributing to the said interference or disturbance PROVIDED ALWAYS that the Licensor shall not be liable to the Licensee for any loss, damage or inconvenience caused thereby. **Power surge & vibration**
- (19) The Licensee shall take adequate measures to prevent air pollution, and to implement at his own cost measures for minimisation of air or other forms of pollution when requested by the Licensor or any relevant Authorities. **Air-Pollution**
- (20) The Licensee shall not dump, leave or burn any waste including but not limited to pollutants in or upon any part of the said land or the estates of the Licensor but at the Licensee's own cost and expense to make good and sufficient provision for and to ensure the safe and efficient disposal of all such waste to the requirements and satisfaction of the Licensor and the relevant Authorities and if the Licensee shall fail to observe or perform this covenant the Licensor may (but shall not be under any obligation to do so), and without prejudice to any other rights or remedies the Licensor may have against the Licensee, carry out or cause to be carried out such remedial measures as he thinks necessary and all costs and expenses and works incurred thereby shall forthwith be recoverable from the Licensee as a debt PROVIDED ALWAYS that the Licensor shall not be liable to the Licensee for any loss, damage or inconvenience caused thereby. **Efficient waste disposal**
- (21) The Licensee shall make his own arrangements for and pay all existing and future charges and outgoings for the supply of all water, electricity, gas and any water-borne sewerage system charged by any relevant Authorities or bodies and payable in respect of the said land and at his own cost and expense to install such additional plumbing and sanitary works for such additional water supply as may be required by him. **Pay charges of utilities & install additional facilities**
- (22) The Licensee shall be wholly responsible and at his own cost to execute such works as may be necessary to divert, repair or protect existing utility services such as pipes, cables and the like, if any, to the requirements and satisfaction of the Licensor and the relevant Authorities. **Diversion of existing utility services**
- (23) The Licensee shall provide at his own costs and expense adequate sanitary facilities at all times within the said land for his workmen and such facilities shall be of water-borne waste system approved by the relevant Authorities. **Provide sanitary facilities**
- (24) The Licensee shall be wholly responsible for making adequate provision against earth slip, erosion or failure of any slope adjoining the said land and **Earth slip, surface water**

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shall at his own cost and expense construct an internal drainage system to the satisfaction of the Licensor and the relevant Authorities and ensure that all surface water collected on the said land is discharged into public drains and sewer and will not flow into adjoining lands. The Licensee shall further ensure that no silt, oil, chemical, debris or any other waste or matter shall be discharged into any public drains, sewers or watercourses.

- (25) The Licensee shall not use, load, unload, keep, or permit to be loaded, unloaded, used or stored in the said land or any part thereof any liquids, goods, materials or things of an offensive or explosive or a dangerous, corrosive, toxic or combustible nature without the prior consent in writing of the Licensor and the relevant Authorities and to keep the Licensor indemnified against all loss, damages, claims, costs, expenses, actions and proceedings in connection with the loading, unloading, use or storage of such goods, materials and things whether or not the same is done with the consent of the Licensor. **Dangerous materials**
- (26) The Licensee shall obtain the written approval of the Licensor and the relevant Authorities before any erection of temporary crossing or access for the said land to the road is effected and shall ensure that any damage to the road, culvert, drain, etc, shall be made good to the requirements and satisfaction of the Licensor and the relevant Authorities and if the Licensee shall fail to observe or perform this covenant the Licensor may (but shall not be under any obligation to do so), and without prejudice to any other rights or remedies the Licensor may have against the Licensee, carry out or cause to be carried out such remedial measures deemed necessary and all costs and expenses and works incurred thereby shall forthwith be recoverable from the Licensee as a debt PROVIDED ALWAYS that the Licensor shall not be liable to the Licensee for any loss, damage or inconvenience caused thereby. **Approval for temporary crossing**
- (27) The Licensee shall permit persons with written authority from the Licensor or the Licensor's agent at reasonable times of the day to enter upon and view the said land or any part thereof during the said term. **Permit viewing**
- (28) The Licensee shall pay any and all increases in property tax rates, taxes, assessments and outgoings whatsoever which at any time hereafter during the said term may be imposed or charged upon or in respect of the said land or any part thereof whether by way of an increase in the annual value or rate per cent or otherwise and whether so imposed or charged during the said term or retrospectively after the determination of the said term, by expiry or otherwise. **Property Tax**
- (29) The Licensee shall pay interest at the rate of eight point five per cent (8.5%) per annum or such higher rate as may be determined from time to time by the Licensor in respect of any outstanding amount payable under this Agreement from the date such amount becomes due until payment in full is received by the Licensor. **Interest**
- (30) The Licensee shall full indemnify and keep the Licensor indemnified from and against all proceedings, actions, suits, writs, summonses, judgments, orders, decrees, costs, expenses, charges, claims, demands, losses, damages, fines, penalties and liabilities which the Licensor or any other person may suffer or incur arising out of or in connection with the provisions contained in this Licence Agreement. **Indemnity by the Licensee**
- (30A) Without prejudice to other terms, covenants and stipulations in this Agreement, the Licensee shall not do or omit or suffer to be done or omitted any act, matter or thing in or on the said land or in respect of the operations, business, trade or **Indemnity for contravention of law**

industry carried out or conducted therein which shall contravene the provisions of any laws, by-laws, orders, rules or regulations now or hereafter affecting the same but to comply at his own cost and expense with all such provisions and at all times hereafter to indemnify and keep indemnified the Licensor against all actions, proceedings, costs, expenses, claims, fines, losses, damages, penalties and demands in respect of any act, matter or thing done or omitted to be done in contravention of such provisions.

- (31) The Licensee shall at all times at his own cost and expense observe and comply with the provisions of all Acts of Parliament, rules, regulations, orders and other statutory provisions in force from time to time and applicable in respect of the said land and/or any intended developments and activities thereon and shall also observe and comply with all terms, conditions, requirements, notices and directions imposed or issued by any relevant Authorities or bodies in respect of the said land and/or any development or activities thereon from time to time. **Compliance with law**
- (32) (i) Nothing herein shall be construed to exempt the Licensee from otherwise complying with the conditions and requirements of all relevant Authorities and bodies in force from time to time and applicable in respect of the said land and/or any intended developments and activities thereon. **Compliance with Authorities' requirement**
- (ii) The Licensee shall ascertain the exact and detailed conditions and requirements of all relevant Authorities and bodies in respect of any development or activities on the said land and shall at his own costs and expense observe and comply with the same. Without affecting the generality of the aforesaid and in addition thereto, the Licensee shall also ensure that the following requirements are complied with at his own cost and expense:
- (a) consult and liaise directly with the relevant Authorities and bodies regarding the actual locations of all service mains within the said land and on the requirements and conditions for services diversion and provision prior to the commencement of site work. All necessary precautions shall be taken by the Licensee to safeguard the service mains before they are diverted;
 - (b) engage the Licensee's own licensed Cable Detection Worker (CDW) / licensed Telecommunication Cable Detection Worker (TCDW) to carry out cable detection and if necessary to carry out trial trenches to locate any manholes and cable routes prior to the commencement of site work. The Licensee shall bear the cost of any diversion work;
 - (c) ensure that all service mains that do not need to be diverted are identified and provided with protection, if necessary. The cost of repairs to any damaged service mains as a result of work carried out by the Licensee shall be borne by the Licensee;
 - (d) ensure that the relevant Authorities and bodies are allowed free and unconditional access at all times to services and manholes that are required to remain within the said land for the purpose of installation, maintenance, repair and improvement works and all other work and activities incidental thereto;

- (e) make the Licensee's own arrangements with the relevant Authorities and bodies and pay for the costs of any diversion and / or "Capping off" of existing services, provision of service mains and connection fees if any, in connection with the said land;
 - (f) provide all the internal distribution for water, electricity, drainage and sanitary discharge for the said land; and
 - (g) no structures (permanent or otherwise) nor other items shall be placed within 2 metres (or such other distance as required by the relevant Authorities) from the centre line of any sewer.
- (iii) In the above sub-clause (ii), the phrase "*service mains*" include (without limitation) sewers, cables, pipes and other conduits.
- (iv) The Licensor shall not be liable to the Licensee for any loss, damage or inconvenience caused by having to comply with such conditions and requirements of the relevant Authorities and bodies or if the Licensee is unable to occupy and use the said land for his intended purposes or part thereof in whatsoever manner due to such conditions and requirements imposed by the relevant Authorities and bodies.
- (33) The Licensee shall perform and observe all the obligations which the Licensee or the Licensor of the said land may be liable to perform or observe during the said term by any direction, order, notice or requirement of all Authorities and if the Licensee shall fail to observe or perform this covenant the Licensor may in its absolute discretion perform the same and all expenses and costs incurred thereby shall be recoverable from the Licensee as a debt PROVIDED ALWAYS that the Licensor shall not be liable to the Licensee for any loss, damage or inconvenience caused thereby. **Compliance with direction etc from Authorities**
- (34) The Licensee shall not do or suffer to be done on or in the said land anything whereby the insurances of the same or any part thereof may be rendered void or voidable or whereby the premium thereon may be increased and to repay to the Licensor on demand all sums paid by the Licensor by way of increased premium and all costs and expenses incurred by the Licensor in connection with insurance rendered necessary by a breach or non-observance of this covenant without prejudice to any other rights and remedies available to the Licensor. **Not to cause insurance to be void**
- (35) The Licensor, his agents, servants and surveyors with or without workmen or others with all necessary appliances and tools shall at all times be at liberty to enter upon the said land or any part thereof for the purpose of viewing the condition or state of repair thereof or of doing such works, repairs, and things in connection therewith or for such other purpose as the Licensor may think fit PROVIDED ALWAYS that the Licensor may serve upon the Licensee notice in writing specifying any work or repairs necessary to be done which are the responsibility of the Licensee under the terms, covenants and stipulations of this Agreement and require the Licensee forthwith to execute the same and the Licensee shall pay the Licensor reasonable costs and expenses of survey and attending the preparation of the notice and if the Licensee shall not within ten days after the service of such notice proceed diligently and in workmanlike manner with the execution of such work or repairs then to permit the Licensor (who shall not be under any obligation so to do) to enter upon the said land and execute such work or repairs and the costs and expenses thereof shall be a debt **Allow Licensor & its workmen to inspect & view**

due from the Licensee to the Licensor and be forthwith recoverable and the Licensor shall not be liable to the Licensee for any loss, damage or inconvenience caused directly or indirectly by any such work or repairs.

- (36) In complying with Clause 2(35) hereof and if so required by the Licensor the Licensee shall remove such structure, installation, machinery or any article as may facilitate or permit the Licensor to execute the said repairs and works and if the Licensee shall fail to observe or perform this covenant the Licensor may remove the same and all costs and expenses incurred thereby shall be recoverable from the Licensee as a debt PROVIDED ALWAYS that the Licensor shall not be liable to the Licensee for any loss, damage or inconvenience caused by such removal. **Remove installation to facilitate clause 2(35)**
- (37) The licence fees and other sums payable by the Licensee under or in connection with this Agreement shall be exclusive of the Goods & Services Tax chargeable under the Goods and Services Tax Act (Cap 117A) (hereinafter referred to as "GST") chargeable by any government, statutory or tax authority calculated by reference to the amount of the licence fees and any other sums received or receivable by the Licensor from the Licensee and which GST is payable by the Licensee. The Licensee shall pay the GST and the Licensor acting as the collecting agent for the government, statutory or tax authority shall collect the GST from the Licensee together with the licence fees hereinbefore reserved without any deduction and in the manner and within the period prescribed in accordance with the applicable laws and regulations. **GST**
- (38) In the event the Licensor so requires, the Licensee shall engage a competent independent consultant, who shall be from the relevant list of third party specialist consultants published at the relevant time by the National Environment Agency or its successor ("the NEA List"), to conduct an Environmental Baseline Study ("First Baseline Study") to determine the presence of minerals, hydrocarbons and chemicals on and beneath the said land, and to submit to the Licensor a written copy of the results of the First Baseline Study within four (4) months from the date of this Agreement. **Environmental Baseline Study**
- (39) At the termination of the said term whether by expiry or as a consequence of any other reason whatsoever, and before the Licensor re-enters the said land or before the Licensee delivers possession, the Licensee shall at his own costs and expense:
- (i) remove all buildings, structures, additions, alterations, fixtures, fittings, structural changes, improvements, installations and equipment and all other works built or carried out on, under or within the said land by you or another person or entity occupying the said land before you, or any part of it as may be required by the Licensor;
 - (ii) engage a competent independent consultant from the NEA List to conduct another Environmental Baseline Study ("Subsequent Study") to determine the level of contamination at, on and beneath the said land and to submit a written copy of the Subsequent Study to the Licensor. If the results of the Subsequent Study indicate that the level of minerals, hydrocarbons or chemicals present at the time of the Subsequent Study exceeds that of the First Baseline Study, the Licensee shall properly carry out within the time stipulated by the Licensor all works necessary to decontaminate the said land to the state and condition existing at the
- Works at end of licence**

time of the First Baseline Study and to the Licensor's and the Authorities' satisfaction; and

