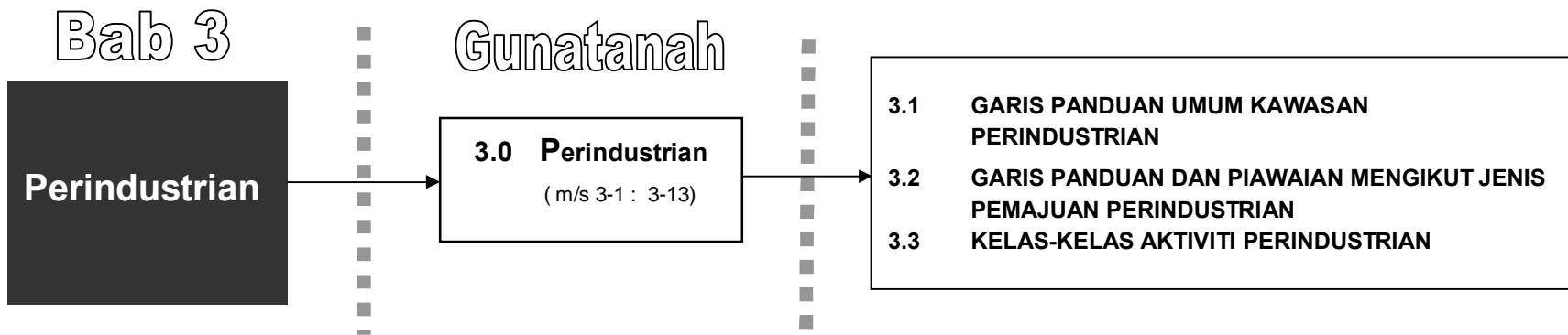


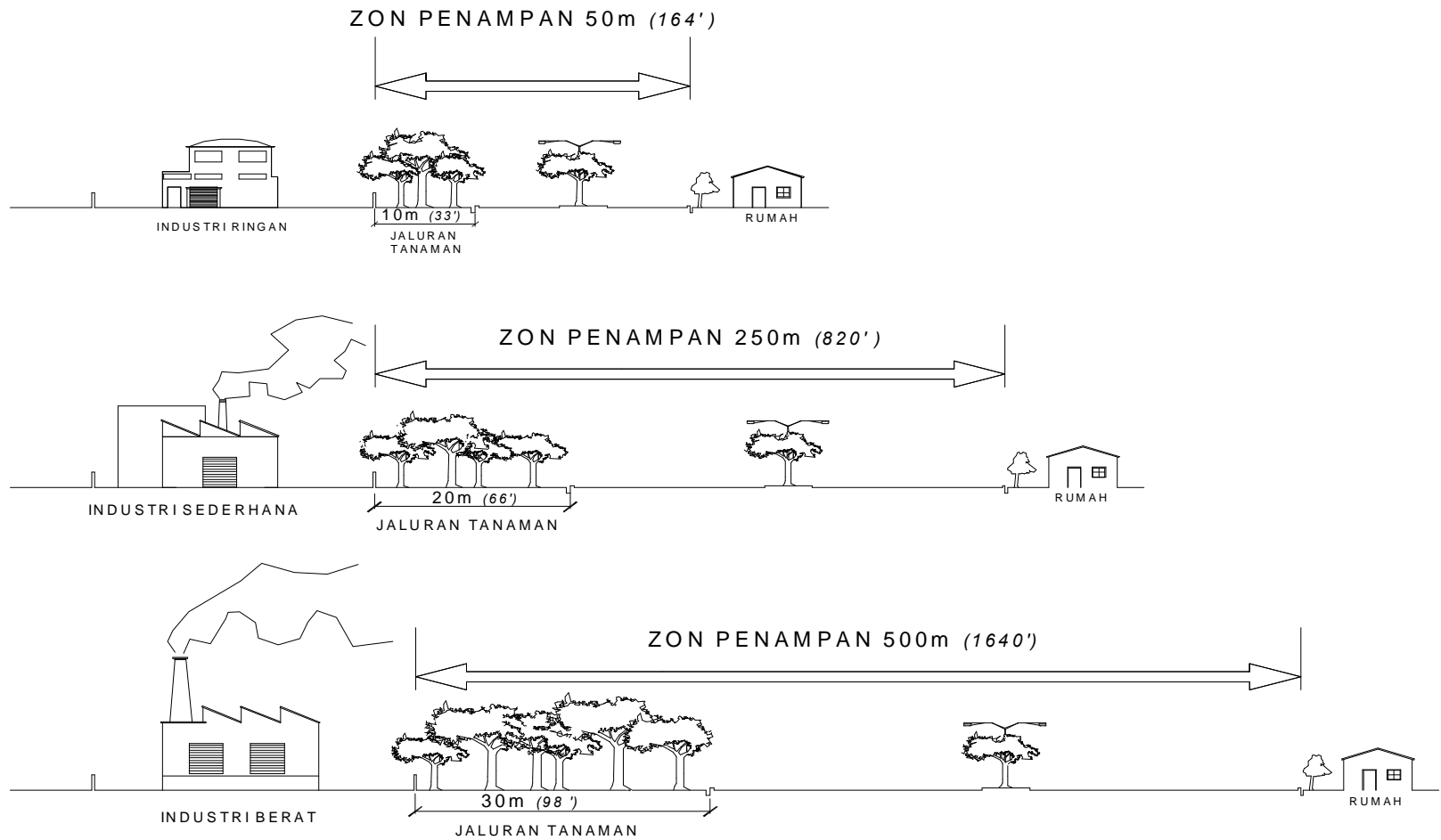
3.0 PERINDUSTRIAN

Garis Panduan / Piawaian



3.1 GARIS PANDUAN UMUM KAWASAN PERINDUSTRIAN

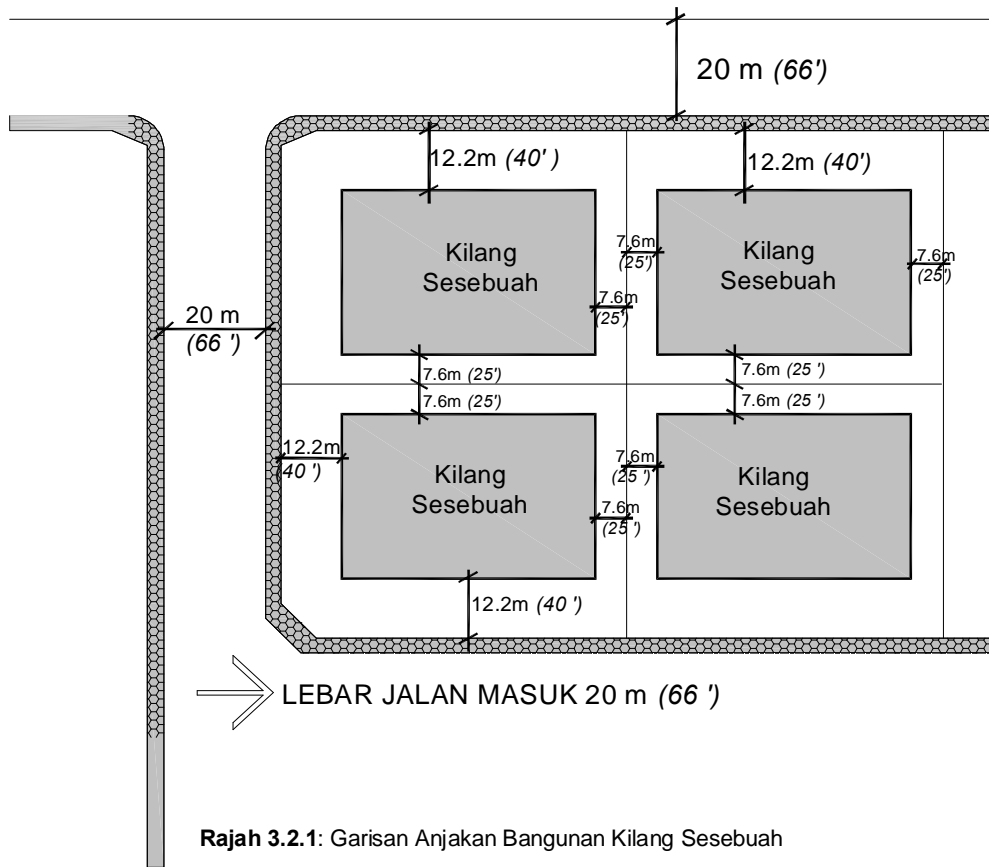
Jenis Industri	Saiz	Tapak Pelupusan Sisa Pepejal	Tempat Letak Lori Treler / Rangkaian Jalan	Zon Penampian
Kawasan Perindustrian (Umum)	Lot saiz ≥ 8 hektar (20 ekar)	<p>Rekabentuk Luas tapak adalah lebih kurang 0.3 hektar (0.7 ekar). Tapak yang dipilih bergantung kepada beberapa faktor:</p> <ul style="list-style-type: none"> • Tidak mengandungi laluan air ; • Tidak terdedah kepada banjir ; • Berdekatan dengan jalan raya ; landasan keretapi untuk kemudahan pengangkutan ; • Berjauhan dari kawasan perumahan dan perkampungan ; • Ia harus mempunyai komponen-komponen seperti berikut ; <ul style="list-style-type: none"> - Pondok Pengawal ; - Pejabat ; - Tempat Timbang ; - Tempat Menyimpan Terbuka; - Elemen <i>effluent</i> 1 % daripada keseluruhan keluasan tapak. 	<ul style="list-style-type: none"> • Dilarang diletakkan di tepi jalan raya sebelah bangunan • Jika bersebelahan jalan mati, panjang jalan mesti ≤ 190 m (623') dengan ruang bulatan