

01 INTRODUCTION

1.1 General

The Penang State Government (hereafter referred to as “The Project Proponent”) intends to undertake land reclamation activities of three man-made islands at the south coast of Penang Island. SRS Consortium will be the Penang State Government’s “Project Delivery Partner” (PDP) in ensuring smooth implementation of the entire project’s delivery success. The three man-made islands are intended to be developed as a part of the expansion of Bayan Lepas Free Industrial Zone (FIZ) and Penang International Airport as well as for mixed development comprising of residential and commercial areas.

The project for which this Environmental Impact Assessment (EIA) (Second Schedule) report is prepared is titled “The Proposed Reclamation and Dredging Works for the Penang South Reclamation (PSR), Penang” (hereafter referred to as “The Project”).

1.2 Purpose of EIA Study

The main purpose of the EIA study is to identify and assess the environmental impacts associated with the proposed Project and to determine its feasibility in terms of the environment. The fundamental aims of the EIA are to minimise or mitigate environmental impacts through integrated and workable answers which are acceptable to both the Project Proponent and to the Department of Environment (DOE) rather than through theoretical measures. The findings of this study will contribute to the decisions to be made on:

- a) the development of the Project plan;
- b) the appropriate Project layout and its components;
- c) the overall acceptability of the Project, having considered all potential adverse environmental consequences and putting in place acceptable and appropriate measures; and
- d) the changes in environmental quality, both positive and negative, that will result from the Project’s implementation.

1.3 Objectives of the EIA Study

The EIA study is carried out to fulfil the following objectives:

- a) To survey and describe the existing physical environment of the proposed Project area and its surroundings within the zone of impact. This will include: climate and meteorology, hydrology and hydraulics, geology, water quality, air quality, noise, infrastructure, utilities, transportation and land use. This study shall include an analysis on the existing seabed bathymetry, and existing erosion and sedimentation patterns in the proposed area;
- b) To survey and describe the existing biological environment in the proposed Project area and its surroundings within the zone of impact, including flora and fauna, ecological systems as well as habitat values;
- c) To survey and describe the existing socio-economic environment of the local population who will be directly or indirectly affected by the proposed Project. The study will particularly highlight the fishermen and local population, tourism activities and aquaculture activities (if any);
- d) To assess significant environmental effects of the proposed Project and its related activities at different stage of the Project's implementation;
- e) To suggest mitigating measures that can eliminate, control or minimize negative impacts of the Project, and to propose plans for surveillance and monitoring of environmental effects; and
- f) To formulate a general outline of the Environmental Management Plan (EMP) as part of the environmental mainstreaming as well as the Emergency Response Plan (ERP) for the implementation of the Project.

1.4 Legal Requirements

The following legislations act as a foundation to the Project implementation and are referred to in conducting this EIA study:

- a) Environmental Quality (Amendment) Act 2012;
- b) Exclusive Economic Zone Act 1984;
- c) Continental Shelf Act 1966;
- d) Fisheries Act 1985;
- e) Town and Country Planning Act 1976 (Act 172);
- f) Land Conservation Act (Revised 1989) (Act 385);
- g) Land Development Act 1956 (Act 474);
- h) National Forestry Act 1984 (Act 313);
- i) Lembaga Kemajuan Ikan Malaysia Act 1971 (Act 49);
- j) Port Authorities Act (1963) (Revised 1992);
- k) Merchant Shipping (Oil Pollution) Act 1994;
- l) Civil Aviation Regulations 1996 (Amendment 2004); and
- m) Wildlife Conservation Act 2010.

1.4.1 Environmental Quality Act 1974 (Act 127)

As stipulated under the Environmental Quality (Amendment) Act 2012 and the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015, any activity which may have significant environmental impact is categorised as "Prescribed Activity" with an Environmental Impact Assessment (EIA) as the prerequisite component for an approval. Section 34A of the Environmental Quality (Amendment) Act 2012 requires any project proponent with projects falling under the prescribed activity category to submit a report to the

Director General of the Department of Environment (DOE). This report should contain, *inter alia*,

“an assessment of the impact of such activity will have or is likely to have on the environment and the proposed measures that shall be undertaken to prevent, reduce or control the adverse impacts on the environment.”

T1.1 tabulates the multi-prescribed activities of the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 pertaining to the proposed development. The proposed Project consists of multi-prescribed activities, but this EIA study shall only address land reclamation and dredging. The rest of the prescribed activities, *inter alia* disposal of unsuitable dredged materials, industrial estate development, housing, new township and waste treatment and disposal, are subjected to separate EIA reports which shall be undertaken prior to the commencement of the respective activities.

T1.1 Multi-prescribed activities of the proposed Project

| Prescribed Activity | Term | Details |
|------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------|
| Land Reclamation (Second Schedule) | Item 7 | b) Reclamation for man-made island |
| Dredging (First Schedule) | Item 15 | a) Capital dredging |
| Industrial Estate Development (First Schedule) | Item 17 | Development of industrial estate covering an area of 20 hectares or more |
| Housing (First Schedule) | Item 16 | Housing development covering an area of 50 hectares or more |
| New Township (First Schedule) | Item 18 | Construction of new township consisting of 2,000 housing accommodation units or more or covering an area of 100 hectares or more |
| Waste Treatment and Disposal | Item 14 | c) Sewage i. Construction of sewage treatment plant with 20,000 population equivalent or more. |

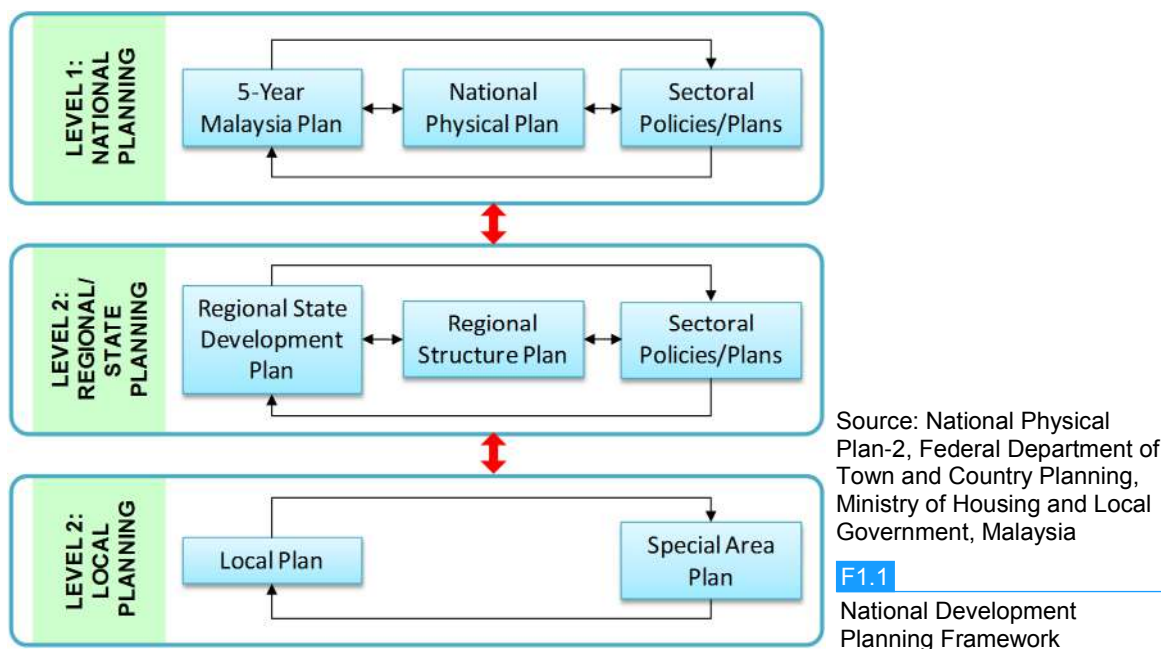
Note: Reclamation and Dredging Topside development (will be conducted later)

1.5 EIA Study Approach

The EIA study involves the collection and analyses of primary and secondary data related to the Project site and its surroundings. The scope of work of this EIA study follows the requirements of the relevant framework, policies, conditions and guidelines.

1.5.1 National Development Planning Framework

In Malaysia, the process of development is managed through a three-tiered process known as the National Development Planning Framework which is represented through the enactment of the Town and Country Planning Act 1976 (Act 172). This Act provides the legal framework which identifies the functions of the federal, state and local governments, as visualized in F1.1.

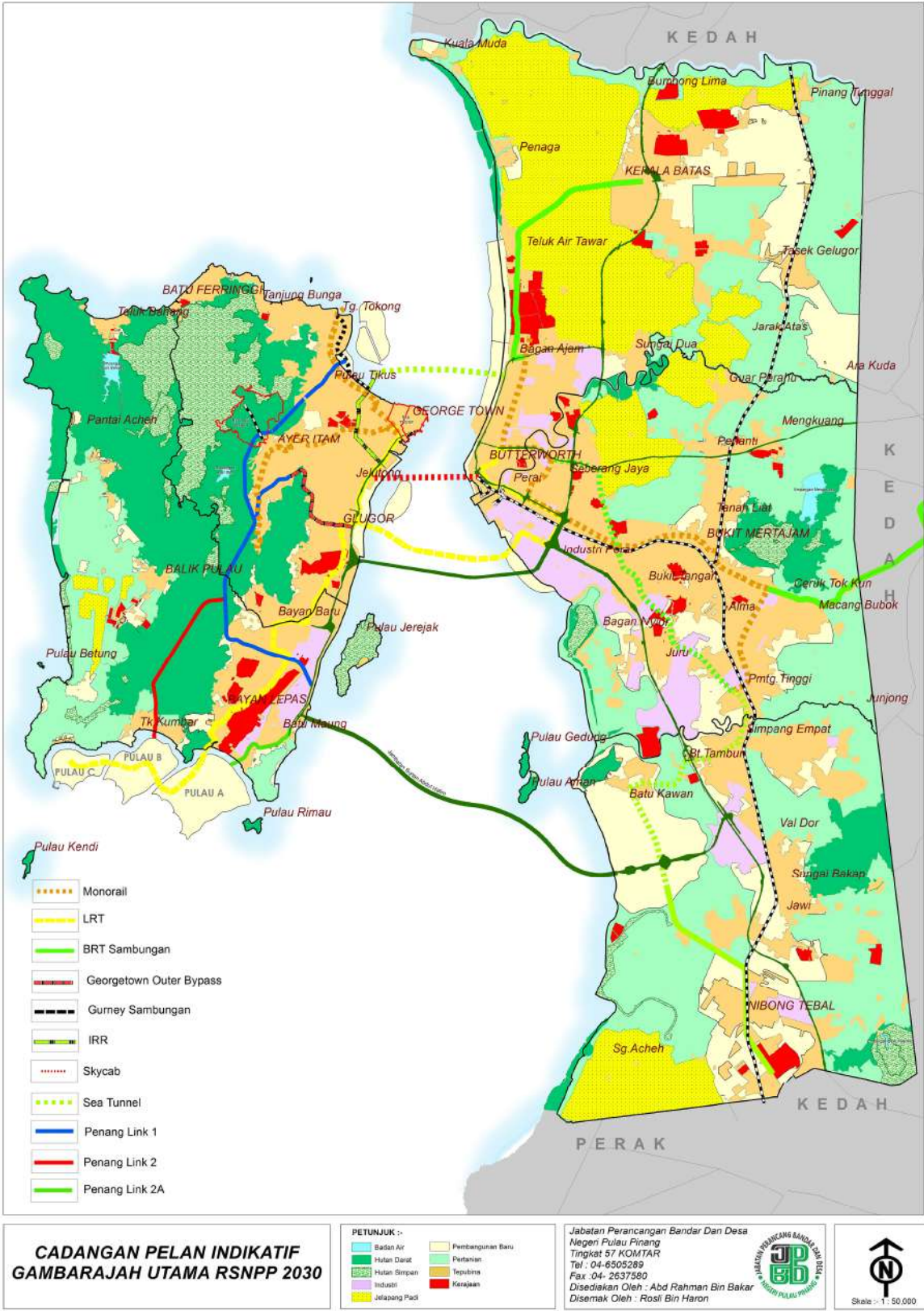


1.5.2 Policies

The following planning policies have been referred to in order to analyze the proposed Project's compliance as summarized in T1.2 and is further elaborated in each sub-section.