- (iii) reinstate the said land in all respects and execute such works on the said land to restore the said land to the bare state and condition to the Licensor's absolute satisfaction before the expiry of the said term;
- (iv) and carry out all necessary works to adjust the waterfront boundary line to the SLA Cadastral Boundary (as defined in **Appendix C and D**) in accordance with the terms and conditions in **Appendix C and D** concerning waterfront adjustment works;

PROVIDED ALWAYS that if the Licensee shall fail to observe or perform any of its obligations under this Clause 2(39), the Licensor may in its absolute discretion, and without prejudice to any other rights and remedies that the Licensor may have against the Licensee:

- (a) execute any of such works as may be required by the Licensor;
 - (b) execute all works necessary to decontaminate the said land to the state and condition existing at the time of the First Baseline Study and to the Licensor's and the Authorities' satisfaction; and
 - (c) recover the costs and expenses of all the aforesaid works, including (without limitation) decontamination works, from the Licensee together with all licence fees, tax and other amounts which the Licensor would have been entitled to receive from the Licensee had the period within which such works were effected by the Licensor been added to the said term.
- (40) Without prejudice to the rest of this Agreement, the Licensee agrees that no error, omission, mis-statement or mis-description in the Conditions of Tender (including the specimen Licence Agreement, any plans, drawings, reports or other documents referred to, mentioned in, appended or annexed to these Conditions of Tender) as well as Factsheet, Tender Brief, Appendices to the Conditions of Tender, Site Plans, Corrigendum and Addendum Letters issued by the Licensor (if any) shall entitle the Licensee to terminate this Agreement nor shall the same discharge the Licensee from its obligations pursuant to this Agreement or entitle the Licensee to any compensation whatsoever or to any reduction of amounts payable under this Agreement. **Conditions of Tender**
- (41) Without prejudice to the other provisions of this Agreement and in addition thereto, the Licensee shall also observe and comply with, and ensure the observance and compliance with, the following requirements, at his own cost and expense, to the satisfaction of the Licensor and the relevant Authorities: **Cleanliness of Estate**
- (a) build a proper washing bay in accordance with National Environment Agency's guidelines;
 - (b) deploy workers to sweep the road (i.e **<name of road>**) on a daily basis;
 - (c) ensure proper run-off of water arising from the washing of vehicle activities, and that the run-off water shall not flow over onto the main

road (i.e <name of road>), or such other roads as identified by the Licensor;

- (d) construct a proper road surface at the location identified by the Licensor; and
- (e) details of any temporary crossing to the said land shall be submitted to the Licensor, and the relevant Authorities, for approval before commencement of any works.

- 3 The said term may at any time be determined by the Licensor giving to the Licensee **One (1) month** prior notice in writing and the licence fees paid in respect of any period beyond the said notice period, if any, and any fees, tax or other amounts computable in likewise manner will be refunded to the Licensee without interest and thereafter neither the Licensee nor any other person shall be entitled to any compensation, cost of removal, loss, damages or alternative land site arising from such termination PROVIDED ALWAYS that such termination shall not prejudice any right of action or remedy of the Licensor in respect of any breach committed by the Licensee of any term, covenant and stipulation contained in this Agreement.

Licensor may terminate by one-month notice

3A If:

- (1) the Licensee seeks the Licensor's consent to terminate the Licence herein prematurely (notwithstanding that there is no provision herein permitting the Licensee so to do) and the Licensor (who shall not be under any obligation so to do) agrees subject to whatsoever terms and conditions the Licensor shall in his sole discretion determine;
- (2) the Licensee abandons and the Licensor thereafter regains total and exclusive possession of the said land; or
- (3) the Licensor exercises its right to deny the Licensee entry into the said land in accordance with Clause 4(1)

Premature termination by Licensee

(each and every such event is hereinafter called "premature termination"), the Licensee shall forthwith pay the Licensor the licence fees (or any part thereof outstanding unpaid) for the entirety of the said term and this shall be without prejudice to any other rights and remedies the Licensor may have against the Licensee. For the avoidance of doubt, nothing under Clause 3A herein shall be construed as granting to the Licensee the right to terminate the Licence Agreement and the Licensee agrees that the damages payable under this Clause 3A is an accurate measure of damages suffered by the Licensor as a result of such premature termination and is not a penalty.

- 3B In addition to the terms and conditions in this Agreement, the Licensee shall also comply with the terms and conditions in **Appendix C** and **Appendix D** of the Conditions of Tender.

- 4 PROVIDED ALWAYS and it is expressly agreed as follows :-

- (1) if the licence fees hereby reserved or interest, tax, or any part thereof or any other sum payable herein, or any part thereof shall at any time remain unpaid for **Fourteen (14) days** after becoming payable (irrespective of whether formal demand has been made) or if any of the terms, covenants and stipulations herein contained on the Licensee's part to be performed or observed shall not be so performed or observed or if the Licensee shall make

Deny entry clause

any assignment for the benefit of its creditors or enter into any arrangement with its creditors by composition or otherwise or commit any act of bankruptcy or have a receiving order made against him or suffer any distress or execution to be levied on its goods or if the Licensee being a company shall go into liquidation whether voluntary (save for the purpose of amalgamation or reconstruction) or compulsory then and in any of such cases it shall be lawful for the Licensor at any time thereafter to deny entry to the Licensee upon the said land or any part thereof in the name of the whole and thereupon the licence hereby created shall absolutely terminate ("Termination") but without prejudice to any right of action or remedy of the Licensor in respect of any breach of any terms, covenants and stipulations herein contained. Upon the Termination, the Licensor may forfeit the Tender Deposit and all other monies paid under the Conditions of Tender and under this Agreement which shall thereupon belong to the Licensor and the Licensor shall be entitled to:

- (a) re-enter upon and resume possession and redispense of the said land and any interest therein as if the Licensee had never submitted a Tender under the Conditions of Tender; and
- (b) whether by public auction, private treaty, tender or any other mode of allocation to obtain a licensee for the said land, subject to such conditions and generally in such manner as the Licensor may in its absolute discretion think fit with power to vary or rescind any contract, buy in any auction and/or to redispense of the same,

and the deficiency in the proceeds, if any, arising on such redispense or attempted redispense shall be made good and paid for by the Licensee to the Licensor on demand and shall be recoverable by the Licensor against the Licensee as damages but any increase of proceeds on a redispense shall belong to the Licensor absolutely.

- (2) Any notice served under or otherwise in connection with this Agreement shall be sufficiently served on the Licensee if the same is left addressed to the Licensee upon the said land or if forwarded to the Licensee at the said land by registered post and any notice shall be sufficiently served on the Licensor if sent to the Licensor's registered office by registered post. A notice sent by registered post shall be deemed to be given at the time when in due course of post it would be delivered at the address to which it is sent. In the event of any action or proceedings (including any action for the recovery of the licence fees, tax or other sums herein reserved) the Licensee agrees and accepts that any document which is not required by written law to be served personally shall be sufficiently served on the Licensee if addressed to him at the address specified in this Agreement, or if left posted upon some conspicuous part of the said land, or forwarded to him by post at the principal or last known place of business of the firm or his registered or principal office if a body corporate or his last known address if an individual.
- (3) The Licensee shall pay all costs, disbursements, fees and charges, legal or otherwise, including stamp and registration fees in connection with the preparation stamping and issue of this Agreement and any prior accompanying or future documents or deeds supplementary collateral or in any way relating to this Agreement.

**Service of
Notice/Process**

**Costs
of
documents**

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- | | | |
|-----|--|-----------------------------|
| (4) | The Licensee shall pay all costs, disbursements and fees, legal or otherwise, including costs as between solicitor and client in connection with the enforcement of the terms, covenants and stipulations of this Agreement. | Costs
of
enforcement |
| (5) | No waiver expressed or implied by the Licensor of any breach of any term, covenant or stipulation of the Licensee shall be construed nor be deemed to operate as a waiver of any other breach of the same or any other terms, covenants and stipulations and shall not prejudice in any way the rights, powers and remedies of the Licensor herein contained. Any acceptance of licence fees, tax and/or any other moneys shall not be deemed to operate as a waiver by the Licensor of any right to proceed against the Licensee of any of his obligations hereunder. | No waiver |
| (6) | The Licensor shall be under no liability either to the Licensee or to others who may be permitted to enter or use the said land or any part thereof for accidents happening or injuries sustained or for loss of or damage to property in the said land or any part thereof. | Disclaimer |
| (7) | This Agreement shall not create a tenancy whatsoever and, as against the Licensor, shall not give the Licensee any exclusive right of occupation or possession to the said land. | Non-exclusive
possession |
| (8) | Without prejudice to any right of action or other remedy which the Government of Singapore (hereinafter referred to as " <u>the Government</u> ") and/or the Licensor may have or any proceedings, civil or criminal, which the Government and/or the Licensor may decide to initiate or take, the Government and/or the Licensor may debar the Licensee from participating in all future tenders and auctions of the Ministries and Departments of the Government and Statutory Boards in the following situations: | Debarment |
| | (a) in the event the Licensee terminates this Agreement without giving notice as required under this Agreement, the period of debarment shall be for a period of one (1) year or any period exceeding one year, at the discretion of the Licensor; and | |
| | (b) in the event the Licensee is in breach of the terms and conditions of this Agreement, which results in the termination of the same, the Licensee may be debarred up to a maximum of five (5) years at the discretion of the Licensor. | |
| (9) | The Licensee shall at all times ensure and maintain a minimum site coverage of 60%; | Site Coverage |
| 5 | No further term shall be granted for the said land. | Further term |
| 6 | If any provision in the terms, covenants and stipulations herein is held invalid, unenforceable or illegal under any applicable laws for any reason, that provision shall be deemed severed from and shall not affect the validity, enforceability or legality of the other provisions which shall continue in full force and effect. | Severability |

SPECIMEN

- 6A Unless otherwise expressly specified or agreed to by the Licensor in writing, no failure or delay on the part of the Licensor to exercise any right, power, authority or remedy under this Agreement and no indulgence or forbearance on the part of the Licensor and no extension of time allowed to the Licensee by the Licensor shall operate as a waiver or will in any way affect the subsequent exercise by the Licensor of the same, nor will any single or partial exercise of any right, power, authority or remedy preclude any other or further exercise thereof or the exercise of any other right, power, authority or remedy. The rights, powers, authorities and remedies provided in this Agreement are cumulative and not exclusive of any rights, powers, authorities or remedies provided by law. **Rights – cumulative**
- 7 In this Agreement where the context so requires or permits, words importing the singular number or the masculine gender include the plural number or the feminine gender and words importing persons include corporations and vice versa, the expression "the Licensor" shall include its successors-in-title and assigns, the expression "the Licensee" shall include its successors-in-title and permitted assigns (if any), and where there are two or more persons included in the expression "the Licensee" covenants expressed to be made by "the Licensee" shall be deemed to be made by such persons jointly and severally. **Interpretation**
- 7A A person (which reference shall include a body corporate) who is not a party to this Agreement shall have no right under the Contracts (Rights of Third Parties) Act (as amended or revised from time to time) to enforce any of the terms, covenants and stipulations of this Agreement. **Third party rights**
- 8 In this Agreement where the context so requires or permits, the term “Authority” “Authorities” “body” “bodies” shall be deemed to include government ministries, departments, agencies, companies or corporations having the authority over or being in charge of the matter. **Authorities**
- 9 This Agreement shall be interpreted in accordance with the laws of Singapore and any legal proceedings, actions or claims arising from or in connection with this Agreement shall be commenced in and heard before the courts of Singapore and the Licensee agrees to submit itself to the exclusive jurisdiction of the courts of Singapore. **Governing jurisdiction and law**
- 10 All marginal notes are for ease of reference only and shall not be taken into account in the construction or interpretation of the clause or paragraph to which they refer. **Marginal notes**

IN WITNESS WHEREOF the parties hereto have set their hands the day and year first above written.