T1.2 Policies compliance of the Project

| Policies | Remarks |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Third National Physical Plan (NPP-3) | <p>The proposed PSR development is congruent with the objectives of NPP-3 which provide focus towards achieving a <i>Resilient and Liveable Nation</i> which ensure continued development after year 2020. PSR is planned in stages in order to achieve this aim.</p> <p>PSR also supports three (3) main pillars of NPP-3 which are:</p> <ul style="list-style-type: none"> i) Dynamic urban and rural growth; ii) Spatial sustainability and climate resilience; and iii) Building and inclusive and liveable communities. <p>Please refer to F1.1.</p> |
| Penang Structure Plan (RSNPP) | <p>The proposed Project site is partially gazetted in the RSNPP 2020. However, the three (3) reclaimed islands have been included in the draft RSNPP 2030 (F1.2). The publicity of the draft has recently concluded.</p> |
| Northern Corridor Economic Region (NCER) | <p>The proposed Project supports the government's efforts in reaching NCER's vision in the growth of the Electrical and Electronics (E&E) sector (expansion of Bayan Lepas FIZ).</p> |
| Integrated Shoreline Management Plan (ISMP) Pulau Pinang | <p>The proposed Project is in line with the ISMP as it includes the development of a Smart City and providing new beaches for recreational and tourism activities on the reclaimed islands.</p> |



Source: JPBD Penang

F1.2 Draft of Penang Structure Plan (RSNPP)

1.5.2.1 Third National Physical Plan (NPP-3)

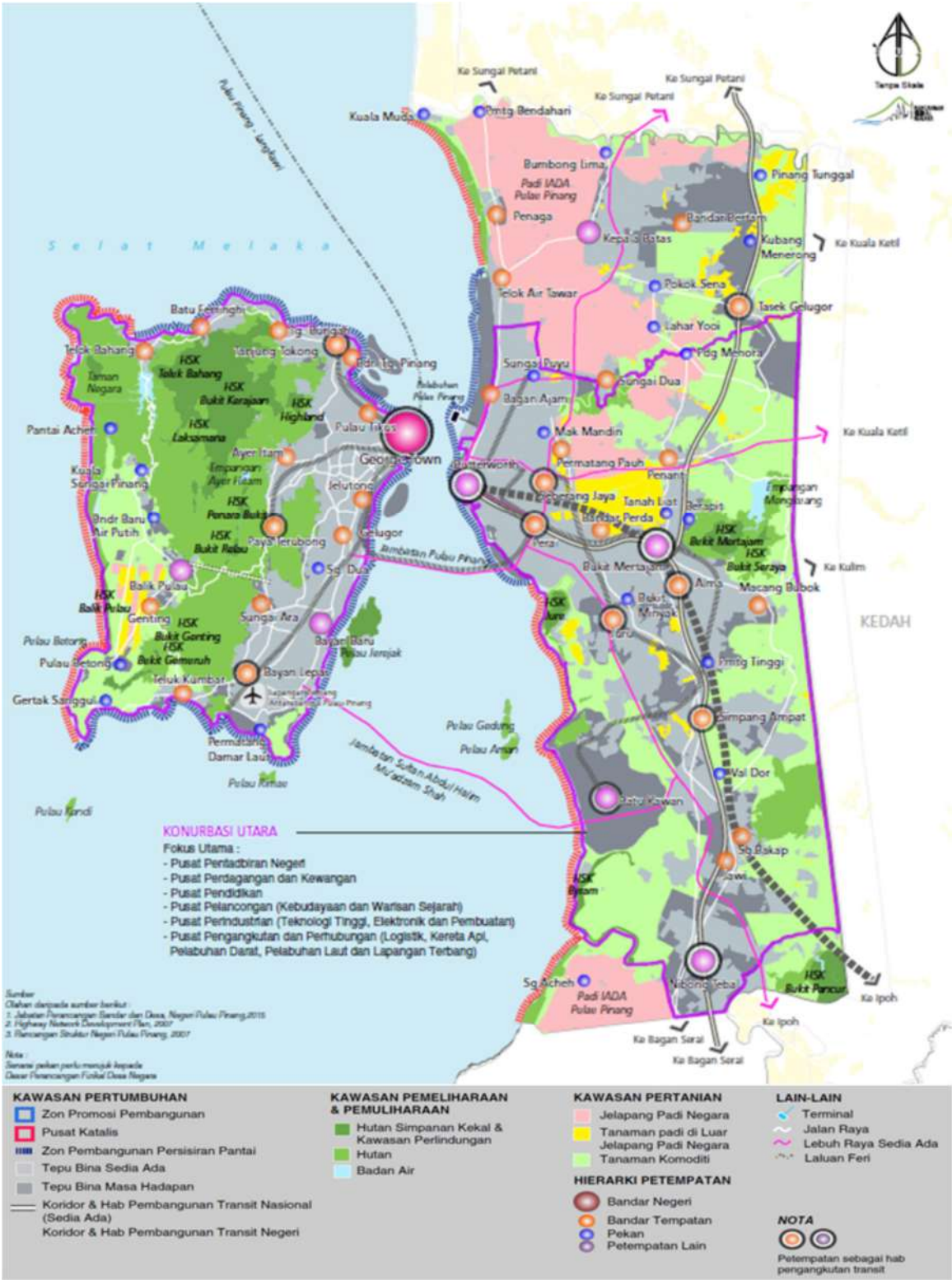
The Third National Physical Plan (NPP-3) determines the development framework and spatial development which are to be interpreted into planning strategies and action at national, state and local levels.

NPP-3 has two (2) planning time frames which are from years 2020 to 2040. This is due to there being only five years remaining in the 2020 planning period to implement the plans. The NPP-3 strategies to be formulated need to take into consideration and be congruent with Sustainable Development Goals (SDGs) at global level. These SDGs target planning requirements up until 2030. In this regard, it therefore requires the NPP-3 physical and spatial planning to be extended beyond 2020 to ensure the country is ready to fulfil its international commitments.

NPP-3 also determines the planning and spatial development framework for interpreting into planning action that is more detailed for implementation at State Government level through the State Structure Plan which becomes the instrument that guides spatial development in overcoming the main issues of the state. The strategy and implementation are interpreted in the form of the Spatial Management Plan for the State of Pulau Pinang (F1.3).

NPP-3 has three main cores, nine (9) strategic directions and 109 actions. The coordination of the NPP-3 main cores with the PSR development is as shown in T1.3.

It is important to note that the proposed Project is currently undergoing the process of evaluation and approval by the National Physical Planning Council (NPPC). It had been brought up to the *Mesyuarat Jawatankuasa Kawal Selia* and subsequently to the *Mesyuarat Jawatankuasa Kerja*. The meeting had advised that a few documentations, including EIA, SIA, TIA, etc. are to be submitted first prior to NPPC (T1.4). The details of the process and current status of PSR are as shown in F1.4.



Source: NPP-3

F1.3 Pulau Pinang Spatial Growth Frame

T1.3 NPP-3 main cores

CORE 1: DYNAMIC URBAN AND RURAL

| Strategy | PSR |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PD 1 Strategy: Urban Growth which is Balanced | PD 1.1 Strengthening Growth Areas <ul style="list-style-type: none"> ■ The proposed PSR will stimulate urban development in Pulau Pinang as a new growth area that complements the present development in the area. ■ PSR will also increase the role of the Northern region economic corridor. |
| | PD 1.2 Increasing Urban Competitiveness <ul style="list-style-type: none"> ■ The proposed development will strengthen the state of Pulau Pinang's competitiveness at world level. ■ In addition to increasing current local functions, PSR will also strengthen economic agglomeration and increase networking connectivity between towns. |
| | PD 1.3 Strengthening Services Sector <ul style="list-style-type: none"> ■ PSR introduces a modern services sector culture in management and administration. ■ More areas and value-added activities in the tourism sector are provided to support the existing tourism industry in Pulau Pinang. |
| | PD 1.4 Strengthening Industrial Cluster <ul style="list-style-type: none"> ■ PSR provides a new industrial area which is integrated as well as in encouraging creative industries by providing adequate infrastructure for this sector in the state of Pulau Pinang. |
| | PD 1.5 Strengthening Investments at Entry Points and Logistics Industry <ul style="list-style-type: none"> ■ PSR is developed close to Pulau Pinang International Airport so as to help increase the functions of this airport. ■ The PSR development is also projected to help increase the functions of the existing ports which locations are not far away. |
| | PD 1.6 Increasing Development of Knowledge-based Human Capital <ul style="list-style-type: none"> ■ The proposals as stated in PSR, especially on the development of industry and services, will result in a society that is skilled and knowledgeable through the provision and distribution of human capital that is comprehensive and balanced. ■ PSR will create research and innovation centres to fulfil industrial needs. ■ PSR will also provide vocational and industrial training facilities through active participation to the private sector. |
| PD 2 Strategy: Integrated Rural Development | PD 2.1 Capitalising Local Resources <p>The construction of fisherman's jetties and facilities as well as encouragement of fishing tourism will be part of PSR development in assisting the locals in capitalising local resources.</p> |
| | PD 2.3 Increasing Rural Basic Infrastructure and Facilities <p>PSR provides the best modern infrastructure throughout the area as well as in providing networking and connectivity with the surrounding areas. These facilities will bring benefits to the less developed areas adjacent to the Project site. The construction of fisherman's jetties and facilities will also be part of the PSR development to ease the daily works of the local fishermen.</p> |
| PD 3 Strategy: Increased Connectivity and Access | PD 3.1 Developing Physical Networks and Connections <p>PSR has continuity within the state as well as with the states in the northern region. Seven (7) bridges will be constructed as part of PSR which contribute to better highway/road connectivity for the reclaimed islands and its surroundings.</p> |
| | PD 3.2 Developing a Comprehensive Rail System Network <ul style="list-style-type: none"> ■ The PSR development provides an integrated transportation network with the concept of "<i>smart mobility and connectivity</i>." ■ PSR is also designed to maximize urban public transportation. |
| | PD 3.3 Increasing Water Transportation Services <p>As an islands-based development, PSR will utilize other services and water transportation like water taxi.</p> |