Signed by)
)
Name (in full) :)
)
Designation :)
)
)
for and on behalf of the Licensor)
)

in the presence of:)

Signed by)

Name (in full):)

Designation :)

for and on behalf of the Licensee)

in the presence of:)

Appendix A1

(This Guarantee is to be typed on paper with bank's letterhead)

FORM OF BANK GUARANTEE

To: Jurong Town Corporation
The JTC Summit
8 Jurong Town Hall Road
Singapore 609434

Dear Sir/Mdm

**LAND PARCEL <land parcel reference> AT <location>
GUARANTEE OF PAYMENT OF DEPOSIT**

WHEREAS:

1. The Jurong Town Corporation is inviting offers by tender for the licence to use the abovementioned Land Parcel for temporary purposes subject to the Licence Agreement for the same.
2. It is stated as per paragraph 2(1)(ii) of the Licence Agreement that the Deposit may be provided by way of a Bank Guarantee issued in favour of the Jurong Town Corporation on the terms and conditions and in the manner stipulated in the Licence Agreement and that such Bank Guarantee(s) provided may be enforced in such circumstances as set out in the Licence Agreement.

IT IS HEREBY AGREED THAT:

3. Pursuant to the said Licence Agreement and at the request of M/s <name of Licensee> of <address of Licensee>, the Licensee for the tender in respect of the abovementioned Land Parcel ("the Licensee"), WE < name of bank > a company incorporated in Singapore and having its registered office at < address of bank > Singapore hereby guarantee the due payment on demand by the Jurong Town Corporation (the "Licensor") of the sum of Singapore Dollars < > (\$\$< >) being equivalent to *the whole/ a part of the Deposit required to be paid by the Licensee PROVIDED ALWAYS that:

- a. Our liability hereunder shall not exceed the said sum of Singapore Dollars < > (\$\$< >); and
- b. We shall not be discharged or released from this Guarantee by any arrangement made between the Jurong Town Corporation and the Licensee without our assent or by any alteration in the obligations undertaken by the Licensee or by any forbearance whether as to payment time performance or otherwise.

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4. We agree forthwith, upon receipt of the Jurong Town Corporation's demand, to make payment of the Deposit to the Jurong Town Corporation. A demand under this Guarantee shall be made in writing to us and the receipt of the said written demand shall be conclusive evidence of the requirement of the payment of the Deposit to the Jurong Town Corporation.

5. This Guarantee is valid from < **Commencement of Term** > and shall expire on < **Three months after expiry of Term** > (hereinafter referred to as the “expiry date”) and any claim may be made hereunder within *Sixty (60) days* of the expiry date.

Dated this day of

Signed by _____)
 _____)
 _____)
 _____)
 _____)
 _____)
 in the presence of : _____)

Appendix B

TOL LAND PROPOSAL APPLICATION FORM

To be sent to Ms Nikki Lee at Nikki_LEE@nea.gov.sg and copy to Ms Melissa Ong at Melissa_SY_ONG@nea.gov.sg

Name of TOL Applicant	
Location of Proposed TOL Site (address and land lot number)	
Proposed Uses	
"Proposed TOL Duration (inclusive of reinstatement)"	
Brief Description of the Project / Development that the Proposed TOL land is to facilitate	
Project Duration	
Site Plans	
Reasons Cited by TOL Applicant ¹	
Mitigation Measures that will be Implemented to Prevent Pollution and Nuisance Problem ²	

¹ Applicant to cite the reasons for selecting the subject site. (e.g. to support the building and construction works of which project in the vicinity of the proposed TOL land site.)

² To ensure that the proposed uses do not cause pollution to the environment and/or pose nuisance impacts (i.e. noise, dust, odour, etc.). If there are no pollutive activities at the subject site, applicants may indicate “not applicable” for this field.

Appendix C

(a) **Waterfront Protection:**

- (a1) The Licensee shall at his own cost and expense be responsible for :
 - (a1.1) carrying out such waterfront protection works as are necessary or considered necessary by the Licensor, for the protection of the bank of the said land fronting the sea to prevent any erosion, slip or accretion; and
 - (a1.2) maintaining the Actual Waterfront Boundary Line so that it is not altered by slip, erosion or accretion, whether by natural forces or otherwise.
 - (a2) The Licensee shall obtain the Licensor's prior written approval for any proposed dredging works, reclamation works or construction of dry docks or slipways
 - (a3) The Licensee shall also execute such documents as the Licensor deems necessary and shall pay all costs and fees, including the cost of preparation and stamping of the documents, and all survey fees in respect of any survey which may be carried out in consequence of or in connection with paragraphs (a1) to (a2) above and (b) to (g) below.
 - (a4) Subject to the Licensee's indemnity in Clause 2(29) of the Licence Agreement and the exemption from liability in Clause 4(6) and 4(6A) of the Licence Agreement, which shall also apply in connection with this paragraph (a4), if the Licensee for any reason fails to comply with paragraph (a1) above, or any part of it, the Licensor may in its absolute discretion (but without being under any obligation to do so) and without prejudice to any other rights and remedies the Licensor JTC may have against the Licensee, perform the same or part of it as the Licensor may deem fit.
 - (a5) Subject to statutory and common law, in the event of dispute regarding the determination of the Actual Waterfront Boundary Line and SLA Cadastral Boundary and what constitutes land and foreshore, the parties shall abide by the relevant conventions, practices and policies of the relevant government authorities and statutory authorities prevailing from time to time.
-
- (a2)
 - (a2.1) Subject to clauses 2(30) and 4(6) of the License Agreement, which shall also apply in connection with this paragraph (a2), the Licensee shall at his own cost and expense carry out all necessary works to adjust back to the SLA Cadastral Boundary ("waterfront adjustment works").
 - (a2.2) The Licensor shall not do, omit, permit or cause to be done or omitted any act, matter or thing which may interfere with or impede the progress of the waterfront adjustment works until it has been

completed, and upon such completion, the Licensee shall comply with paragraph (a1) above and (b) to (g) below.

- (a2.3) Notwithstanding paragraphs (a2.1) and (a2.2) above, there shall be no adjustment in the commencement date of the license under the License Agreement, or the licence fees payable by the Licensor under the Licence Agreement in respect of the waterfront adjustment works.

(b) Dredging:

- (b1) If the Licensor's prior written approval for any proposed dredging works has been obtained, the Licensee shall pay the Licensor an upfront compensation for the loss of land calculated for the remaining term of Head Lease calculated at the rate of the land premium (referred to as "posted price" or "posted land price" in Bala's Table at **Appendix D**) of the said land (referred to as "principal lot" in **Appendix D**) prevailing on or about the point of assessment, and adjusted as a proportion of the freehold value in accordance with the Bala's Table at **Appendix D** ("the Formula").
- (b2) If any unauthorised dredging is found, the Licensee shall be required, at the Licensee's own cost and expense, to reinstate the said land to the SLA Cadastral Boundary within a period specified by the Licensor. If reinstatement of the said land is not possible or feasible, the Licensee shall pay the Licensor an upfront compensation for the loss of land calculated based on the Formula.
- (b3) Upon receipt of the upfront compensation under Clause b(2) of this Appendix, the annual licence fee shall be adjusted to exclude the dredged area of the said land.

(c) Dry Docks and Slipways :

- (c1) If the Licensor's prior written approval for any proposed construction of dry docks or slipways has been obtained, the Licensee shall :
- (c1.1) at the Licensee's own cost and expense, reinstate the said land to the SLA Cadastral Boundary within a period specified by the Licensor ("boundary reinstatement"); and
- (c1.2) pay the Licensor a security deposit equivalent to the estimated cost of the boundary reinstatement ("Security Deposit"), by way of cash, Banker's Guarantee, or such other form as may be acceptable to the Licensor, which deposit is refundable after the boundary reinstatement is duly completed to the Licensor's satisfaction.
- (c2) In the event of a subsequent increase in the estimated cost of the boundary reinstatement, the Licensor shall have the right to require an increase in the Security Deposit to a value equivalent to the revised

estimated cost of the boundary reinstatement as the Licensor shall determine from time to time.

(c3) In the event that the Security Deposit (whether previously revised or not) shall be insufficient to cover the actual cost of the boundary reinstatement, the Licensee shall be liable to pay for the deficiency. In the event that the boundary reinstatement is carried out by the Licensor, the Licensor shall be entitled to utilise the Security Deposit to pay for the costs thereof and to forthwith recover any deficiency as a debt due from the Licensee.

(c4) Notwithstanding the above, the Licensee shall pay the annual licence fee based on the gross Site Area and the SLA Cadastral Boundary Line length.

(d) **Reclamation:**

(d1) If the Licensor's prior written approval for any proposed reclamation works has been obtained, the Licensee shall pay to the Licensor a land premium on the reclaimed land for the said term, depending on the amount the State imposes, and bear all necessary costs including proclamation fees.

(d2) If any unauthorised reclamation is found, the Licensee shall be required, at the Licensee's own cost and expense, to dredge the reclaimed land and reinstate the said land to the SLA Cadastral Boundary within a period specified by the Licensor to the Licensor's satisfaction.

(d3) If dredging of the reclaimed land under paragraph (d2) is not possible or feasible, the Licensee shall pay the Licensor a land premium on the reclaimed land for the remaining term under the Head Lease, and bear all necessary costs including proclamation fees, penalty and early entry interest to be imposed by the relevant Authorities.

(e) **Natural Erosion:**

(e1) The Licensee shall be required, at his own cost and expense, to reinstate the said land to the SLA Cadastral Boundary within a period specified by the Licensor.

(e2) If reinstatement of the said land under paragraph (e1) is not possible or feasible, the Licensee shall pay the Licensor an upfront compensation for the loss of land calculated based on the Formula.

(f) **Natural Accretion :**

(f1) The Licensee shall be required, at his own cost and expense, to remove the accreted land to the SLA Cadastral Boundary within a period specified by the Licensor.

(f2) If removal of the accreted land under paragraph (f1) is not possible or feasible, the Licensee shall pay a land premium on the accreted land for the remaining term under the Head Lease, and bear all necessary costs

including proclamation fees, penalty and early entry interest to be imposed by the relevant Authorities.

- (g) In any of the events referred to in paragraphs (a) to (f) above, the annual licence fee payable by the Licensee in respect of the SLA Cadastral Boundary Length shall be increased if the waterfront boundary length has increased as a result of the dredging, the reclamation, erosion, failure, slippage, or accretion, such increase to take effect from such date as the Licensor may reasonably determine to be the date when the waterfront boundary length increased.
- (h) If the Licensee -
 - (h1) fails to carry out the protection or remedial works arising from or in connection with paragraphs (a) to (f) above, subject to the exemption from liability in clauses 4(6) of the License Agreement, which shall also apply in connection with paragraph (h), the Licensor shall have the right (but shall not be under any obligation to do so), without prejudice to any other right or remedy the Licensor may have against the Licensee, including the right to determine the said term, to carry such protection or remedial works or any part of it as the Licensor deems fit and to forthwith recover all cost, expense, loss and damage thereof as a debt due from the Licensee; or
 - (h2) fails to pay the Licensor the upfront compensation, Security Deposit or land premium, or part of it arising from or in connection with paragraphs (b) to (f) above, the Licensor shall have the right, without prejudice to any right of action or remedy the Licensor may have against the Licensee, for the recovery of any outstanding upfront compensation, Security Deposit or land premium, or part of it due to the Licensor, to determine the said term
- (g) In this Appendix, the following expressions shall have the following meanings:
 - (g1) “SLA Cadastral Boundary” : the lot boundary depicted in Certified Plan that approved by SLA Chief Surveyor, as per indicated in the Survey Plan.
 - (g2) “Actual Waterfront Boundary Line” : the actual waterfront boundary line on site, as per indicated in the Survey Plan.
 - (g3) “annual licence fee” : the annual license fee agreed and covenanted to be paid by the Licensee to the Licensor under the Licence Agreement.
 - (g4) “Head Lease” : the lease made between the President of Republic of Singapore and JTC.
 - (g5) “said land” : the said land licensed by JTC to its Licensee as defined in the Licence Agreement.
 - (g6) “said term” : the term of licence granted by JTC to its Licensee as defined in the Licence Agreement.
 - (g7) “Site Area” : has the same meaning ascribed in the Licence Agreement.