T1.3 NPP-3 main cores (cont'd)

CORE 2: SPATIAL SUSTAINABILITY AND RESILIENCE TOWARDS CLIMATE CHANGE

| | Strategy | PSR |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KD 1 Strategy: Effective Management of Natural Resources | KD1.2 Development Management at Environmentally Sensitive Areas | <ul style="list-style-type: none"> ■ Guidelines' buffer requirements for ESAs as stated in NPP-3 under ESAs Framework for Peninsular Malaysia (500 m buffer from coral reefs in Pulau Rimau) is considered in PSR development. ■ All measures/offset programmes proposed in this EIA to protect the impacted ESAs will be implemented. |
| | KD1.3 Increasing the Guarantee and Sustainability of Water Resources | <ul style="list-style-type: none"> ■ Management of river basins by implementing the Green River Programme to improve river water quality in the south coast of Penang Island. ■ The PSR development is based on "Smart City" concept which inculcates water conservation and recycling of treated wastewater. |
| | KD1.6 Strengthening the Protection and Conservation of National Archaeological, Heritage and Natural Sites | The reclamation of PSR will provide new land for development and lighten the development pressure off Georgetown and ESAs such as forests, water catchments and paddy fields in Penang Island. |
| KD 2 Strategy: Holistic Land Use and Planning/ Development | KD2.1 Optimising Land Use and Land Availability | <ul style="list-style-type: none"> ■ The PSR development incorporates the concept of sustainable municipal land use management as well as encouraging mixed land use development and sharing the usage. ■ PSR will also practice a transit-oriented development to create more efficient land use. |
| | KD2.2 Managing High Risk Areas | <ul style="list-style-type: none"> ■ The PSR development takes into account the need to strengthen the management of flood-prone areas in the surroundings. ■ As an effort to conserve the shoreline, PSR will provide control of development at the shoreline areas and to conserve the identified eroding beaches such as Pantai Teluk Kumbar. |
| | KD2.3 Managing Growth and Development Sprawl | The reclamation of PSR will provide new land for development and lighten the development pressure off Georgetown and ESAs in south coast of Penang Island. |
| | KD2.4 Managing Rural Land Use in an Integrated Manner | <ul style="list-style-type: none"> ■ Maintain compatibility of rural identity and character with the surroundings. ■ Encourage and protect rural areas with the potential to be developed as a tourism area. ■ The reclamation of PSR will provide new land for development and lighten the development pressure off the villages/settlements in south coast of Penang Island. |
| KD 3 Strategy: Low Carbon Town and Sustainable Infrastructure | KD3.1 Creating Low-Carbon Town and Development | <p>PSR will be developed based on "Smart City" concept in which one of the important criteria is Smart Environment:</p> <ul style="list-style-type: none"> ■ Encourage/Impose methods in conserving electricity and usage of solar energy. ■ Encourage/Impose methods in water conservation and recycling of treated wastewater. ■ Encourage the usage of public transportation such as LRT. ■ Encourage the usage of bicycles with the inclusion of cycle lanes on PSR. ■ Encourage/Impose recycling and segregating of solid wastes. |
| | KD3.2 Realising the Utilization of Sustainable Energy | |
| | KD3.3 Carrying out Integrated Water Recycling Management | |
| | KD3.4 Developing Green Mobility | |
| | KD3.5 Strengthening Management of Solid Wastes which is Integrated and Sustainable | |

T1.3 NPP-3 main cores (cont'd)

CORE 3: FORMATION OF AN INCLUSIVE AND RESILIENT COMMUNITY

| Strategy | PSR |
|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KI 1 Strategy: Living Environment that is Complete and of Quality | KI1.1 Providing Suitable Housing at a Desirable Location <ul style="list-style-type: none"> ■ The PSR development will comply with the current housing policies of the State of Pulau Pinang regarding the provision of housing according to the economic categories and needs of the population. ■ More affordable housing for the B40 and M40 target groups will be provided around the transportation transit nodes in the town. 30% of public housing will be allocated on PSR. ■ Providing housing for targeted groups as well as with suitable designs and facilities. |
| | KI1.2 Increasing Access to Quality Community Facilities <ul style="list-style-type: none"> ■ PSR will provide integrated community facilities at the location which could be accessed by the local community. ■ The design of the community facilities will be of high quality, without obstacles and easy to maintain. ■ Encourage cooperation between agencies and the developer to develop the public land reserves at the housing areas. ■ Provide schooling facilities and health services around the housing areas. |
| | KI1.3 Increasing and Facilitating Access to Employment and Economic Opportunities <p>Integrated development at the PSR area will prioritise the residents' access to education facilities, employment centre, commerce and to the public transportation transit centre.</p> |
| KI 2 Strategy: Creating Community Space and Harmony | KI2.1 Providing Public Space as Active Space for Community Integration <p>Develop public space that can be used as a focus area that is attractive and of quality as being the centre of a healthy community.</p> |
| | KI2.2 Strengthening the Importance of Culture and Heritage <p>Highlighting unique features that can be used as the town's and area's identity for festivals, and cultural and arts activities.</p> |
| | KI2.3 Creating a Safe Environment <ul style="list-style-type: none"> ■ Preventing urban crime by applying the Safe Town Programme and integrating with the usage of designing principles that aid towards crime prevention. ■ Utilise a smart technology system for public security and the town's resilience. |
| | KI2.4 Making Mainstream a Healthy and Clean Lifestyle <ul style="list-style-type: none"> ■ Encourage efforts to reduce air pollution in the town. ■ Develop all areas that are dirty and neglected. ■ Encourage/Impose recycling. |
| KI 3 Strategy: Living Environment that is Complete and of Quality | KI3.1 Increasing Community Involvement <p>Increase public involvement during the planning process at local level.</p> |
| | KI3.2 Incorporating Smart Collaboration and Sharing in Community Development <ul style="list-style-type: none"> ■ Solidify cooperation between the Local Authority and community in developing community projects. ■ Encourage cooperation between agencies and developer in developing land reserves for public facilities which have not been carried out at the existing residential areas. ■ Increase the level of schooling and health services in the interiors. |

T1.4 Documents/information for NPPC process

| Item | Remarks |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The proposed development should be in line with the Penang Structure Plan. Revision of the Penang Structure Plan must be approved first prior to NPPC. | The proposed Project site is partially gazetted in the RSNPP 2020. However, the three (3) reclaimed islands of PSR have been included in the draft RSNPP 2030. The publicity of the draft was concluded recently (<i>please refer to F1.2</i>). |
| A Local Plan as per Subsection 12 (2) LP should be approved and gazetted prior to NPPC. | The proposed Project site for the three (3) reclaimed islands is outside of any Local Authority's jurisdiction. Therefore, it is a must to prepare a Local Plan for the Project area. The Project Proponent is currently gazetting the 3 PSR islands under Section 7, Local Government Act 1974 (Act 171) to extend the powers of the Local Authority (MBPP) in including the Project area as part of Local Plan. |
| The development must provide 30% of affordable housing. | The State has committed to provide public housing for the affected community. |
| Describe the job opportunity and industrial development. | The information is provided in the <i>Statement of Need</i> (Chapter 3 of this EIA report). |
| A Social Impact Assessment (SIA) study addressing the feasibility of the project together with appropriate mitigating measures for the affected fishermen and local community must be submitted prior to NPPC. | The SIA study is currently in progress and shall be submitted for approval by Town and Country Planning Department (JPBD). A Social Management Plan (SMP) framework must be included in the SIA study. A committee from JPBDMSM will assess the SIA and bring it forward to the NPCC. |
| Provide facilities for the fishermen to continue their fishing activities. | Appropriate mitigating measures for the fishermen are included in <i>Chapter 8: Pollution Prevention and Mitigating Measures</i> of this EIA Report. The mitigating measures and plans for the fishermen are further detailed in the SIA report. The DOE and JPBD will assess these reports for NPPC. |
| Provide the location of sand source and volume of sand required for reclamation. | The location of sand source and volume of sand required for reclamation are stated in <i>Chapter 5: Project Description</i> of this EIA Report. |
| Submit a Marine Traffic Risk Assessment (MTRA) report to the Marine Department. | The MTRA is being undertaken. The report will be submitted soon. |
| Submit a Hydraulic Study report to the Department of Irrigation and Drainage (DID). | The Hydraulic Study report has already been submitted to DID for approval. |
| Submit a Detailed Environmental Impact Assessment Study to the Department of Environment (DOE). | This particular EIA report is prepared for approval by the DOE Putrajaya. |
| Prepare a Traffic Impact Assessment (TIA) Report in accordance with the Road Safety Audit for approval by the Public Works Department (PWD). | The TIA report shall be submitted to the PWD for approval. |
| Submit a Soil Investigation (SI) report to the Department of Minerals and Geoscience (JMG). | The SI report has been submitted to JMG. |
| Prepare a Fisheries Impact Assessment (FIA) report for approval by the Department of Fisheries (DOF). | The FIA study has been completed and submitted to DOF. |
| Comments from the Department of Civil Aviation (DCA) must be obtained. | Comments from the DCA have already been obtained. Plots and all height restrictions were approved. |
| Alternatives for water supply (desalination plant) must be addressed. | The details of water supply are included in this EIA report, <i>Chapter 5: Project Description</i> . |



1.5.2.2 Penang Structure Plan (RSNPP)

The RSNPP was prepared in accordance with the requirements and provisions of Part III of the Town and Country Planning Act 1976 (Act 172). The preparation of RSNPP was to complement the system of physical planning in addition to translating policies of the NPP. It is also to harmonize the policies of existing and future development plans of the state.

The RSNPP 2020 was gazetted on 28th June 2007. According to Subsection 11(1), Town and Country Planning Act (Act 172):

“A structure plan that has come into effect shall be subjected to review every five years in tandem with the preparation of the State’s five-year development plans, and the review shall relate to the whole of the State.”

Sub-section 11(2) also states:

“After a structure plan for a State has come into effect, the State Director may submit to the Committee and shall, if so directed by the Committee, submit to it, within a period specified in the direction, proposals for such review or alterations to the plan as appear to the State Director to be expedient or as the Committee may direct, as the case may be, and the proposals may relate to the whole or to part of the State.”

The State Structure Plan 2020 policies related to land reclamation development and the PSR project are as follows (T1.5):

T1.5 RSNPP 2020 Policies

| RSNPP 2020 Policy | Measures | PSR Project |
|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DSU8 Land reclamation as an alternative in providing a new development area will be limited to the area identified. | L1: Land reclamation is only permitted for projects that have been identified and approved by the State Government and National Physical Planning Council (MPFN). | The PSR development has obtained approval from the State Government via the State Planning Committee meeting on 27 May 2016 and has submitted an application to MPFN for advice under paragraph 2A(2)(b) Town and Country Planning Act 1976 (Act 172). |
| | L2: Land reclamation development needs to comply with the guidelines of ICZM (Integrated Coastal Zone Management). | The PSR development will fully comply with the ICZM (Integrated Coastal Zone Management) guidelines. |
| | L3: The development of land reclamation needs to comply with the Integrated Shoreline Management Plan (ISMP) prepared by DID. | The PSR development will fully comply with the Integrated Shoreline Management Plan (ISMP) prepared by DID. |
| | L4: The actual shape of the reclamation area will be determined by detailed studies such as EIA, hydrodynamic, hydrology and so on and needs to obtain approval from the State Planning Committee. | This EIA has assessed impacts based on hydraulics. The scenarios chosen for the hydraulic modelling is based on Project activities which include dredging and reclamation of actual shapes of PSR islands. ** |
| | L8: To integrate development at the reclaimed area with the surrounding developments. | Will be complied with. |

However, a review of RSNPP 2020 had been carried out by the Pulau Pinang Department of Town and Country Planning from 2012. The RSNPP 2030 Review had passed the stage of Review Report (*Laporan Tinjauan*) and is presently preparing the RSNPP 2030 Draft. The RSNPP 2020 Review has taken into account all the committed mega developments which are to be synchronised with the state’s development cores. This PSR development was also taken into consideration as a new development area in the RSNPP 2030 Review as shown in F1.5.



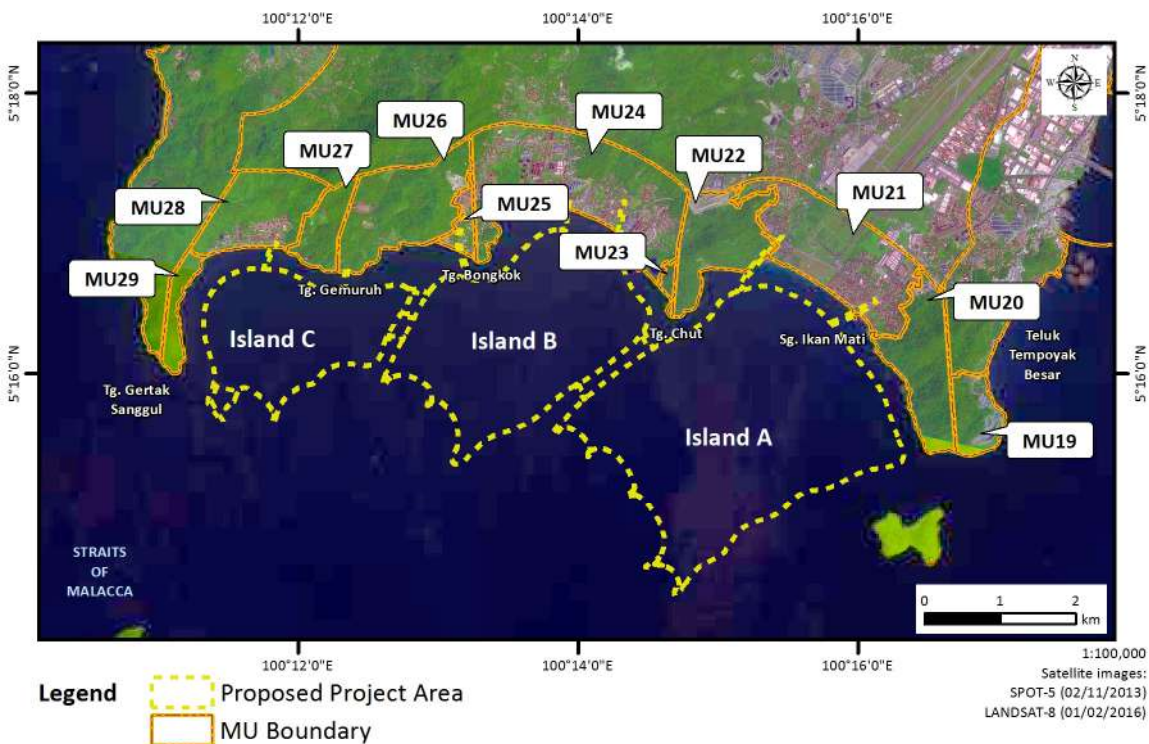
F1.5 Penang Structure Plan (RSNPP) review process flowchart

1.5.2.3 Northern Corridor Economic Region (NCER)

The NCER development programme is an initiative by the Government to accelerate economic growth and increase income levels in the north of Peninsular Malaysia which encompasses Perlis, Kedah, Pulau Pinang and the north of Perak. It aims to be among the world's best in a number of its key economic sectors, such as electrical and electronics (E&E), agriculture, tourism and biotechnology. Penang is home to one of the most important sectors of the economy which is the E&E sector. The Project involves the expansion of the Bayan Lepas Free Industrial Zone (FIZ) which houses major E&E companies in Malaysia. Therefore, the proposed Project fully supports the Government's efforts in achieving NCER's vision.

1.5.2.4 Integrated Shoreline Management Plan (ISMP) Pulau Pinang

The Project area covers the southern coastline of Penang Island where the ISMP for Penang has compartmentalized it into Management Units (MU). The MUs are shown in F1.6. A summary of the MUs pertaining to the proposed Project is tabulated in T1.6.



F1.6 MUs at the south coast of Penang Island

T1.6 Description of the MUs at the south coast of Penang Island

| Management Unit | Proposed Coastal Development Plan | Project | Compliance |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MU19 and MU20: (Teluk Tempoyak Besar - Teluk Ikan Mati) | There is presently no known major proposed development in this MU. | - | The proposed Project is partially in line with the ISMP as it includes the development of a Smart City and providing new beaches for recreational and tourism activities on the reclaimed islands. |
| MU21 and MU22: (Sungai Ikan Mati - Sungai Bayan Lepas) | The RSNPP 2020 has designated this area for reclamation for the expansion of the Bayan Lepas International Airport. Additional land may also be reclaimed to create more industrial areas under the Penang Cyber City (PCC) development. | There will be no airport expansion on PSR. However, PSR includes a “Smart City” consisting of industrial, commercial and residential area. | |
| MU23 and MU24: (Tanjung Chut - Teluk Pak Pajuh) | Under the RSNPP 2020, this MU has been designated as part of the Southern Beach Tourism Zone comprising Gertak Sanggul, Bayan Lepas and Teluk Kumbar areas. | The proposed PSR Project plans to enhance the existing coastline features by providing new jetties for fishermen and conducting shoreline enhancement to further increase the marketability of the area. The PSR islands will also have new beaches fronting the sea. | |
| MU25 and MU26: (Tanjung Bongkok - Tanjung Gemuruh) | | | |
| MU27 and MU29: (Tanjung Gemuruh - Tanjung Gertak Sanggul) | | | |

1.5.3 Guidelines

The following are the guidelines referred to in conducting this EIA study:

- a) A Handbook of EIA Guidelines. Department of Environment Malaysia. 1987 (3rd Edition, 2008);
- b) Environmental Impact Assessment (EIA) Guidelines in Malaysia, 2016;
- c) Environmental Impact Assessment (EIA) Guidance Document for Coastal and Land Reclamation;
- d) Guidelines on Erosion Control for Development Projects in the Coastal Zones 1/97;
- e) Guidelines of Preparation of Coastal Engineering Hydraulic Study and Impact Evaluation (for Hydraulic Studies using Numerical Models) (Fifth Edition). 2001;
- f) Environmental Impact Assessment (EIA) Guidance Document for Sand Mining/ Dredging Activities;
- g) Guidelines for Prevention and Control of Soil Erosion and Siltation in Malaysia;
- h) The Planning Guidelines for Environmental Noise Limits and Control;
- i) Buku Panduan Kawasan Sensitif Alam Sekitar. Department of Environment Malaysia. 1993;
- j) Long-term Sea Level Change in the Malaysian Seas from Multi-mission Altimetry Data. Din *et al.*, 2012; and
- k) Guidelines on the Economic Valuation of the Environmental Impacts for EIA Projects. Department of Environment. 2010.

1.5.4 Engagements with Government Authorities and Agencies

Several engagements have been conducted with government authorities and agencies such as DOE, DID, DOF and JPBD. Their concerns have been addressed in this report.

1.5.5 EIA (Second Schedule) Terms of Reference Approval Conditions

The Terms of Reference (TOR) approval conditions as tabulated in T1.7 have been taken into consideration and included in this EIA study.

T1.7 EIA (Second Schedule) TOR approval conditions

| Approval Conditions | Remarks |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. All comments from the agencies involved and the Review Panels that have been submitted to you before this, either in writing or which were discussed and provided in the minutes of the TOR Panel Review Meeting as in the letter dated 14 th April 2016 [Ref: JAS 50/013/100/079(31)], must be taken into consideration. | This EIA has taken into consideration all comments from the agencies involved and the Review Panels, both in writing and as discussed in the minutes of TOR Panel Review Meeting. |
| 2. The proposed Project must be referred to the National Physical Planning Council (NPPC) and must be in line with the Structure Plan or Local Plan of the Project area which must be referred to and stated in the EIA Report. | The proposed Project has been referred to the NPPC and the policies pertaining to this Project have been referred to and described in <i>Chapter 1: Introduction</i> . |
| 3. This EIA study must be conducted quantitatively and comprehensively, and all of the pollution mitigating measures proposed must also be specifically explained regarding the identified critical issues. | Evaluation of impacts and pollution mitigating measures proposed are explained specifically, quantitatively and comprehensively according to the identified critical issues. |
| 4. Detailed explanation pertaining to the location of the surrounding land use which among others cover: | |
| a) The actual Project location by showing the coordinates of the proposed Project's area containing at least four (4) coordinate points of the corners of the Project site. | The Project location with its coordinates are shown in <i>Chapter 1: Introduction</i> . |
| b) The latest land use plan which is clear, detailed and complete within a 5-km radius (with 250 m, 500 m and so on intervals) and clearly showing every environmental sensitive receptors near the Project area as well as within the zone of impact in A3 size, as well as in taking into account of the environmental sensitive receptors which are in the Zone of Impact. | The latest land use plan within a 5-km radius with 250 m intervals is shown in <i>Chapter 5: Project Description</i> . |
| c) A list of socio-economic activities and committed developments including industrial, commercial, institutional and residential activities as well as other environmental sensitive receptors around the proposed Project (5-km radius) in the form of a table. | Socio-economic activities and committed developments including industrial, commercial and residential activities, as well as environmental sensitive receptors around the proposed Project (5-km radius) are tabulated in <i>Chapter 6: Existing Environment</i> . |