BALA'S TABLE

TABLE SHOWING LEASEHOLD VALUES AS A PERCENTAGE OF FREEHOLD VALUE

Balance of Reversionary Term	Percentage (%) of Freehold Value	Balance of Reversionary Term	Percentage (%) of Freehold Value	Balance of Reversionary Term	Percentage (%) of Freehold Value
1	3.8	34	63.7	67	84.2
2	7.5	35	64.6	68	84.5
3	10.9	36	65.4	69	85.4
4	14.1	37	66.2	70	86.0
5	17.1	38	67.0	71	86.5
6	19.9	39	67.7	72	87.0
7	22.7	40	68.5	73	87.5
8	25.2	41	69.2	74	88.0
9	27.7	42	69.8	75	88.5
10	30.0	43	70.5	76	89.0
11	32.2	44	71.2	77	89.5
12	34.3	45	71.8	78	90.0
13	36.3	46	72.4	79	90.5
14	38.2	47	73.0	80	91.0
15	40.0	48	73.6	81	91.4
16	41.8	49	74.1	82	91.8
17	43.4	50	74.7	83	92.2
18	45.0	51	75.2	84	92.6
19	46.6	52	75.7	85	92.9
20	48.0	53	76.2	86	93.3
21	49.5	54	76.7	87	93.6
22	50.8	55	77.3	88	94.0
23	52.1	56	77.9	89	94.3
24	53.4	57	78.5	90	94.6
25	54.6	58	79.0	91	94.8
26	55.8	59	79.5	92	95.0
27	56.9	60	80.0	93	95.2
28	58.0	61	80.6	94	95.4
29	59.0	62	81.2	95	95.6
30	60.0	63	81.8	96	95.7
31	61.0	64	82.4	97	95.8
32	61.9	65	83.0	98	95.9
33	62.8	66	83.6	99	96.0

CALCULATION OF UPFRONT COMPENSATION FOR DREDGING OF LAND

Prevailing posted price of principal lot = **Price** [\$ psm]
 (Current posted land price is based on 30-years lease)

Area of proposed dredged land = **Area** [sqm]

Number of years from point of assessment to end of JTC's head lease = **Years**

Proportion of freehold value for **Years** (from Bala's Table) = **Factor**

** Upfront compensation required = (**Price**/0.6) * **Factor** * **Area**

** Upfront compensation is calculated based on *prevailing posted price of the principal lot at the point of assessment, adjusted for the balance of JTC's head lease term using the Bala's Table.*

WORKED EXAMPLE

Prevailing posted price of principal lot = \$240 psm
 (Current posted land price is based on 30-years lease)

Area of proposed dredged land = 250 sqm

Number of years from point of assessment to end of JTC's head lease = 70

Proportion of freehold value for 70 years (from Bala's Table) = 0.86

Upfront compensation required = \$(240/0.6) * 0.86 * 250
 = \$86,000

GUIDELINE ON ENVIRONMENTAL BASELINE STUDY (2019 EDITION)

1.0 Introduction

An Environmental Baseline Study (EBS) is an intrusive soil and groundwater investigation conducted to establish the baseline level of potential contaminants in soils and groundwater beneath a concerned site and to assess the extent of contamination of the site.

The EBS efforts shall determine the environmental setting and hydro-geological condition of the site at the time of site assessment. Basically, the study shall provide an overall picture of the existing soil and groundwater conditions in the context of subsurface contamination. Each study is to be planned as part of the continual monitoring program through which changes in conditions at the site can be documented, assessed and updated.

This Guideline is developed to provide the responsible parties necessary guidance for conducting EBS for assessing contamination of a site. This Guideline shall be read in conjunction with Section 7, Control of land pollution and remediation of contaminated sites, of Code of Practice on Pollution Control.

2.0 Recommended EBS procedure

2.1 The six-step EBS procedure

An environmental baseline study may include the following six steps:

Step 1 Development of Work Plan

- Investigation Documents (Work Plan, Health, Safety and Environment Plan)

Step 2 Preliminary investigation

- Objectives
- Scope of work (Desktop Investigation, site reconnaissance, development of Conceptual Site Model (CSM))

Step 3 Development of investigation strategy

- Field Investigation Objectives
- Sampling Strategies (Determining Sampling Media, Determining Analytes, Sampling Locations and Numbers)
- Sampling of Other Media
- Further investigation
- Quality Assurance/Quality Control

Step 4 Field investigation

- Permitting/H&S Consideration
- Detection and Protection of Utility Infrastructure
- Techniques and Soil Sampling Methods (Sampling Depths and Intervals, Sample Collection, Soil Screening, Sample Logging, Borehole Reinstatement)
- Monitoring Well Installation (Well Construction Materials, Installation Details, Well Completion, Well Development)
- Well Decommissioning (Grouting from Bottom to Top)
- Groundwater Sampling Methods

- Equipment Decontamination
- Elevation and Coordinates Survey
- Sample Handling and Documentation
- Methods of Analysis
- Waste Management (Disposal of Wastes, Spill Control and Management)

Step 5 Selection of soil and groundwater quality standards or screening level

- Standards of Assessment
- Remediation
- Certification of Remediated Site

Step 6 Reporting

- Report submission
- Self-Declaration checklist (**in Appendix A.1.**)

2.2 Acquisition of data or information

The data or information needed to conduct an EBS can be acquired from the following sources, but not limited to:

- Clients: building plans, permits and licences, manufacturing processes, historical use etc.
- SLA: land title records
- MINDEF: aerial photographs, topography maps, and road maps
- Other government departments and statutory boards, e.g. PCD of NEA.

EBS data or information acquisition is generally an iterative process. Adequacy of data or information should be constantly reviewed and evaluated. When data or information is lacking or missing, additional data or information acquisition shall be considered.

2.3 Engagement of a qualified consultant

An EBS shall be carried out by the responsible parties who may appoint a qualified consultant to undertake the EBS on their behalf. The responsible parties should check that their consultants are qualified and have proven capability and experience in the site assessment work (including EBS) or other relevant works. The qualified consultants shall be responsible for providing technical support and supervision throughout the progress of the work. The responsible parties or their consultants shall also ensure that only accredited laboratory is to be engaged for the analyses. A list of third party specialist consultants is provided by the NEA and can be found at <https://www.nea.gov.sg/docs/default-source/our-services/building-planning/list-of-consultants-with-expertise-in-conducting-site-assessment-studies.pdf>

3.0 Step 1 Development of Work Plan

3.1 Investigation Documents

For documentation purposes, the EBS Consultant shall prepare (i) a Work Plan, and (ii) a Health, Safety and Environment Plan (H&S Plan). Findings from the preliminary investigation will feed into the H&S plans and refine the Work Plan. These plans are live documents and should be updated after the findings of the preliminary investigation.

3.1.1 Work Plan

The Work Plan is a document that details how the EBS Consultant proposes to carry out the EBS. The EBS Consultant shall prepare an initial Work Plan that includes but not be limited to the following:

- a. Overall EBS objectives;
- b. Specific field investigation objectives (after preliminary investigation);
- c. Background information and site history;
- d. Breakdown of project-related tasks;
- e. Equipment to be used;
- f. EBS team organization including the EBS Consultant's key personnel's roles and responsibilities, selected laboratory, environmental drilling contractors and other personnel/contractors involved in the EBS;
- g. Existing/previous layout plan and description on land use; and
- h. Schedule or timeline for completion.

The Work Plan will also include quality control and quality assurance procedures such as:

- a. Sampling strategy;
- b. The type and quantity of data needed;
- c. How and where the data will be obtained;
- d. How the acquired data will be analysed;
- e. Quality assurance and quality control activities to assess the quality performance criteria; and
- f. A declaration that the consultant had adopted the standard procedures in accordance to this set of guidelines.

The Work Plan shall be attached as an Appendix to the EBS report(s).

3.1.2 Health, Safety and Environment Plan

A Health, Safety and Environment Plan (H&S Plan) is a document that details how the EBS Consultant will identify and manage site-specific health, safety and environment hazards associated with the proposed EBS. The H&S Plan shall include but not be limited to the following:

- a. Risk Assessment
A site-specific health and safety risk assessment should detail all the job tasks to be carried out during the EBS as well as the associated hazards and the additional controls that must be in place to eliminate or minimise the hazards.
- b. Health and Safety Measures
Details of safe work practices and control measures used to reduce or eliminate general potential hazards should be provided in this section. These safe practices and controls should cover general practices and housekeeping, hazard communication, dangerous chemicals, manual lifting, fire prevention, heights and falls, electrical hazards, biological hazards, etc.
- c. Pollution Control Measures

Preventive measures to address noise, odour, dust, air and water pollution should be provided in this section to ensure field work to be conducted in compliance with the standard of the relevant authorities.

- d. **Personal Protective Equipment (PPE)**
The list of general hazards and the appropriate PPE required should be provided in this section. Standard PPE should be worn by all personnel in the field at all times, in compliance with the Workplace Safety and Health Act (Cap. 354A) or other relevant Ministry of Manpower (MOM) requirements.
- e. **Emergency Response Plan**
The emergency response plan should identify the location of on-site first aid and telecommunication available, provide a list of emergency telephone numbers, indicate the evacuation routes, assembly areas and route to hospital, etc.

4.0 Step 2 Preliminary Investigation

The Preliminary Investigation (PI) forms the initial phase of all investigations. It involves a desktop investigation and site reconnaissance. This is a largely non-intrusive survey that provides data from which a preliminary Conceptual Site Model (CSM) can be developed.

4.1 Objectives

The objectives of conducting a PI are:

- a. To develop a preliminary CSM for the site;
- b. To identify potential sources of contamination and recognised environmental conditions (RECs) in connection with the historical and current site activities;
- c. To identify the potential on-site and off-site human and environmental receptors;
- d. To identify potential migration pathways, transport mechanisms and exposure pathways of the soil and groundwater contamination;
- e. To identify the potential impacts of contamination to on-site and off-site receptors;
- f. To gather information useful for developing the sampling program for the EBS; and
- g. To identify the probability of potential off-site sources of contamination that could affect the environmental condition of the site.

4.2 Scope of Work

4.2.1 Desktop Investigation

The minimum information that must be obtained during the desktop investigation is as follows:

- a. Site identification – site name, address or lot number/postal code, land/property ownership;
- b. Site location – site boundaries, surrounding land uses, land use zoning, presence of surface water bodies and groundwater extraction wells, sensitive receptors (schools, child care centres, etc.) within 500 metre (m) radius, and underground services or structures in the site vicinity;

- c. Historical and current land use(s), the types of industry, activities, unit operation and chemical used, previous EBS, environmental incidents and potential existing soil/groundwater risks;
- d. Future intended land use; and
- e. Regional and site geological/hydrogeological information.

4.2.2 Site Reconnaissance

The purpose of site reconnaissance is to obtain information indicating the likelihood of identifying RECs in conjunction with the site activities. The site reconnaissance shall consist of:

- a. A walkover inspection of the site and within a 250 m radius from the site boundaries. On-site inspection shall include identification of potential areas and chemicals of concerns (such as chemical storage areas and underground/aboveground tanks), condition of site covering (such as surface material and condition, effect on the potential for contaminant ingress), site topography, surface staining, stressed vegetation, and location of aboveground as well as underground utilities/piping;
- b. Interviews with relevant facility or site personnel to gather relevant current and historical site information;
- c. Review of the site's general operations process flow and process waste handling;
- d. Identification of potentially sensitive receptors; and
- e. Collection of photographs of areas of potential concern, neighbouring land uses and other relevant observations related to potential land contamination.

Additional guidance for desktop investigation and site reconnaissance can be found in American Society for Testing and Materials (ASTM) E-1527-13 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process), or the latest version, to the extent practicable in Singapore.

4.2.3 Development of Conceptual Site Model (CSM)

A CSM shall be generated based on the information obtained from the desktop investigation and site reconnaissance. Basic components of a CSM are as follows:

- a. General setting of the site within a local and regional context (land use, topography, geology/hydrogeology, etc.);
- b. Potential sources of contamination and release mechanisms;
- c. Potential migration pathways;
- d. Potential exposure pathways; and
- e. Potential sensitive receptors.

The CSM should be consistent with the complexity of the site and identified issues. Additional guidance for CSM development can be found in ASTM E1689-95 (Developing Conceptual Site Models).

5.0 Step 3 Development of Investigation Strategy

5.1 Field Investigation Objectives

For baseline EBS, the objective of the intrusive field investigation is to collect representative and reliable soil and groundwater data (or other media, where applicable) at the suitable locations to confirm and refine the CSM developed during the preliminary investigation. The information gathered during intrusive field

investigations are used to provide technically justified conclusions on site contamination.