T1.7 EIA (Second Schedule) TOR approval conditions

| Approval Conditions | Remarks |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>d) A location plan that is clear which shows and highlights the distance between the proposed Project's location to that of environmentally sensitive areas within a radius of at least 5 km, among others such as the following:</p> <ul style="list-style-type: none"> i) Human settlements; ii) Fishermen's jetties and ports; iii) Tourism areas like chalet, resort, recreational beach; iv) Environmentally sensitive areas like coastal mangrove swamp, marine and terrestrial habitats and ecologically sensitive area. | <p>A clear map showing the Environmentally Sensitive Areas (ESAs) and a table tabulating the distance between the proposed Project's location and the ESAs within a radius of at least 5 km is shown in <i>Chapter 6: Existing Environment</i>.</p> |
| <p>e) Any maps or diagrams that are shown must be the most up-to-date, clear, complete with legend, the Project area marked, with compass directions and legible.</p> | <p>All maps shown comply with the stated requirements.</p> |
| <p>f) All of the maps used must have their legitimate sources stated.</p> | <p>All maps are from legitimate sources and these are also stated accordingly.</p> |
| <p>g) Sampling locations for air quality, marine water quality and noise must be shown in the form of diagrams, maps and so on which clearly show in markings of these locations. The diagrams, maps and so on must be submitted in A3 size in the EIA report.</p> | <p>The maps showing air quality, water quality and noise sampling stations are submitted in A3 size.</p> |
| <p>h) Sufficient and safe buffer zones between the boundaries of the proposed Project's site and the nearest environmental sensitive receptors, which are obtained from the EIA study, must be proposed in the EIA report to be submitted to the Local Authority.</p> | <p>Sufficient and safe buffer zones between the ESAs and Project site boundary are proposed in <i>Chapter 8: Pollution Prevention and Mitigating Measures (P2M2)</i> (e.g.: 500 m from coral reefs at Pulau Rimau).</p> |
| <p>5. Clear and specific explanations regarding the Project concept, components and construction methods that will be carried out, including:</p> | |
| <p>a) Reclamation of Islands A, B and C;</p> | |
| <p>i) Selection of the layout and landform of the reclaimed islands and breakwater structures must be based on several options that have been assessed through hydraulic modelling and proven to result in the least impact towards the environment, socio-economy and aspects of navigation.</p> | <p><i>Chapter 4: Project Options</i> shows various options and their respective hydraulic modelling results. The option chosen has the least hydraulic impact.</p> |
| <p>ii) Explain the reclamation's method statement to be used by taking into account the most minimal impacts towards the environment.</p> | <p>The method statement was selected by considering the least impacts towards the environment as detailed in <i>Chapter 5: Project Description</i>.</p> |
| <p>iii) The criteria of the sand source to be used for the reclamation must be stated clearly in terms of the quantity and quality which is the type of sand and silt content composition (percentage) to ensure that minimal sedimentation impact towards the marine ecosystem surrounding the reclamation area.</p> | <p>The criteria of the sand source to be used for the reclamation are stated clearly in <i>Chapter 5: Project Description</i>.</p> |

T1.7 EIA (Second Schedule) TOR approval conditions (cont'd)

| Approval Conditions | Remarks |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| iv) For the source of reclamation material (marine sand) of which supplier is already identified, the name of this marine sand supplier who is licensed by the Relevant Authority and the location must be stated. If the sand source supplier is yet to be known, the location of the expected sand source area is to be stated so that the route from the sand source to the proposed Project's site could be established. | The locations of the sand source materials with their respective licensed suppliers are included in <i>Chapter 5: Project Description</i> . |
| v) The EIA study must address sand mining and disposal of dredged materials activities as well as their transportation. | The locations of sand source and disposal ground for dredged materials are shown in <i>Chapter 5: Project Description</i> . These activities are subjected to separate EIA studies which will be conducted later. |
| b) Topside development on the reclaimed Islands A, B and C: | |
| i) The development components on Islands A, B and C must be stated clearly. | The development components on Islands A, B and C are stated in <i>Chapter 5: Project Description</i> . |
| ii) Show the conceptual layout plans of the topside development on Islands A, B and C. | The conceptual layout plans of the topside development on Islands A, B and C are shown in <i>Chapter 5: Project Description</i> . |
| 6. The predicted impact assessment of this proposed Project must be conducted comprehensively and in detail , including: | |
| a) Hydraulic Impact Study i) To identify the erosion and accretion that are expected to occur around the proposed Project's area including the nearby coastline, impact of flooding at the river mouths, possible change in water quality in the event where no flushing occurs within the reclamation area, and other relevant impacts regarding hydraulics and hydrodynamics. ii) To study sediment plume dispersion generated by the reclamation activities so as to assess the impacts on marine ecology. | A comprehensive hydraulic impact study was conducted and submitted to DID on 6 th January 2017 (Ref: DNA/EA/15/078-034). The results of the hydraulic study are incorporated in <i>Chapter 7: Evaluation of Impacts</i> and <i>Chapter 8: Pollution Prevention and Mitigating Measures (P2M2)</i> . |
| b) Impacts on ESAs and Marine Ecology To identify and state mitigating measures for ESAs such as coastal wetlands, marine and terrestrial habitats, fishing grounds and ecologically sensitive areas. | The impacts on ESAs and Marine Ecology are addressed in <i>Chapter 7: Evaluation of Impacts</i> . The measures are addressed in <i>Chapter 8: Pollution Prevention and Mitigating Measures (P2M2)</i> . |
| c) Impacts on Water Quality | |
| i) The discharge limit for sewage effluents must adhere to Standard A (Environmental Quality (Sewage) Regulations 2009). | The discharge limit for sewage effluents for the future topside development shall adhere to Standard A (Environmental Quality (Sewage) Regulations 2009). |
| ii) The water quality assessment must show in detail the effluents discharge location by also stating the quantity and quality of the effluents produced including flow rate, loading, etc. | The water quality assessment addresses the impacts from dredging and reclamation works. The effluents discharge location and assessment shall only be addressed once the topside development begins. |
| iii) The water quality modelling must show clearly the impacts from the effluents discharge to the sea which are compared with the National Marine Water Quality Standards published by the DOE. | Water quality modelling shall be conducted for effluents discharge once the topside development commences as per <i>Attachment 1</i> (Ref: DNA/EA/15/078-018). |

T1.7 EIA (Second Schedule) TOR approval conditions (cont'd)

| Approval Conditions | Remarks |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>d) Impacts on Navigability, Navigation Safety and Marine Traffic The findings from the impact assessment on navigability and navigation safety must be carried out in detail through navigation simulations in the EIA Report.</p> | <p>The impacts on navigability, navigation safety and marine traffic are addressed in <i>Chapter 7: Evaluation of Impacts</i>.</p> <p>Impacts assessment for marine traffic and navigation safety is addressed. However, navigation simulations shall only be conducted once the marina on the reclaimed island is completed as per <i>Attachment 1</i> (Ref: DNA/EA/15/078-018).</p> |
| <p>e) Solid Waste and Scheduled Waste Management</p> | |
| <p>i) Solid waste management methods must adhere to the Solid Waste Management and Public Cleansing Act 2007 under the National Solid Waste Management Department.</p> | <p>Solid waste management methods shall adhere to the Solid Waste Management and Public Cleansing Act 2007 under the National Solid Waste Management Department.</p> |
| <p>ii) Scheduled wastes management methods must adhere to the Environmental Quality (Scheduled Wastes) Regulations 2005, Environmental Quality Act, 1974.</p> | <p>Scheduled wastes management methods shall adhere to the Environmental Quality (Scheduled Wastes) Regulations 2005, Environmental Quality Act, 1974.</p> |
| <p>f) Socio-economy i) A Public Dialogue session with the affected locals and relevant government agencies must be conducted to inform the public and obtain feedbacks/comments on the proposed Project regarding the environment. The findings from this Public Dialogue must be included in the EIA Report; and ii) The socio-economic study must include, among others, the local residents at the nearby settlements and other sensitive receptors.</p> | <p>Impacts on socio-economy are addressed in <i>Chapter 7: Evaluation of Impacts</i>.</p> <p>A Public Dialogue session with the affected locals and relevant government agencies was conducted on 17th December 2016. The findings from this Public Dialogue are included in <i>Chapter 6: Existing Environment</i>.</p> |
| <p>g) Economic Valuation of the Environmental Impacts Study The Economic Valuation of the Environmental Impacts study must be conducted in detail and monetised, and following the “<i>Guidelines on the Economic Valuation of the Environmental Impacts for EIA Projects</i>” published by the Department of Environment.</p> | <p>The Economic Valuation of the Environmental Impact Study is included in <i>Chapter 7: Evaluation of Impacts</i>.</p> <p>Detailed study on Economic Valuation of the Environmental Impacts is conducted and follows the “<i>Guidelines on the Economic Valuation of the Environmental Impacts for EIA Projects</i>” published by the DOE.</p> |
| <p>h) Erosion and Sedimentation Impacts from Reclamation Activities The impacts from erosion and sedimentation from reclamation activities must be stated clearly in the EIA report. This impact assessment must follow the “<i>Guidance Document for Addressing Soil Erosion and Sediment Control Aspects in Environmental Impact Assessment (EIA) Report</i>”, published by the Department of Environment. An ESC Report must be included with the conceptual plan which clearly shows Best Management Practices (BMPs) to control erosion and sedimentation at the proposed Project’s area. The ESCP Consultant must be registered with the Department of Environment and must possess the Certified Professional on Erosion and Sediment Control (CPESC) certification.</p> | <p>The ESCP shall be prepared by a registered consultant and submitted to DID for approval before the execution of the topside development.</p> |

T1.7 EIA (Second Schedule) TOR approval conditions (cont'd)

| Approval Conditions | Remarks |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i) Impacts on Noise Noise assessment must be conducted based on "The Planning Guidelines for Environmental Noise Limits and Control" published by the Department of Environment. | Impacts on noise are addressed in <i>Chapter 7: Evaluation of Impacts</i> . Noise assessment is conducted based on "The Planning Guidelines for Environmental Noise Limits and Control" published by the DOE. |
| 7. The proposed mitigation measures must include the following: | |
| a) All of the measures as stated in the EIA Report must be clear in their concepts and in detail; and | Proposed mitigation measures and their concepts are stated clearly in <i>Chapter 8: Pollution Prevention and Mitigating Measures (P2M2)</i> . |
| b) Commitment from the Project Proponent to apply measures that are effective and proven in minimising negative impacts towards the environment. | The Project Proponent has committed to apply the most effective and feasible measures in minimising negative impacts towards the environment. |
| 8. The methodology of each study must be stated clearly in the EIA Report. | The methodology of each study is included in <i>Chapter 6: Existing Environment</i> . |
| 9. Preparation of the Emergency Response Plan (ERP) document must also be planned during the preparation stage of the EIA Report. | A framework of the ERP document is included in <i>Chapter 9: Environmental Management Plan (EMP)</i> . |
| 10. Reference to the related guidelines is to be based on the latest guidelines as published by this Department as well as the guidelines from the other relevant agencies. | Guidelines that are referred to in conducting this EIA study are listed in <i>Chapter 1: Introduction</i> . |
| 11. The Project Implementation Schedule must be included. | The Project Implementation Schedule is included in <i>Chapter 5: Project Description</i> . |

1.5.6 Other Reports

This EIA study has been conducted comprehensively, supported by findings from the various technical studies carried out separately and concurrently for the PSR Project:

- a) Hydraulic Study Report;
- b) Fisheries Impact Assessment (FIA) Report;
- c) Social Impact Assessment (SIA) Report;
- d) Traffic Impact Assessment (TIA) Report;
- e) Water Quality Study for the Proposed Reclamation and Dredging Works for the PSR Scheme, Penang;
- f) Penang Reclamation Preliminary Assessment: Sea Turtle Nesting Status on Beaches of Southern Penang Island; and
- g) Penang Reclamation Hydraulic Study Independent Review: Tsunami Impact Assessment.

Hydraulic Study, FIA, SIA and TIA reports are prepared for submission to the respective authorities while the rest are studies conducted pro-actively by the Project Proponent.

1.6 Structure of the EIA Report

The format and framework of the EIA report is based on the new “Environmental Impact Assessment (EIA) Guidelines in Malaysia (2016)” and a seminar by DOE titled “Seminar On The New Dimension Of EIA In Malaysia 2016” on the 9th and 10th of November 2016.

The EIA report will be structured as follows:

- a) Volume 1: Executive Summary;
- b) Volume 2: Main Report; and
- c) Volume 3: Appendices.

Volume 1: Executive Summary

The executive summary is written in both Bahasa Malaysia and English. The main points covered in the main report are summarized according to the chapters of the Main Report (Volume 2) and presented in this volume. It includes descriptions of the Project components, impacts and measures proposed as well as recommendations for an EMP.

Volume 2: Main Report

This volume covers the interpretation data from the EIA study. Data and findings from the above-mentioned reports (*Section 1.5.5*) were also referred to in completing this EIA report.

| | |
|------------|----------------------------------------------|
| Chapter 1 | Introduction |
| Chapter 2 | Terms of Reference (TOR) of EIA study |
| Chapter 3 | Statement of Need |
| Chapter 4 | Project Options |
| Chapter 5 | Project Description |
| Chapter 6 | Existing Environment |
| Chapter 7 | Evaluation of Impacts |
| Chapter 8 | Pollution Prevention and Mitigation Measures |
| Chapter 9 | Environmental Management Plan (EMP) |
| Chapter 10 | Study Findings |
| References | |

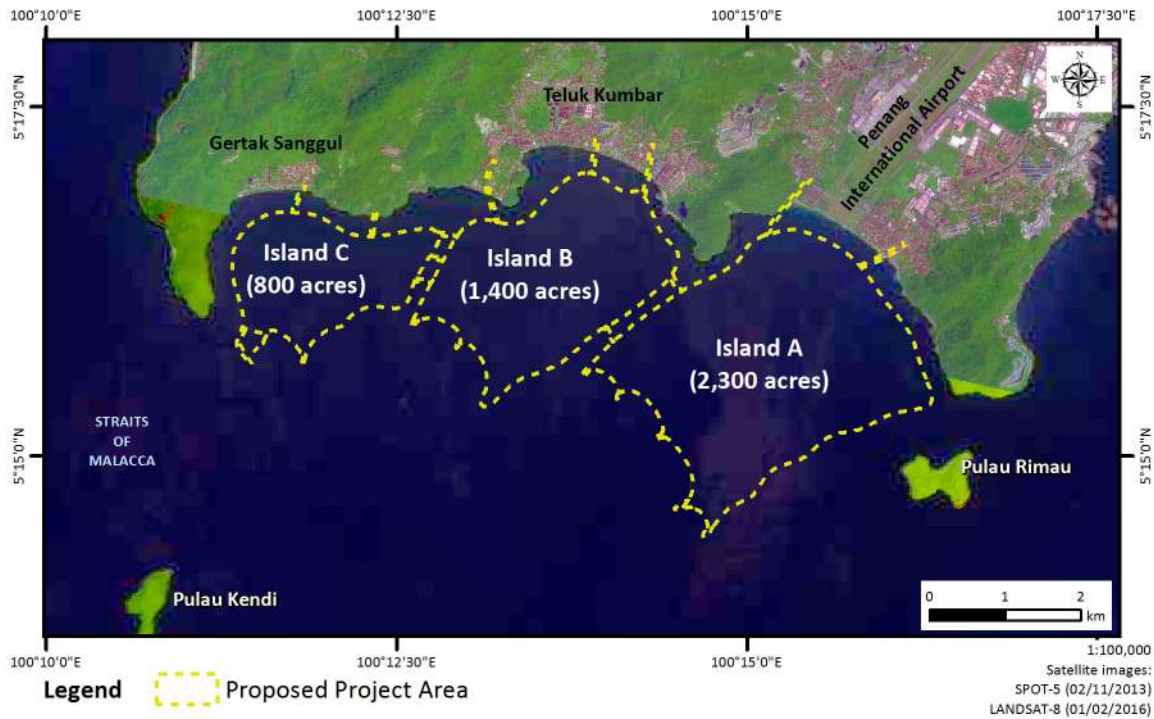
Volume 3: Appendices

This volume provides all certificates of analysis for sampling results, minutes of Focus Group Discussions (FGDs) and informal conversations, and information on the Public Dialogue. The appendices are allocated as the following:

| | |
|------------|----------------------------------------------------------|
| Appendix A | Terms of Reference |
| Appendix B | Focus Group Discussions (FGD) and Informal Conversations |
| Appendix C | Public Dialogue |
| Appendix D | Socio-economic Additional Survey |
| Appendix E | Certificate of Analysis |
| Appendix F | Statement of Need |

1.7 Project Background

This Project consists of the reclamation of three man-made islands and is commonly known as the Penang South Reclamation (PSR) Project. It covers a total area of 4,500 acres (F1.7) with the islands being fully owned by the Penang State Government.



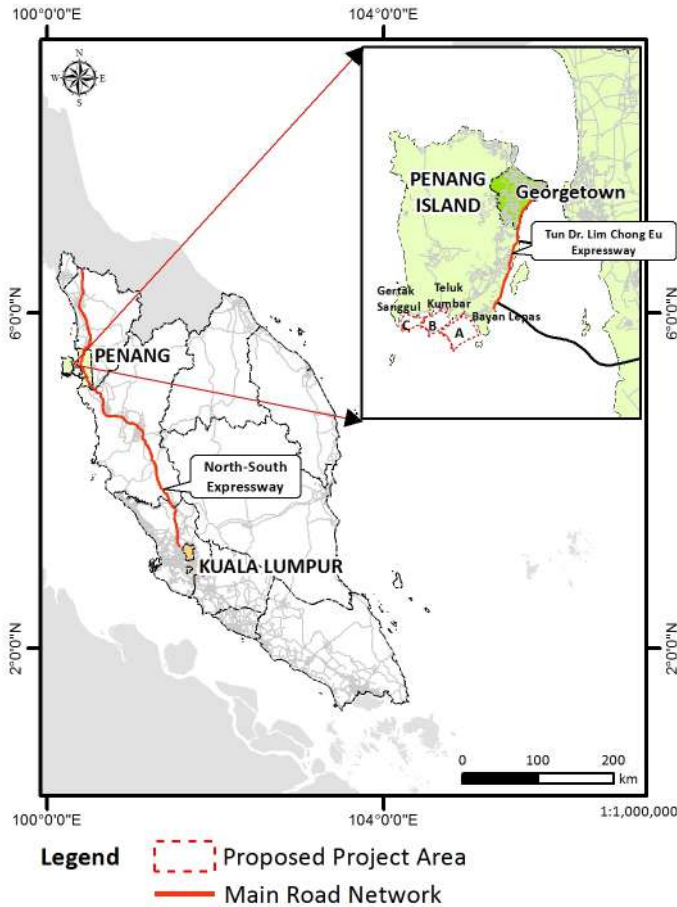
F1.7 Area of Islands A, B and C of the PSR Project

The proposed Project is projected to help keep the economic growth engines humming and for Penang and Malaysia to keep moving up the value chain. The islands shall be part of the expansion of the Bayan Lepas Industrial Zone as well as in providing land for the development of a Smart City.

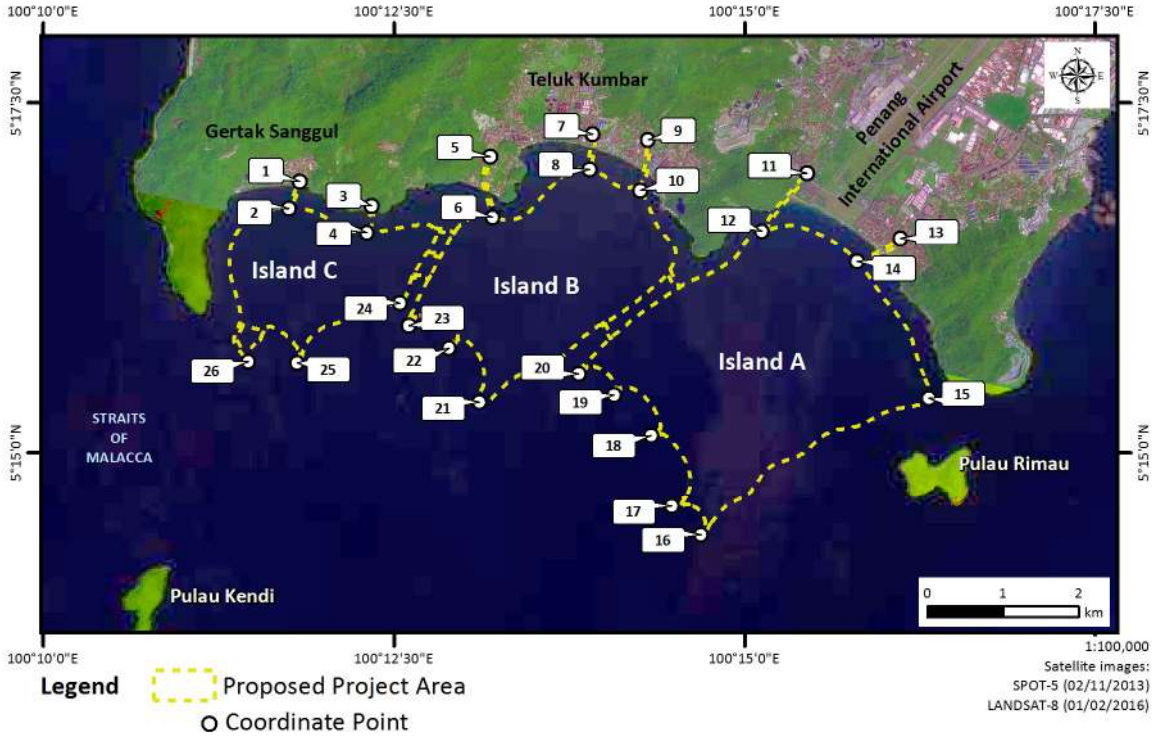
Rising property prices and shortage of quality affordable housing problems will be addressed and projected to be significantly resolved by also having a mixed development on top of the reclaimed islands. This will be a contribution towards solving Penang’s liveability concerns due to its high-speed and ad-hoc developments in addition to aiding the sustainability of Penang’s economic growth. SRS Consortium which is a joint venture between Gamuda Berhad, Ideal Property Development Sdn. Bhd. and Loy Phoy Yen Holdings Sdn. Bhd. will be the Penang state government’s Project Delivery Partner (PDP) in ensuring smooth implementation of the entire Project delivery process.