Site investigations for other purposes (such as spill and leak investigation or additional EBS to close out identified data gaps) may require more specific objectives and therefore a different sampling/investigation strategy.

5.2 Sampling Strategies

Based on the preliminary investigation findings, the locations, quantity and types of samples to be collected should be identified. The EBS consultant should take a conservative approach to manage uncertainties and ensure the EBS is robust and defensible.

5.2.1 Determining Sampling Media

As a minimum, soil and groundwater samples shall be collected at the site for baseline EBS. Additional/supplementary investigation may require sampling of other media such as soil vapour, surface water, sediments, and biological media, as necessary or where applicable.

5.2.2 Determining Analytes

For the EBS purpose, contaminants of concern (COCs) are typically identified on the basis of a site inspection, review of available information, and a site history review. Given that the investigation required is an environmental baseline study, analytes covering known future or expected chemicals to be used on the site (not necessarily used on the site in the past or at the time of the EBS investigation) should also be included in the analytical regime, where possible.

Appendix A.2 lists the possible COCs of some typical industries in Singapore, including refineries, electronics, shipbuilding, wood-based furnishing, petrol stations, electro-plating, and waste treatment factories. It is worth to note that the listed COCs are not exhaustive. In the cases where the industries or manufacturing-specific chemicals are not listed in this Guideline, the responsible parties and their qualified consultants shall determine the COCs based on their best professional judgement.

As a minimum for baseline EBS, the analytes to be tested shall be the full suite of analytes as referenced in the most recent version of the Dutch Environmental Guidelines Soil Remediation Circular (Dutch Guidelines).

Analysis of other media, other analytes (e.g. asbestos, dioxin/furan, radioactive materials, perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), etc.), or other test methods (e.g. Toxicity Characteristics and Leaching Procedure (TCLP), Synthetic Precipitation Leaching Procedure (SPLP), etc.) shall be based on the current and historic land use of the site and the purpose of the investigation.

5.2.3 Sampling Locations and Number

Sampling locations should focus on the areas which have been identified as areas of potential concern in the preliminary investigation, such as confirmed RECs, chemicals or petroleum products storage areas, waste oil storage and disposal areas, areas with visual/written evidence of potential leakage or spillage of chemicals or petroleum product, waste or sludge burial areas, etc.

For sites located near the sea or water sources, down gradient and site boundary

sampling locations should be considered. This will be useful in providing information about contaminants migration to the water bodies.

The number of boreholes for soil sampling should be based on a site area and type of land use. Additional locations should be selected in identified areas of concern. A guide is given below for the **minimum** number of boreholes (**Table 1**) for a baseline EBS.

Table 1 – Minimum Borehole for EBS

Area (m ²)			
<10,000	10,001 – 50,000	50,001 – 100,000	>100,000
5	8	11	20

Based on the site-specific conditions and sampling objectives, the EBS Consultant may not require converting all boreholes into monitoring wells. However, at least 60% of the boreholes or a minimum of three (3), whichever is higher, must be converted into monitoring wells in order to generate groundwater elevation contours for estimation of groundwater flow direction.

5.3 Sampling of Other Media

Sampling strategy for other media such as soil vapour, surface water, sediments or biological media shall be proposed by the EBS Consultant based on internationally recognised practices, guidelines, or standards such as the ASTM.

Likely scenarios that would require sampling of other media include but are not limited to:

- a. Surface water sampling – observable presence or indication of contamination originating from the site in adjacent or down gradient surface water (areas used or intended to be used for drainage purposes and water areas such as reservoirs, ponds, rivers and other water channels);
- b. Soil vapour/gas sampling – presence of volatile contaminants in soil or groundwater that may pose risks of vapour intrusion into buildings or vapour inhalation (indoor or outdoor) by human receptors. Ambient indoor air monitoring may be conducted in conjunction with soil vapour sampling;
- c. Sediment sampling – typically considered only for foreshore sites or when the site is at close proximity to natural or unlined water bodies. Collection of shallow (less than 0.25 m below ground surface (bgs)) sediment material samples from intertidal zones or shallow water bodies to assess potential presence of contaminants or provide characterisation of sediment conditions;
- d. Biota sampling – when evaluating how contaminants are accumulated in the food chain or looking for evidence of short or long range transport of the said contaminants. Risk assessment to be based on known ecological report of the contaminant.

5.4 Further investigation

A baseline EBS may lead to additional or supplementary investigations if the overall EBS objectives are not met, or if the findings recommend further actions. Further investigations may need an updated or new set of investigation strategies.

5.5 Quality Assurance/Quality Control

To achieve quality fieldwork, including all actions, procedures, checks and decisions undertaken to ensure the representativeness and integrity of samples and worksite safety, the EBS Consultant is required to provide full-time site supervision during the whole period of soil, groundwater or other media sampling.

It is recommended that quality assurance and quality control (QA/QC) samples should include:

- a. Trip Blank – a trip blank ratio of one (1) trip blank per shipment;
- b. Equipment Blank – one (1) equipment blank per day of sampling. Equipment blanks should be collected from final rinse water after equipment decontamination is completed as it is poured over the equipment being decontaminated;
- c. Duplicate Sample - A minimum of 1 duplicate soil per 20 samples and 1 duplicate groundwater per 10 samples are to be collected. For large scale and complex projects involving more than one laboratory, inter-laboratory duplicates should be considered to ensure data from primary laboratory is checked for quality; and
- d. Field Blank – One (1) daily field blank for projects is recommended where applicable (e.g. at sites where high volatile organic compound (VOC) concentration in the atmosphere is suspected).

For QA/QC purpose, the laboratory should be independent from the parties involved in the sample collections. The EBS Consultant or drilling subcontractor should not be associated to the laboratory conducting the analysis of the samples. Laboratories are required to have relevant SAC-SINGLAS accreditation to ensure quality of the analytical results.

Field QA/QC samples should be named/labelled without reference to the type of QA/QC samples and to the corresponding duplicate samples.

The Chain of Custody document must be prepared and submitted to the laboratory by the EBS Consultant. The CoC document should include sampling date, sample identification, matrix type, container information, sampler, project name and location, and shipping details. A copy of the signed Chain of Custody documentation must be provided as an attachment or appendix to the EBS report.

6.0 Step 4 Field Investigation

6.1 Permitting/H&S Consideration

All field activities must be conducted in compliance with MOM's safety regulations and other statutory requirements. All necessary documents or permits such as site access, valid permits (where applicable) must be obtained prior to any intrusive site works.

A copy of the H&S Plan should be maintained at the site at all times during the field work. The EBS Consultant and all workers are expected to observe and follow appropriate health and safety procedures as stated in the H&S Plan. The H&S Plan should be communicated to all workers on-site prior to start of any work through a safety briefing.

6.2 Detection and Protection of Utility Infrastructure

Prior to sampling, the EBS Consultant should carry out all necessary works to detect

and protect existing transport and utilities infrastructure, such as railway, pipes, cables, wires, apparatuses, appliances, equipment, installations, fittings and fixtures that provide transportation, water, electricity, telecommunications network, gas or carry water-borne sewerage. This includes purchasing relevant plans from the relevant authorities or utilities service providers. However, the EBS Consultant should note that some underground utilities infrastructure existing at the sites may not be shown on the purchased plans. Notwithstanding this, the EBS Consultant is responsible for conducting a thorough check by using appropriate equipment, carrying out trial pits or carrying out other necessary steps to ensure that their works will not damage any existing utilities infrastructure.

All relevant codes of practice, rules and regulations pertaining to transport infrastructures and utilities must be complied with. Additionally, the EBS Consultant should liaise with the relevant authorities and utilities service providers to obtain requisite approvals prior to carry out any sampling works in the vicinity of any utilities infrastructure, and comply with all conditions and requirements which may be imposed by such authorities and utilities service providers. Additionally, the EBS Consultant should carry out all the drilling works in accordance with the requirement set out by LTA/BCA. Preconsultation with LTA/BCA shall be made if clarification is required.

6.3 Techniques and Soil Sampling Methods

6.3.1 General

The drilling methods should be selected in the context of the EBS objectives, Singapore regulations, guidelines, sub-surface conditions, local equipment availability and access constraints. In general, dry drilling capable of obtaining undisturbed samples is preferred. Drilling fluids will not be permitted during drilling operations as drilling fluids lead to soluble contaminant losses and drilling air leads to volatile losses.

At least 1.5 m of the borehole must be advanced using manual drilling or non-destructive drilling techniques such as use of hand auger, air knife or vacuum excavation to confirm the absence of underground services at the borehole location. Mechanical drilling, such as hollow-stem auger (with split spoon sampler), direct push or solid-stem auger, may be used to advance the borehole from 1.5 m up to the terminal depth.

Borehole diameters should be specified in the Work Plan with justification for subsequent well annulus spacing.

6.3.2 Sampling Depths and Intervals

Sampling interval shall be decided on the basis of hydro-geological characteristics of the subsurface strata. The sampling depths, intervals, and testing should be sufficient to enable the assessment and delineation of any potential contaminants identified. For the purpose of EBS, the following sampling scheme is recommended based on sampling practice and the knowledge of subsurface hydro-geological conditions in Singapore.

For each borehole at all sites, the first soil sample shall be taken between 0.3 and 0.5 m below ground level (bgl). Subsequent samples in the borehole shall be taken at every 1.5 m interval (ie. 1.5 m, 3 m, 4.5 m, etc.) up to 6 m bgl or at least 2 m below groundwater level, whichever is deeper. In the event where groundwater level is

deeper than 6 m, additional samples shall be taken at every 2.5 m interval until 20 m bgl or until 2 m below groundwater, whichever is shallower. For each borehole where groundwater is encountered, the borehole should be converted to a monitoring well. One groundwater sample should be collected from each monitoring well within 2 m below groundwater level for further analysis. Specific mention should be made within the sampling plan for assessing the presence of any contaminants, notably phase separated hydrocarbons (PSH) or indication of similar non-aqueous phase liquids that may float on the water table. In addition, there might be some seasonal or tidal fluctuation in the water table. This should be assessed and commented, where applicable.

Due to heterogeneity and stratified nature of subsurface geology, the exact subsurface hydro-geological conditions will only be known during drilling. The pre-determined sampling depth and sampling interval shall be adjusted if necessary as work progresses. If the baseline data obtained from the site characterisation are doubtful or disputable, additional site characterisation may be necessary.

To facilitate laboratory analysis, only part of the samples collected would be tested. For each borehole, the sampling for analysis/test shall include but not limited to:

- (a) one near surface top layer soil sample (0.3 to 0.5m);
- (b) one soil sample per every stratum (in addition to (a)), particularly including the upper boundary of any layers of low relative permeability (eg. clay), since there is typically a higher potential for contaminants to accumulate there;
- (c) one soil sample from the saturated zone near the boundary with the unsaturated (ie. the vadose zone – where the water table is first encountered), since there is a potential for contaminants which are insoluble in water (eg. phase separated hydrocarbons) to accumulate there; and
- (d) one groundwater sample.

More samples shall be taken for testing as deemed necessary by the responsible parties and their qualified consultants.

For reclaimed lands, at least 40% of total boreholes should be drilled down to 2 m below the original soil to provide a better characterisation of the fill material and underlying original soil.

6.3.3 Sample Collection

It is recommended that soil samples be collected directly from the sampler (split spoon or equivalent sampling tools). Soil samples shall be collected directly from the sampler and placed into appropriate containers for headspace volatile organic compounds (VOCs) screening. When a soil sample is selected for laboratory analysis, a portion directly collected from the sampler shall be placed into a laboratory certified clean sample container. All soil samples should be properly labelled e.g. borehole ID, depth, date and project reference number.

Soil samples to be analysed for VOCs should be undisturbed. Soil samples for metals analysis should be homogenised to provide representative analysis of actual conditions.

The following QA/QC procedures should be followed during sample collection:

- All sampling equipment should be decontaminated prior to and after obtaining each sample where the sampling equipment is not disposable;
- Field personnel should wear suitable types of gloves (PVC/latex/nitrile) depending on contaminants of concern, whilst handling sampling equipment and collecting samples;
- Gloves should be replaced between the handling of each sample;
- All samples should be properly chilled in cooler boxes immediately after sample collection, prior to delivery to the accredited laboratory.

6.3.4 Screening

Field screening tools should be selected to best achieve the EBS objectives. Soil samples should be headspace screened in the field during sample collection for VOCs with a PID or similar equipment such as a flame ionisation detector (FID) to provide on-site identification of samples likely to contain high concentrations of VOCs. It should be noted that the PID/FID/hand held device should only be used for sample selection and not as an alternative for laboratory test.

Other soil/groundwater screening tools, such as heavy metals analyser, Total Petroleum Hydrocarbon (TPH) analyser, pesticide screening kit, etc., may also be utilised during field work if deemed necessary for the purpose of the EBS.

6.3.5 Sample Logging

Subsurface conditions encountered at every borehole or trial pit should be logged using the US Soil Classification System (USCS) and recorded in a boring log. Each boring log should include the following information: date, project/site name, borehole identification, borehole location, sampler's name, driller's name, drilling method, depth of groundwater level as observed during drilling, depth of monitoring well once stabilised, screened intervals, thickness of filter pack and bentonite plug. Depths should be referred to as below ground surface (bgs).

In addition to USCS descriptions, visual and general olfactory (odour) observations should be recorded in the boring log together with any other relevant information that assists development of the CSM, such as drilling resistance.

It should be noted that sample logging should not be limited to soil samples. The descriptions should be a continual process based on undisturbed cores and/or drill cuttings observations.

6.3.6 Borehole Reinstatement

Boreholes that are not to be converted into monitoring wells should be backfilled with the soil cuttings from the original borehole or with clean soil from identified sources and sealed with clean, low permeability material as such bentonite/cement grout. The borehole surface should be reinstated in line with surrounding surface conditions.

6.4 Monitoring Well Installation

6.4.1 General

Monitoring wells should be installed at the boreholes for groundwater monitoring activities. Monitoring wells should be designed such that the construction would allow

the presence of sufficient groundwater for sample collection in consideration of groundwater level fluctuation. The monitoring well should also be appropriately designed such that anticipated contaminants being targeted are captured, including free phase hydrocarbons (light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquids (DNAPL)).

6.4.2 Well Construction Materials

Well Casing

The monitoring well casing should be a clean, polyvinyl chloride (PVC) or similar inert material pipe, with internal diameter of 50 mm, that can withstand the corrosiveness of the anticipated chemicals present in the groundwater. The casing is composed of a slotted section (well screen) and a blank section (riser pipe).

Filter Pack

The filter pack is used to fill the annular space between the borehole and the well casing and should consist of clean graded gravel or coarse sand with a particle size range that is sufficient to allow unrestricted entry of free phase hydrocarbons.

Bentonite

Bentonite should be used to seal or plug the well annular space to prevent the infiltration of the surface water through ground surface above potentially contaminated material into the filter pack and well screen. The preferred form is in pellet form to allow ease of application and minimising penetration into the filter pack, which usually happens in liquid bentonite or slurry.

Protective Cover/Casing

Monitoring wells should have a protective metal or steel cover where they are deemed necessary. Well covers may be in the form of flush-mounted metal covers or aboveground steel risers, depending on suitability and location.

6.4.3 Installation Details

Following completion of drilling, the well casing (consisting of well screen, riser and bottom cap) is assembled and lowered into the borehole. The well casing must extend such that the screened portion is at least 2 m below the minimum expected groundwater level. The well screen must extend to at least 0.5 m above the stabilised groundwater level in consideration of groundwater fluctuation. The well casing must be centred within the borehole. Centralisers may be used particularly for deep well installations (> 8 m bgs) to ensure proper well casing position and alignment. The screen length may be adjusted accordingly for groundwater level <0.5 m bgs.

The borehole annular space is progressively filled with filter pack from the bottom until 0.5 m above the top of the screen, whenever possible, but may be adjusted accordingly for groundwater level <0.5 m bgs. To eliminate possible bridging or creation of voids, placement of the sand pack may require the use of a tremie pipe. Use of tremie pipe is generally suggested for deep water table wells and for wells which are screened some distance beneath the water table.

A layer of bentonite pellets, with a minimum of 0.5 m thickness whenever possible, is placed immediately above the filter pack. The thickness of the bentonite layer may be adjusted accordingly for groundwater level <0.5 m bgs. Care shall be taken to avoid introducing bentonite into the well casing.

Figure 1 illustrates the typical groundwater monitoring well construction.

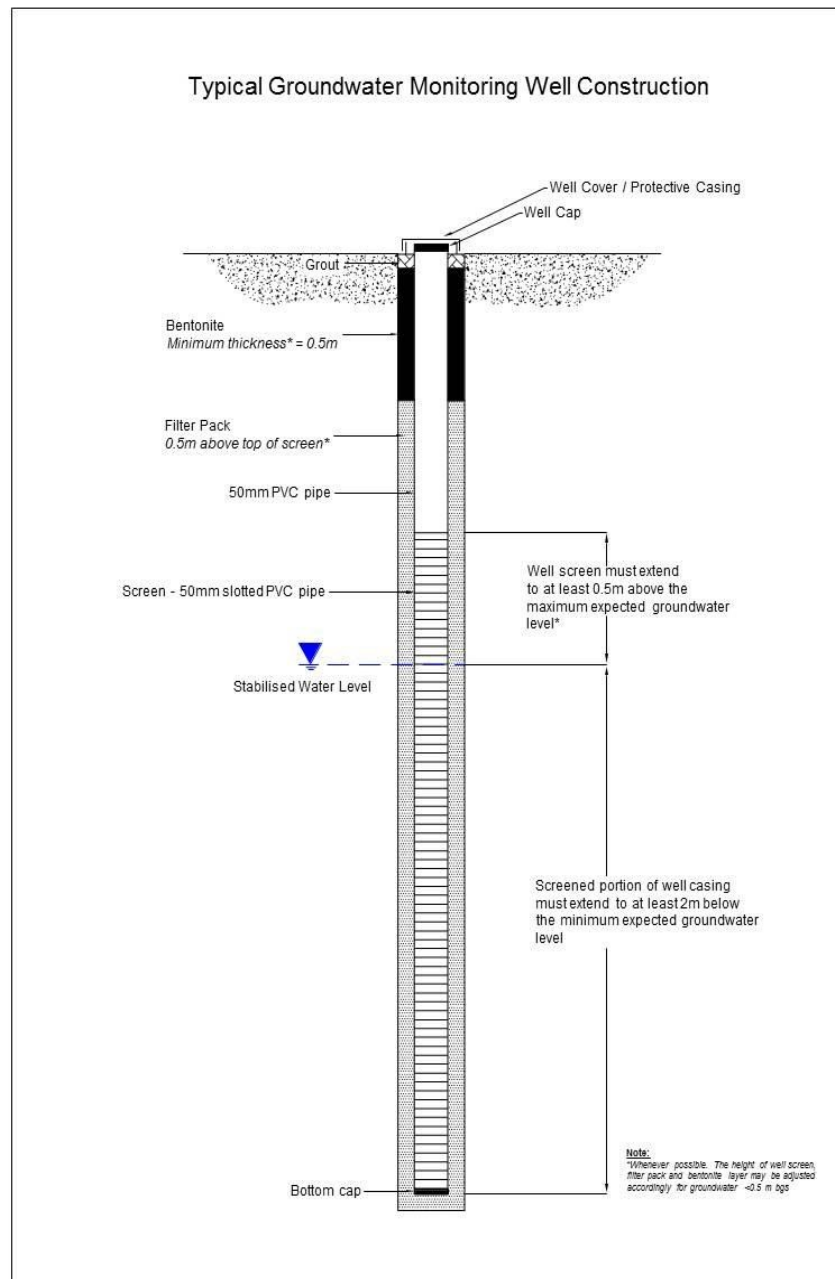


Figure 1 – Typical Groundwater Monitoring Well Construction

6.4.4 Well Completion

Following the emplacement of the bentonite seal, each permanent monitoring well should be finished by concreting either a flush mounted, metal casing/cover or galvanised monument with clear well ID label on the concrete pad surface or on the metal cover. The flush mounted cover is best suited to high traffic areas; covers should at least provide sufficient strength to withstand normal vehicular traffic. Proper well covers can provide protection for the monitoring well from the weather, tampering, vehicular movements and accidental destruction.

Each temporary monitoring well should be constructed with a protective casing to avoid external disturbance or vandalism that may cause intrusion of potential contamination into the well; temporary monitoring wells should be properly abandoned as soon as reasonably possible, refer to Section 5.5 for more details.

6.4.5 Well Development

All newly constructed monitoring wells should be developed 24 hours after installation to allow the bentonite grout to set. The aim of development is to create both backward and forward surging action in monitoring well screen and gravel pack to breakup and remove fines. Proper development of monitoring wells is essential for the collection of representative groundwater samples in the wells. During the drilling, fines are forced into the soil formation, forming a mud cake that reduces the hydraulic conductivity of the materials in the immediate area of the well bore. To allow water to freely enter the monitoring well from the soil formation being monitored, this mud cake must be broken down opposite the screened portion of the well and the fines removed from the well.

Well development involves physical purging of each monitoring well by carefully lowering the bailer into the centre of the screened portion of the monitoring well and removing groundwater from the monitoring well.

Field parameters of groundwater should be measured during well development. These include temperature, pH, redox potential, electrical conductivity (EC), and dissolved oxygen (DO). These measurements should be conducted and recorded at every well volume of the groundwater purged. Well development should be continued until 5 well volumes are removed or if the monitoring well purges dry before 5 well volumes are removed, development may be discontinued. The following information is to be recorded on the groundwater sampling field data sheet:

- Date and time;
- Water level;
- Purged volume;
- Odour;
- Colour;
- Turbidity and field parameter values;
- Monitoring well ID.

6.5 Well Decommissioning

Monitoring wells may be decommissioned when: (1) they are no longer needed in the site's monitoring program, or (2) the well's integrity is suspect or compromised. Similar terms for 'decommissioning' include 'abandonment', 'plugging' or 'grouting'. The aim of decommissioning is to permanently seal the well to prevent the entry of fluids or contaminants from the surface and the mixing of fluids or pressures between aquifers. Decommissioning by fully grouting from top to bottom is the preferred method and is discussed here. However, as this is not always the most practical method, other options may also be employed, including grouting from screen to surface, grouting in-place followed by case pulling, and over-drilling. The EBS Consultant should review bore logs or well construction details and historic gauging data to determine the suitability of the method. The EBS Consultant shall provide records that decommissioning of the monitoring wells has been accomplished in accordance with the EBS guidelines.

6.5.1 Grouting from Bottom to Top

Fully grouting from top to bottom is the simplest and most commonly used method for grouting shallow monitoring wells and the only acceptable method where there is a possibility the well is screened across multiple aquifers. This involves completely filling the well with a cement/bentonite grout. Suggested ratio of cement to bentonite

is 3-5% bentonite by dry weight. Options for different cement/bentonite mix may be used depending on suitability, provided that the mix contains sufficient bentonite to make it impermeable to water but not too viscous to pump or pour into the well. The well cover/protective casing should be removed, including the stick up riser and concrete pad, if present.

For shallow wells (< 4 m), the PVC well casing may be pulled out prior to filling in with grout. If not possible, the PVC well casing should be cut off at a level below the surrounding concrete slab (if present). Pour or pump the grout into the well until filled. Surface completion should be done to reinstate the ground in line with surrounding surface conditions.

6.6 Groundwater Sampling Methods

6.61 General

Groundwater sample shall be collected from the monitoring well installed after the completion of drilling and well development. Groundwater sampling methods available include use of bailers, low flow sampling, no-purge sampling or other sampling technologies following the ASTM guidelines. The selected method and rationale should be clearly outlined in the Work Plan by the EBS Consultant.

6.7 Equipment Decontamination

The drilling/sampling tools must be cleaned prior to each use, and when transferring to a new location. This is to avoid cross contamination between locations and samples (soil, groundwater, sediment, etc.).

This can be conducted by:

- Washing and scrubbing the tools with phosphate free detergent followed by a tap water rinse; and subsequently
- Air drying.

6.8 Elevation and Coordinates Survey

Newly-installed monitoring wells shall be surveyed for well and ground elevations based on a known or temporary bench mark. GPS coordinates in SVY21 system must also be recorded for each well.

6.9 Sample Handling and Documentation

The samples should be collected into the appropriate containers cleaned and supplied by the accredited laboratory. Samples should be placed into a cooler box and be properly chilled before being received by the laboratory.

Information such as project identification, sample identifications, sample matrix, sampler, dates of sampling, dates and times of sample relinquishments and receipts, types of analysis required, and other relevant information should be documented and signed off on the Chain of Custody forms. The proper Chain of Custody procedures have to be complied during sample shipments.