1.8 Project Location

The proposed three (3) PSR islands will be at the coastline of southern Penang Island (F1.8). It is situated about 22 km away from Georgetown via the Tun Dr. Lim Chong Eu (LCE) Expressway and about 352 km away from Kuala Lumpur via the North-South Expressway. The proposed Project location stretches across the south coast of Penang Island along the coastline of Tanjung Teluk Tempoyak to Tanjung Gertak Sanggul from the east to the west (F1.9). From the east, Island A will front Penang International Airport, Bayan Lepas, Island B will front Teluk Kumbar, and Island C will front Gertak Sanggul. The coordinates of the Project location boundary are tabulated in T1.8 while F1.10 shows the Project site overlain on the topography map. The latter shows that the existing land has undulating terrain with the highest peak being at Bukit Pulau Betung (360 m).



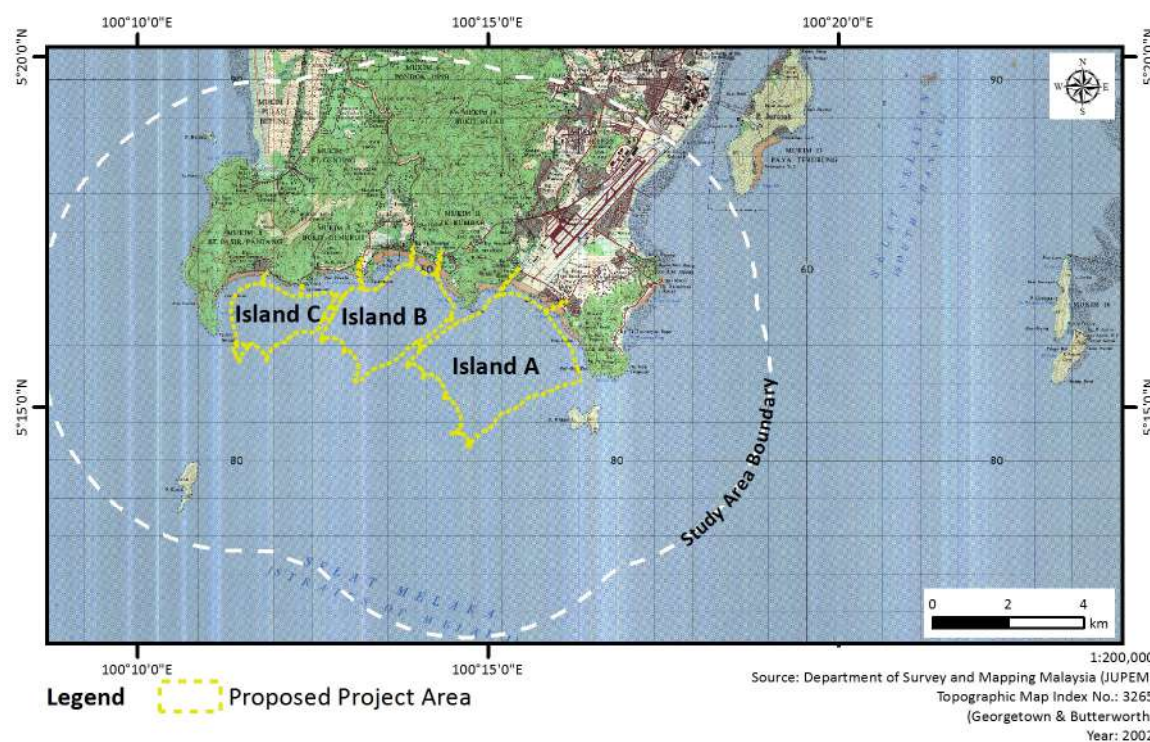
F1.8 Location of Project area on Penang Island



F1.9 Coordinate points of the Project boundary

T1.8 Coordinates of the Project area

| Point | Latitude | Longitude | Point | Latitude | Longitude |
|-------|-------------|---------------|-------|-------------|---------------|
| 1 | 5°16'56.3"N | 100°11'49.8"E | 14 | 5°16'22"N | 100°15'48.1"E |
| 2 | 5°16'44.7"N | 100°11'45.1"E | 15 | 5°15'23.4"N | 100°16'19"E |
| 3 | 5°16'45.7"N | 100°12'20.5"E | 16 | 5°14'24.8"N | 100°14'41.6"E |
| 4 | 5°16'34.2"N | 100°12'18.6"E | 17 | 5°14'36.9"N | 100°14'29"E |
| 5 | 5°17'6.8"N | 100°13'11.1"E | 18 | 5°15'7.6"N | 100°14'20"E |
| 6 | 5°16'40.7"N | 100°13'12.3"E | 19 | 5°15'24.8"N | 100°14'4"E |
| 7 | 5°17'16.4"N | 100°13'55.1"E | 20 | 5°15'33.8"N | 100°13'49.2"E |
| 8 | 5°17'1.3"N | 100°13'53.7"E | 21 | 5°15'21.8"N | 100°13'6.6"E |
| 9 | 5°17'13.9"N | 100°14'18.7"E | 22 | 5°15'44.8"N | 100°12'53.7"E |
| 10 | 5°16'52.3"N | 100°14'15.3"E | 23 | 5°15'54.5"N | 100°12'36.4"E |
| 11 | 5°16'59.8"N | 100°15'26.7"E | 24 | 5°16'4.2"N | 100°12'32.6"E |
| 12 | 5°16'34.7"N | 100°15'7.6"E | 25 | 5°15'38.5"N | 100°11'48.7"E |
| 13 | 5°16'31.7"N | 100°16'6.8"E | 26 | 5°15'39"N | 100°11'27.6"E |



F1.10 Project site overlain on the topography map

1.9 Project Chronology

The chronology of the Project up until the submission of the EIA report is as summarized in T1.9.

T1.9 Project chronology

| Date | Remarks |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------|
| July 2012 | Review of RSNPP 2020 |
| 5 th October 2012 | Meeting with the State Planning Committee regarding the review of RSNPP 2020 |
| 8 th January 2016 | Submission of Penilaian Awal Tapak (PAT) form (Ref: DNA/EA/15/078-009) |
| 16 th January 2016 | Socio-economic survey starts for SIA study |
| 28 th January 2016 | Approved PAT by DOE (Ref: AS(B)P50/013/100/014) |
| 30 th and 31 st January 2016 | First Focus Group Discussion (FGD1) at Sungai Batu with the fishermen |
| 4 th February 2016 | Submission of Terms of Reference (TOR) document (Ref: DNA/EA/15/078-010) |
| 5 th February 2016 | FGD2 and FGD3 at Permatang Damar Laut/Tepi Laut with the fishermen and public |
| 5 th March 2016 | SRS Public Engagement 1 with the fishermen at <i>Pusat Perkhidmatan Setempat Nelayan</i> (PPSN) |
| 10 th March 2016 | SRS Public Engagement 2 with the fishermen at Teluk Kumbar (Elyana Cafe) and Permatang Tepi Laut |
| 12 th March 2016 | FGD4 and FGD5 at Gertak Sanggul with the fishermen and public |
| 16 th March 2016 | SRS Public Engagement 3 with the fishermen at Gertak Sanggul |
| 17 th March 2016 | SRS Public Engagement 4 with the fishermen at Gertak Sanggul and Teluk Kumbar |
| 18 th March 2016 | SRS Public Engagement 5 with the fishermen at Sungai Batu |
| 23 rd March 2016 | SRS Public Engagement 6 with the fishermen at Dewan JKKK Teluk Kumbar |
| 25 th March 2016 | SRS Public Engagement 7 with the fishermen at Dewan Masjid Makbul Teluk Kumbar |
| 31 st March 2016 | DOE Site Visit |
| 1 st April 2016 | SRS Public Engagement 8 with the fishermen at Dewan JKKK Gertak Sanggul |
| 3 rd April 2016 | SRS Public Engagement 9 with the fishermen at Teluk Kumbar |
| 6 th April 2016 | TOR Panel Review Meeting |
| 12 th April 2016 | SRS Public Engagement 10 with the fishermen at Dewan JKKK Gertak Sanggul |
| 13 th April 2016 | SRS Public Engagement 11 with the fishermen at Teluk Kumbar (Elyana Cafe) |
| 17 th April 2016 | SRS Public Engagement 12 with the fishermen at Dewan Unit Nelayan, Permatang Tepi Laut |
| 20 th April 2016 | SRS Public Engagement 13 with the fishermen at Sungai Batu |
| 22 nd April 2016 | SRS Public Engagement 14 with the fishermen at Teluk Kumbar (Kampung Bagan) |
| 25 th April 2016 | Submission of Terms of Reference (TOR) document (Revision 1) (Ref: DNA/EA/15/078-016) |
| 25 th April 2016 | SRS Public Engagement 15 with the fishermen at Sungai Batu and Permatang Damar Laut |
| 5 th May 2016 | SRS Public Engagement 16 with the fishermen at PPSN and Dewan JKKK Gertak Sanggul |
| 6 th May 2016 | SRS Public Engagement 17 with the fishermen at Teluk Kumbar (Elyana Cafe) |
| 13 th May 2016 | SRS Public Engagement 18 with the fishermen at Permatang Damar Laut (PPSN) |
| 14 th May 2016 | SRS Public Engagement 19 with the fishermen at Teluk Kumbar |
| 19 th May 2016 | SRS Public Engagement 20 with the fishermen at Sungai Batu (Norsiah Cafe) |
| 20 th May 2016 | SRS Public Engagement 21 with the fishermen at Teluk Kumbar |
| 21 st May 2016 | SRS Public Engagement 22 with the fishermen at Masjid Kampung Binjai |
| 22 nd May 2016 | SRS Public Engagement 23 with the fishermen at Sungai Batu |
| 23 rd May 2016 | Approved TOR document by DOE [Ref: JAS 50/013/100/079 Jilid 2 (8)] |
| 23 rd May 2016 | SRS Public Engagement 24 with the fishermen at PPSN and Teluk Kumbar |

T1.9 Project chronology (cont'd)

| Date | Remarks |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 24 th May 2016 | SRS Public Engagement 25 with the fishermen at PPSN and Dewan JKKK Gertak Sanggul |
| 25 th May 2016 | SRS Public Engagement 26 with the fishermen at PPSN and Sungai Batu |
| 26 th May 2016 | SRS Public Engagement 27 with the fishermen at PPSN |
| 27 th May 2016 | SRS Public Engagement 28 with the fishermen at PPSN and Sungai Batu |
| 30 th May 2016 | SRS Public Engagement 29 with the fishermen at PPSN and Dewan Unit Nelayan Permatang Tepi Laut |
| 31 st May 2016 | SRS Public Engagement 30 with the fishermen at PPSN |
| 23 rd September 2016 | Meeting with <i>Mesyuarat Jawatankuasa Kawal Selia</i> for NPPC approval |
| 12 th October 2016 | Meeting with <i>Mesyuarat Jawatankuasa Kerja</i> for NPPC approval |
| 1 st December 2016 – 31 st January 2017 | Publicity of draft RSNPP 2030 which includes PSR islands |
| 8 th December 2016 | Briefing to the public of draft RSNPP 2030 |
| 17 th December 2016 | Public Dialogue |
| 6 th January 2017 | Submission of Hydraulic Report to DID (Ref. No: DNA/EA/15/078-034) |

1.10 Project Initiators

The Project initiators are the Project Proponent and the Project Delivery Partner (PDP). The addresses and contact numbers for the Project initiators are as follows:

1.10.1 Project Proponent

Penang State Government

Kompleks Pentadbiran Kerajaan Pulau Pinang,
 Paras 25, Komtar,
 Georgetown, 10503 Pulau Pinang,
 Malaysia.

Contact Person : Yang Berbahagia Dato' Seri Farizan bin Darus
 Telephone : +604-2615617
 Facsimile : +604-2618618
 Email : farizandarus@penang.gov.my

1.10.2 Project Delivery Partner (PDP)

SRS Consortium

(Joint venture between Gamuda Berhad, Loh Phoy Yen Holdings Sdn. Bhd. and Ideal Property Development Sdn. Bhd.)

73-3A-1, Ideal @ The One, Jalan Mahsuri,
 11950 Bayan Lepas, Pulau Pinang,
 Malaysia

Contact Person : Szeto Wai Loong
 Telephone : +604-6416888
 Facsimile : +604-6411776
 Email : WLSzeto@srsconsortium.com.my

The list of consultants involved in the Project are listed in T1.10.

T1.10 List of consultants involved in the Project

| Consultant | Company | Address | Tel. No. | Fax No. |
|----------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------|
| Town Planner | AJC Planning Consultants Sdn. Bhd. | Global Business & Convention Centre, Block B, First Floor, No. 8, Jalan 19/1, 46300 Petaling Jaya, Selangor Darul Ehsan, Malaysia | 03-7956 8395 | 03-7956 9320 |
| Civil & Structural Consultant | G&P Professionals Sdn. Bhd. | 39-5 Jalan Tasik Selatan 3, Bandar Tasik Selatan, 57000 Kuala Lumpur, Malaysia | 03-9059 5396 | 03-9059 5869 |
| Traffic Consultant | Jacobs Engineering Services Sdn. Bhd. | Suite E-17-P2, Level 17 (Penthouse), Block E, Plaza Mont' Kiara, No. 2, Jalan Kiara, Mont' Kiara, 50480 Kuala Lumpur, Malaysia | 03-6204 6688 | 03-6204 6699 / 03-6204 6698 |
| Social Impact Assessment (SIA) Consultant | Dr. Nik & Associates Sdn. Bhd. | No. 22 & 24, Jalan Wangsa Delima 6, Kuala Lumpur Suburban Centre (KLSC), Section 5, Pusat Bandar Wangsa Maju, 53300 Kuala Lumpur, Malaysia | 03-4145 8888 | 03-4145 8877 |
| Fisheries Impact Assessment (FIA) Consultant | FanLi Marine & Consultancy Sdn. Bhd. | 27-3, Level 3, Dataran Prima, Jalan PJU 1/42A, Petaling Jaya, 47301 Selangor, Malaysia | 03-7880 9820 | 03-7880 9821 |

1.11 EIA and Hydraulic Consultants

This EIA study was conducted by Dr. Nik & Associates Sdn. Bhd. The address and contact information are as follows:


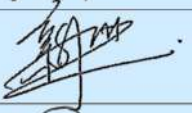
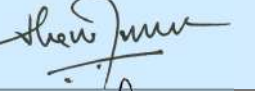
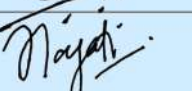
Dr. Nik & Associates Sdn. Bhd.

No. 22 & 24, Jalan Wangsa Delima 6,
Kuala Lumpur Suburban Centre (KLSC),
Section 5, Pusat Bandar Wangsa Maju,
53300 Kuala Lumpur



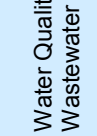
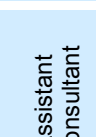

Contact Persons : Prof. Dato' Dr. Sharifah Mastura Syed Abdullah
(*EIA Study Team Leader*)
: Dato' Ir. Dr. Nik Mohd. Kamel Nik Hassan
(*Hydraulic Study Team Leader*)
Telephone : +603 - 4145 8888
Facsimile : +603 - 4145 8877

The EIA study is carried out by the relevant Consultants as listed in T1.11 and assisted by Assistant Consultants as per T1.12.

T1.11 List of EIA Consultants and Subject Specialists

| Name | Qualification | Registration with DOE | | | Area(s) of Study | Signature | |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| | | Category | Area/Field | ID No. | | | Valid Date |
| Prof. Dato' Dr. Sharifah Mastura Syed Abdullah (Team Leader) | B.A. (Geography) M.Sc. (Geomorphology) PhD. (Geomorphology) | EIA Consultant | Geomorphology Hydrogeomorphology Remote Sensing Application RS/GIS | C0166 | 31 st March 2019 | Geomorphology |  |
| Rosniza Ramli | B.Sc. (Marine Science) | EIA Consultant | Ecological Studies Water Quality Benthology General Environmental Management | C0164 | 31 st March 2019 | Water Quality Sediment Quality Impact Assessment and Environmental Management |  |
| Dato' Ir. Dr. Nik Mohd. Kamel Nik Hassan | O.N.D. (Civil Eng) B.Sc. (Civil Eng.) M.Sc. (Civil Eng.) PhD. (Hydraulics Eng.) | EIA Consultant & Subject Specialist | Dredging and Reclamation Impact Assessment Coastal and Maritime Engineering Water Resources and Flood Mitigation | CS0437 | 31 st March 2019 31 st March 2021 | Coastal Hydraulic Dredging and Reclamation Impact Assessment |  |
| Ir. Iwan Tan Sofian Tan | B.Eng. (Civil) | EIA Consultant | Coastal Engineering Hydraulics Numerical Modelling Coastal Geomorphology General Environmental Management | C0150 | 31 st March 2019 | Coastal Engineering |  |
| Ir. Tan Sin Nyap | B.Eng. (Hons) Civil and Coastal Engineering | Subject Consultant | Coastal Hydraulic Studies | SS5064 | 30 th November 2020 | Hydraulic Study |  |
| Ir. Mohd. Taha Abd. Wahab | B.Sc. (Civil) M.Eng. (Sc) | Subject Consultant | Geotechnical Studies | SS0902 | 31 st December 2017 | Geotechnical |  |
| Ir. Dr. Wong Wai Sam | B.Eng. (Civil) M.Eng. Sc. (Hydrology & Hydraulics) PhD. (Hydrology, Hydraulic & Hydrogeology) | Subject Consultant | Hydrology Water Resources Management Erosion and Sediment Control Plan (ESCP) | SS0907 (CPESC Reg. No: 4154) | 30 th March 2021 | Hydrology |  |
| Prof. Dr. Nor Ghani Md. Nor | B.A. (Economics & Account) M.A. (Economics) PhD. (Economics) | Subject Consultant | Economic Valuation of Environmental Impacts Environmental Cost Benefit Analysis | SS0252 | 14 th May 2018 | Environmental Economic Valuation |  |
| Prof. Dr. Norhayati Ahmad | B.Sc. (Biology) M.Sc. (Conservation Biology) PhD (Zoology) | Subject Consultant | Ecological Studies | SS0270 | 30 th April 2020 | Terrestrial Fauna |  |
| Dr. Maimon Abdullah | B.Sc. (Biology) M.Sc. (Biology) PhD. (Biology) | EIA Consultant | Ecology Environmental Physiology | C0244 | 31 st March 2019 | Terrestrial Flora and Fauna |  |
| Prof. Dr. Wan Juliana Wan Ahmad | B.Sc. (Botany) PhD. (Plant & Soil Science) | Subject Consultant | Plant Diversity Mangrove Forests Species Wetland Ecosystem | SS0649 | 13 th May 2018 | Terrestrial Flora |  |
| Gopinath Nagaraj | B.Sc. (Aquatic Biology) M.Sc. (Aquaculture) Post Masters Certificate (Fish Hatchery Management) | EIA Consultant | Fisheries Ecological Studies Aquaculture | CS0474 | 1 st October 2017 | Marine Ecology 1 |  |
| Puvanesuri a/p Sandera Sagaren | B.Sc. (Aquatic Biology) M.Sc. (Environment) | EIA Consultant | Fisheries Ecological Studies Aquaculture | CS0956 | 30 th Nov 2018 | Marine Ecology 2 |  |
| Capt. Ismail Hashim | Malaysian Certificate of Education, Division 1, Ordinary National Certificate in Nautical Science Master Mariner Class 1 | Subject Specialist | Marine Traffic and Navigational Safety | SS1290 | 30 th April 2020 | Marine Traffic and Navigation |  |
| Ir. Dr. Zaki Zainudin | B.Sc. (Chemical Engineering) M.Sc. (Environmental Engineering) PhD. (Environmental Engineering) | Subject Consultant | Water Quality Water Quality Modelling | SS0205 | 30 th Nov 2020 | Water Quality |  |
| Datin Dr. Asmah Ahmad | B.A (Hons.) Geography M.Soc. Sc. (Geography) PhD. (Geography) | Subject Consultant | Social Impact Assessment | SS0516 | 9 th April 2018 | Socio-economy 1 |  |

T1.12 List of Assistant Consultants

| Name | Qualification | Registration with DOE | | | Area(s) of Study | Supervised By | Signature |
|--------------------------|-------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------|-------------------------|---------------------------------------------------------------------------------------|
| | | Category | Area/Field | ID No. | | | |
| Muhammad Faiz Abdullah | B.Sc. (Environmental Science) | Assistant Consultant | <ul style="list-style-type: none"> ■ Air Quality ■ Noise and Vibration ■ General Environmental Management | AC0903 | General Environmental Management | Rosniza Ramli |  |
| Muhammad Fauzan Pauzi | B.Eng (Civil) | Assistant Consultant | <ul style="list-style-type: none"> ■ Water Quality ■ Wastewater ■ Solid Waste Management | AC5011 | Water Quality | Ir. Dr. Zaki Zainudin |  |
| Shareena Azliani A. Aziz | B. Eng (Civil), M.Eng (Water Engineering) | Assistant Consultant | <ul style="list-style-type: none"> ■ Water Quality ■ Wastewater | AC5082 | Water Quality | Ir. Dr. Zaki Zainudin |  |
| Putri Zulaikha Md. Bakri | B. Eng (Civil) | Assistant Consultant | <ul style="list-style-type: none"> ■ Water Quality ■ Wastewater ■ Solid Waste Management | AC5080 | Water Quality | Ir. Dr. Zaki Zainudin |  |
| Zahara Yaakop | B.Eng (Civil) | Assistant Consultant | <ul style="list-style-type: none"> ■ Erosion and Sedimentation ■ Hydraulics and Coastal Engineering | AC1119 | Sediment Transport | Ir. Iwan Tan Sofian Tan |  |