Field QA/QC samples should be named/labelled without reference to the type of QA/QC samples and corresponding duplicate samples.

6.10 Methods of Analysis

The recommended methods of analysis for various analytes are shown in **Appendix A.3**. If listed methods are not available, appropriate methods may be selected from the list of approved analytical methods publishing organizations provided at the end of table.

The laboratory's levels/limits of reporting (LORs) should be lower than the soil and groundwater quality standards or screening levels. If these LORs are not achievable by the available analytical technologies in Singapore, then analysis should be performed by a qualified international laboratory.

6.11 Waste Management

6. 11.1 Disposal of Wastes

Waste management controls should be anticipated prior to field investigation and detailed in the Work Plan. The EBS Consultant should ensure field-derived wastes are disposed of in an appropriate manner. Waste segregation should be considered based on anticipated waste types: (1) those that require licensed transportation and disposal; and (2) those that can be recycled or disposed of as general waste.

For proper disposal of contaminated soils and liquids, please refer to NEA's list of licensed toxic industrial waste collectors.

6. 11.2 Spill Control and Management

Control and management of spills should be detailed in the Work Plan and/or H&S Plan. Corrective actions shall be dependent upon the size, location, type of material in the spill (contaminated soil/water, etc.) and risks of environmental harm, fire or other emergency situations. For small-scale spills, the spill should be contained through the use of absorbents. In the event of a large spill, where there is a potential for risk of injury to personnel, environmental harm and/or fire, the area must be evacuated and emergency services must be notified such as the Fire Station (nearest) or Police Station (nearest). Following any spill incident, JTC must be immediately notified and an Incident Report is to be submitted to JTC as soon as possible.

7.0 Step 5 Selection of Soil and Groundwater Quality Standards or Screening Level

7.1 Standard of Assessment

Standard values are needed whereby the chemical compound levels found in the soil and groundwater can be matched. The comparison between the actual levels found and the standard values will determine the level and extent of contamination of the site and the appropriate remedial actions to take.

For the EBS purpose, the latest Dutch Standards are adopted for assessing land contamination and remediation. The Dutch Standards specify two sets of limits for heavy metals, inorganic compounds, aromatic compounds, hydrocarbons, pesticides and other pollutants in both soils and groundwater

For entry EBS ¹assessment, with contaminants above Dutch intervention value, the site is considered contaminated, but the contamination may not be serious enough to warrant a clean up. Further investigation of the site including a risk assessment study is required to resolve uncertainties with respect to the possible pollution and its

¹ Entry EBS is conducted to set the first baseline set for the site.

associated risks to determine the need to carry out a clean up. The risk assessment shall cover the risk of contamination both during construction and targeted operations. The methodology of risk assessment study shall be in accordance to Singapore Standard SS593:2013 (Code of Practice for Pollution Control).

In addition to the requirement of entry EBS², EBS specialist shall also compare with the entry EBS and identify the potential sources of contamination in the report for exit EBS.

7.2 Remediation

If the site is found contaminated, the responsible parties involved shall be required to remediate the property by restoring it to either:

- the standards required by relevant authorities or in the absence of such requirement, the prevailing Dutch Standards; or
- the first EBS level (if any) at the commencement of the original lease term, whichever is less stringent.

However, if the original lease already contains a stipulation that decontamination back to the first EBS level at the commencement of lease is required, no option will be given to comply with whichever standard that is less stringent. Besides, it is necessary to remediate any off-site adjacent contaminated land so long as the contaminant emanated from the subject site.

7.3 Certification of Remediated Sites

The remediated sites shall be certified by an independent third party expert/specialist consultant to meet the standards required.

The certification shall contain the following:

- (a) a statement that the subject site has been remediated to meet the standards required; and
- (b) a statement that the certification given is a true and unbiased representation of the facts and that all reasonable professional skill, care and diligence have been taken in checking the facts

The originals or authenticated copies of the certification shall be submitted to JTC Corporation for review and approval.

8.0 Step 5 Reporting

8.1 General Structure

In general, an EBS report should include and cover the major components as listed below:

- Executive summary;
- Objectives and work scope;
- Client's business operation;
- Declaration through the declaration checklist (**in Appendix A.1**) that EBS was performed in accordance to the EBS guidelines or if not, highlight any deviations and provide corresponding justifications;

² Exit EBS is conducted as part of the conditions upon lessee exit from the site.

- Site background information including site history, site location and characteristics, site layout and features, site activities, surrounding land uses, topography, geology, soils, fill, hydrology and hydrogeology;
- Site Inspection including boundary conditions, surface conditions, storage tanks, other chemical use and storage, drainage, stains, odours and stressed vegetation and potential COCs and areas of Concern;
- Location plan with indication of the subject site
- Preliminary investigation findings;
- Regional geological and hydrogeological information;
- Fieldwork findings, including field observations of soil and groundwater characteristics, monitoring well construction and ground water levels (RL), visual/olfactory observations;
- Accurate coordinates of boreholes and monitoring wells
- QA/QC of field and analytical data
- Conceptual site model;
- Assumptions;
- Discussion of laboratory analytical results including determination of level of contamination and assessment of potential impact;
- Comparison of the results with the baseline (if any);
- Qualitative or Quantitative Risk Assessment, including confidence level of the assessment (e.g. 95% upper confident level);
- To indicate any areas of non-compliances with this set of guidelines;
- Conclusion including Potential contamination and impact to the site based on laboratory analytical results, site inspection and other available information, Likely nature and extent of any identified contamination and impact
- Recommendation including requirements for remediation and follow-up actions (if any)).

In conjunction with the reporting structure listed above, appropriate supporting documents/ annexures should also be included to cover the following:

- Plan showing sampling locations including all borehole, monitoring well, test pit, etc., locations and known or anticipated groundwater flow direction. Also include any pre-existing wells.
- Photographs of site, site condition, site layout plan indicating major/relevant features (e.g. buildings, surface coverings/materials, underground/aboveground storage tanks, chemical handling and storage areas, etc.) and adjacent land uses;
- Drilling methodologies;
- Soil boring logs and groundwater monitoring well construction diagrams;
- Field datasheets;
- Data of soil and groundwater analytical results;
- Original laboratory analytical report (including laboratory QA/QC reports);
- Chain of Custody documentation;
- Other relevant documents (e.g. PID Equipment Calibration Certificate).
- Inventory of chemicals used in client's operation

9.0 Conclusions

The above information is a brief guidance on conducting environmental baseline study assessment. It should be noted that the various tests and experiments conducted shall be accurate and professionally done so as to achieve a satisfactory environmental baseline study. JTC has the discretion to require further tests, experiments, assessments or investigations of similar nature, to be conducted on the Property and a subsequent report furnished (at no costs to JTC), in the event any of the tests and experiments conducted

and/or information stated above is not to JTC's satisfaction.

APPENDIX A.1.

SELF-DECLARATION FORM FOR ENVIRONMENT BASELINE STUDY ("EBS")

Please complete this Form based on the outcome of the *tests carried out* in accordance with JTC's Guideline on Environmental Baseline Study (2019 Edition) ("Guidelines"). The completed Form must be submitted to JTC together with the following:

1. EBS Report; and
2. the EBS data information (in the Excel format as found at the following link):

<http://www.jtc.gov.sg/customer-services/Pages/lease-management-policies.aspx?page=8-1#pageheader>

If you require any assistance completing this Form, please contact:

JTC Corporation
Technical Services Division
The JTC Summit 8 Jurong Town Hall Road
Singapore 609434

Theresa Loh (M/s)
DID: 6883 3852
Email: Theresa_Loh@jtc.gov.sg

Heng Sew Chen (M/s)
DID: 6883 3861
Email: Heng_sew_chen@jtc.gov.sg

Note: Please note that JTC collects the information contained in the completed EBS Form and may share necessary data with other Government agencies (or non-Government entities which have been authorised to carry out specific Government services), unless such sharing is prohibited by legislation.

PARTICULARS OF LESSEE/TENANT
Name of Lessee: (as per Accounting and Corporate Regulatory Authority registry)
Address of Site: (Unit Number, Road Name, Allocation No. and Mukim No):

(A) TYPE OF SUBMISSION:

- | | | | | | |
|--------------------------|--------------------------|----------------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (a) New Allocation | (b) Land Renewal | (c) Temporary Occupation License | (d) Assignment | (e) Change of Use | (f) Lease Termination |

(B) PURPOSE OF ENVIRONMENTAL BASELINE REPORT:

- | | | | |
|--------------------------|---|---|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (a) Set first baseline | (b) Set Exit Baseline with no first baseline set in lease agreement | (c) Set Exit Baseline with first baseline | (d) Others |

If Others, please specify: _____

(C) CONDITIONS WHICH THE LESSEE/TENANT AND THE QUALIFIED CONSULTANT MUST COMPLY WITH:

1) The Environmental Baseline Study report submitted shall comply with the Guidelines stipulated by JTC.

Checklist Item	Does it comply with the guideline?			If No or N.A, please explain why.
Qualified Consultant listed by NEA	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
Development of Work Plan	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
Preliminary Investigation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
Characterization of Subsurface Conditions based on the EBS Report:				
• sampling strategies and analysis plan	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• adequate boreholes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• representative borehole locations	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Sampling interval and depth	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Near surface sample	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Soil sample per stratum	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Soil sample near vadose zone	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Reclaimed land sampling requirement	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Adequate monitoring wells	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Groundwater Samples	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• QA/QC	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Determination of COC for sample analysis	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Method of Analysis	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
Determination of extent of subsurface contamination via reference to standards of assessment and based on the EBS Report:				
• Site location Plan	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Site Layout Plan	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Site Photographs	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Sampling locations	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Direction of Groundwater flow	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Drilling methodologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	Yes	No	N.A.	
• Soil boring logs and groundwater monitoring well construction diagrams	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Field Documentation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Data of soil and groundwater analytical results	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Laboratory analytical results	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Chain of custody documentation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• Inventory of chemicals used in client's operation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N.A.	
• State the version of Guidelines, Dutch Standards and other standards referenced (if applicable)				

2) Result of Soil Samples

a) Is all the contaminant level(s) within the Dutch Intervention Value (DIV) based on the latest Dutch Standard?

- ☐ Yes
☐ No

b) If No, please complete the table below with a summary of the risk assessment result for both construction and targeted operation.

Chemical of Concern (exceed Dutch Intervention Value)	Dutch Intervention Value (mg/kg)	Range Detected At Site (mg/kg)	Number of samples exceeding Dutch Intervention Value	Risk Assessment (mg/kg)

3) Result of Groundwater Samples

a) Is all the contaminant level(s) within the Dutch Intervention Value (DIV) based on the latest Dutch Standard?

- ☐ Yes
☐ No

b) If No, please complete the table below with a summary of the risk assessment result for both construction and targeted operation.

Chemical of Concern (exceed Dutch Intervention Value)	Dutch Intervention Value (µg/L)	Range Detected At Site (µg/L)	Number of samples exceeding Dutch Intervention Value	Risk Assessment (µg/L)

4) Based on the result of the tests conducted, remediation is not required.

☐ Yes

☐ No

If No, please state the possible source of contaminants and the mitigation measures.

(D) DECLARATION:

I am a Qualified Consultant approved by National Environmental Agency to carry out the Environmental Baseline Study.

I confirm as follows:

1. the information stated above is correct based on tests, experiments and requirements carried out in accordance with the Guidelines;

2. I have not withheld any information or particulars required in the Form and I shall immediately notify JTC in writing in the event of any changes in the information and particulars furnished in this Form; and

I acknowledge that JTC has the discretion to require further tests, experiments, assessments or investigations of similar nature, to be conducted on the Property and a subsequent report furnished (at no costs to JTC), in the event any of the tests and experiments conducted and/or information stated above is not to JTC's satisfaction.

Signed by:

ENVIRONMENTAL BASELINE STUDY CONSULTANT

Name:

Designation:

Name of

Company :

Email:

Handphone No.:

APPENDIX A.2. TYPES OF INDUSTRIES AND THEIR POSSIBLE COCs

Types of Industry	Contaminants of Concern
Electronics	carbon tetrachloride, chloroform, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, trichloroethane, trichloroethylene, arsenic, cadmium, chromium, lead, nickel, zinc Other compounds not listed
Electro-Plating	1,1-dichloroethane, 1,2-dichloroethane, arsenic, chromium, cadmium, lead, copper, nickel, acids and bases Other compounds not listed
Petrol Stations	TPH, Benzene, ethyl benzene, toluene, xylene (BTEX) Polycyclic Aromatic Hydrocarbons Phenols Lead Methyl Tertiary Butyl Ether Other compounds not listed
Petrochemicals	benzene, carbon tetrachloride, chlorobenzenes, chloroform, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, ethyl benzene, hexachlorobenzene, hexachlorobutadiene, hexachloroethylene, phenol, styrene, tetrachloroethane, tetrachloroethylene, trichloroethane, trichloroethylene, 2,4,6-trichlorophenyl, polychlorinated biphenyls, cadmium, chromium, copper, lead, mercury, nickel, zinc Other compounds not listed
Refineries	benzene, toluene, xylene, total petroleum hydrocarbons, carbon tetrachloride, 1,1-dichloroethane, 1,2-dichloroethane, phenol, polychlorinated biphenyls, cadmium, chromium, copper, lead, mercury, zinc, PAHs Other compounds not listed
Shipbuilding	Heavy metals Volatile organics (solvent/paint) Semi-volatile organics Other compounds not listed
Transformers /electrical substations	Polychlorinated biphenyls (PCBs)
Waste Disposal Site	1,1-dichloroethane, 1,2-dichloroethane, cadmium, chromium, copper, lead, nickel Other compounds not listed
Wood-based	Heavy metals PAHs Pentachlorophenols Other compounds not listed

Note: The above listed chemicals are some typical contaminants of concern and are not exhaustive.

APPENDIX A.3. LABORATORY METHODS

Analytes Group	Analytes	Soil	Groundwater
Metals		EPA 3051A EPA 3052 EPA 3050B EPA 7471B APHA 3120B APHA 3125B EPA 6010D EPA 6020B EPA 7000B EPA 7010 - - -	-- - - - - - EPA 6010D EPA 6020B EPA 7000B EPA 7010 EPA 3005 EPA 7470 APHA 3125B
Inorganic Compounds	Cyanide	EPA 9010C EPA 9014 APHA-4500-CN(N)	EPA 9010C EPA 9014 APHA-4500-CN(N)
Aromatic Compounds: BTEX		EPA 5035 EPA 8260C EPA 8270D EPA 5021A - -	- EPA 8260C EPA 8270D EPA 5021A EPA 5030 EPA 3510C
Polynuclear Aromatic Hydrocarbons (PAH)		EPA 8310 EPA 8270D EPA 3545A	EPA 8310 EPA 8270D -
Chlorinated Hydrocarbons		EPA 5035 EPA 8260C EPA 8270D -	- - EPA 8270D EPA 3501C
Pesticides: Semi Volatile Organic Compounds (SVOCs)		EPA 3545A EPA 8270D -	- EPA 8270D EPA 3501C
Other Pollutants: Volatile Organic Compounds (VOCs)	Cyclohexanone Phthalates (Sum) Mineral Oils Pyridine Bromoform Tetrahydrofuran Tetrahydrothiophene	EPA 5035/ EPA 8260C / EPA 5021A EPA 8270D / EPA 3545A / EPA 8270D EPA 8015B EPA 5035 / EPA 8260C / EPA 3545A / EPA 8270D EPA 5035 / EPA 8260C / EPA 5021A	EPA 5021A / EPA 8260C / EPA 5030B EPA 3510C / EPA 8270D EPA 8015D EPA 5030B / EPA 8260C EPA 5021A / EPA 8260C / EPA 5030B EPA 5021A / EPA 8260C /

		EPA 8270D / EPA 5021A EPA 8270D / EPA 5021A	EPA 3510C / EPA 8270D EPA 5021A / EPA 8260C / EPA 3510C / EPA 8270D
Conventional	Organic Matter Moisture Content (dried @ 103°C) pH @ 25 deg C BOD Chemical Oxygen Demand Total Organic Carbon Fluoride as F Chloride as Cl	BS 1377-1:2016 ASTM D2974-14 BS 1377-1:2016 ASTM D2974-14 - - - - - -	APHA 4500 H+B APHA 5210B / APHA 22nd Edition 2012 APHA 5220C / APHA 22nd Edition 2012 APHA 5310B / APHA 22nd Edition 2012 APHA 4110B / APHA 22nd Edition 2012
	Bromide as Br Sulphate as SO ₄ Ammonia as N Conductivity	- - - -	ASTM D1179-16 APHA 4110B / APHA 22nd Edition 2012 APHA 4110B / APHA 22nd Edition 2012 APHA 4110B / APHA 22nd Edition 2012 ASTM D516-16 APHA 4500B / APHA 4500N H / APHA 22nd Edition 2012 APHA 2510B
Total Petroleum Hydrocarbon (TPH)		EPA 5035 EPA 8015D EPA 8440 EPA 3560 EPA 3550C -	- - - - - EPA 8015C
Monocyclic Aromatic Hydrocarbons		EPA 5035 EPA 8260C -	- EPA 8260C EPA 5030B

Oxygenated Compounds		EPA 5035 EPA 8260C -	- EPA 8260C EPA 5030B
Sulfonated Compounds		EPA 5035 EPA 8260C -	- EPA 8260C EPA5030B
Fumigants		EPA 5035 EPA 8260C -	- EPA 8260C EPA5030B
Halogenated Aliphatic Compounds		EPA 5035 EPA 8260C -	- EPA 8260C EPA5030B
Halogenated Aromatic Hydrocarbons		EPA 5035 EPA 8260C -	- EPA 8260C EPA5030B
Trihalomethanes		EPA 5035 EPA 8260C -	- EPA 8260C EPA5030B
Phenolic Compounds		EPA 8270D -	EPA 8270D EPA3510C
PolyAromatic Hydrocarbons		EPA 8270D -	EPA 8270D EPA 3510C
Phthalate Esters		EPA 8270D -	EPA 8270D EPA 3510C
Nitrosamines		EPA 8270D -	EPA 8270D EPA 3510C
Nitroaromatics and Cyclic Ketones		EPA 8270D -	EPA 8270D EPA 3510C
Haloethers		EPA 8270D -	EPA 8270D EPA 3510C
Chlorinated Hydrocarbon		EPA 8270D -	EPA 8270D EPA 3510C

Anilines and Benzidines		EPA 8270D -	EPA 8270D EPA 3510C
Polychlorinated Biphenyls		EPA 8270D -	- -
Organochlorine Pesticides		EPA 8270D -	EPA 8270D EPA 3510C
Organophosphorus Pesticides		EPA 8270D -	EPA 8270D EPA 3510C
Asbestos		ASTM D7521-16 Polarized Light Microscopy	- -

		(PLM)	
Pharmaceuticals and Personal Care Products		EPA 1694	EPA 1694
Steroids and Hormones		EPA 1698	EPA 1698
Brominated Diphenyl Ethers		EPA 1614A	EPA 1614A
Pesticides		EPA 1699	EPA 1699
Cation Exchange Capacity (CEC)		EPA 9081 pH 7 Ammonium Acetate CEC BAC12 Compulsive Exchange Method	- - -
Toxicity Characteristic Leaching Procedure (TCLP)	VOCs, SVOCs, Chlorinated Pesticides and Herbicides, and Metals	EPA 1311	EPA 1311
Synthetic Precipitation Leaching Procedure (SPLP)		EPA 1312 EPA 1313 EPA 1314 EPA 1315 EPA 1316 AS 4439	EPA 1312 - - - EPA 1316 AS 4439

Bioavailability		EPA in Vitro Bioaccessibility Assay Physiologically Based Extraction Test (PBET) Simplified Bioaccessibility Extraction Test (SBET) Relative Bioaccessibility Leaching Procedure (RBALP) Solubility Bioaccessibility Research Consortium (SBRC) In Vitro Gastrointestinal Extraction Method (IVG) Standardised German in Vitro Assay (DIN) Dutch National Institute for Public Health and the Environment (RIVM) Bioaccessibility Research Group of Europe (BARGE UBM) Simulator of the Human Intestinal Ecosystem (SHIME) Dynamic Computer- Controlled Gastrointestinal Model (TIM)	
Hardness			ASTM D1126-12

Analytes Group	Analytes	Soil	Groundwater
Metals		EPA 3051A EPA 3052 EPA 3050B EPA 7471B APHA 3120B APHA 3125B EPA 6010D EPA 6020B EPA 7000B EPA 7010 - -	-- - - - - - EPA 6010D EPA 6020B EPA 7000B EPA 7010 EPA 3005 EPA 7470

		-	APHA 3125B
Inorganic Compounds	Cyanide	EPA 9010C EPA 9014 APHA-4500-CN(N)	EPA 9010C EPA 9014 APHA-4500-CN(N)
Aromatic Compounds: BTEX		EPA 5035 EPA 8260C EPA 8270D EPA 5021A - -	- EPA 8260C EPA 8270D EPA 5021A EPA 5030 EPA 3510C
Polynuclear Aromatic Hydrocarbons (PAH)		EPA 8310 EPA 8270D EPA 3545A	EPA 8310 EPA 8270D -
Chlorinated Hydrocarbons		EPA 5035 EPA 8260C EPA 8270D -	- - EPA 8270D EPA 3501C
Pesticides: Semi Volatile Organic Compounds (SVOCs)		EPA 3545A EPA 8270D -	- EPA 8270D EPA 3501C
Other Pollutants: Volatile Organic Compounds (VOCs)	Cyclohexanone Phthalates (Sum) Mineral Oils Pyridine Bromoform Tetrahydrofuran Tetrahydrothiophen e	EPA 5035/ EPA 8260C / EPA 5021A EPA 8270D / EPA 3545A / EPA 8270D EPA 8015B EPA 5035 / EPA 8260C / EPA 3545A / EPA 8270D EPA 5035 / EPA 8260C / EPA 5021A EPA 8270D / EPA 5021A EPA 8270D / EPA 5021A	EPA 5021A / EPA 8260C / EPA 5030B EPA 3510C / EPA 8270D EPA 8015D EPA 5030B / EPA 8260C EPA 5021A / EPA 8260C /EPA 5030B EPA 5021A / EPA 8260C /EPA 3510C / EPA 8270D EPA 5021A / EPA 8260C /EPA 3510C / EPA 8270D

Phthalate Esters		EPA 8270D -	EPA 8270D EPA 3510C
Nitrosamines		EPA 8270D -	EPA 8270D EPA 3510C
Nitroaromatics and Cyclic Ketones		EPA 8270D -	EPA 8270D EPA 3510C
Haloethers		EPA 8270D -	EPA 8270D EPA 3510C
Chlorinated Hydrocarbon		EPA 8270D -	EPA 8270D EPA 3510C
Anilines and Benzidines		EPA 8270D -	EPA 8270D EPA 3510C
Polychlorinated Biphenyls		EPA 8270D -	- -
Organochlorine Pesticides		EPA 8270D -	EPA 8270D EPA 3510C
Organophosphorus Pesticides		EPA 8270D -	EPA 8270D EPA 3510C
Asbestos		ASTM D7521-16 Polarized Light Microscopy (PLM)	- -
Pharmaceuticals and Personal Care Products		EPA 1694	EPA 1694
Steroids and Hormones		EPA 1698	EPA 1698
Brominated Diphenyl Ethers		EPA 1614A	EPA 1614A
Pesticides		EPA 1699	EPA 1699
Cation Exchange Capacity (CEC)		EPA 9081 pH 7 Ammonium Acetate CEC BACI2 Compulsive Exchange Method	- - -
Toxicity Characteristic Leaching Procedure (TCLP)	VOCs, SVOCs, Chlorinated Pesticides and Herbicides, and Metals	EPA 1311	EPA 1311
Synthetic Precipitation Leaching Procedure (SPLP)		EPA 1312 EPA 1313 EPA 1314 EPA 1315 EPA 1316 AS 4439	EPA 1312 - - - EPA 1316 AS 4439

Bioavailability		EPA in Vitro Bioaccessibility Assay Physiologically Based Extraction Test (PBET) Simplified Bioaccessibility Extraction Test (SBET) Relative Bioaccessibility Leaching Procedurer (RBALP) Solubility Bioaccessibility Research Consortium (SBRC) In Vitro Gastrointestinal Extraction Method (IVG) Standardised German in Vitro Assay (DIN) Dutch National Institute for Public Health and the Environment (RIVM) Bioaccessibility Research Group of Europe (BARGE UBM) Simulator of the Human Intestinal Ecosystem (SHIME) Dynamic Computer- Controlled Gastrointestinal Model (TIM)	
Hardness			ASTM D1126-12