ukuran garis pusat ≥ 30 m (98') • Depot lori dan treler di tengah-tengah kawasan industri dengan keluasan ≥ 1.2 hektar (3 ekar) • Elakkan penyediaan jalan mati, jikalau tidak dapat dielakkan, maka panjang mesti ≤ 190 m (623') dengan ruang bulatan memusing berukuran garis pusat ≥ 30 m (100') 	<ul style="list-style-type: none"> • ≥ 70 % untuk penampian hijau • ≤ 30 % untuk penampian fizikal • Jaluran tanaman : <ul style="list-style-type: none"> • 30 m (98') . industri khas dan berat • 20 m (66') . industri sederhana • 10 m (33') . industri ringan • (Rujuk Rajah 3.1.1 di muka surat 3-3) • Rizab lanskap 1.5 m (5') . bangunan / tepi bangunan yang menghadap jalan utama. • Diklasifikasikan kepada penampian fizikal dan hijau yang tidak termasuk kawasan rizab jalan yang dilandskapkan. • Perlu mematuhi keperluan zon penampian mengikut 'Guideline For Siting and Zoning of Industries' yang diterbitkan oleh Jabatan Alam Sekitar. • Pembangunan yang boleh dipertimbangkan dalam zon penampian fizikal termasuklah jalan raya, longkang dan parit, sungai dan tasik, tempat letak kereta, dan kawasan lapang. Industri perkhidmatan, gudang bukan makanan dan tanaman pertanian.



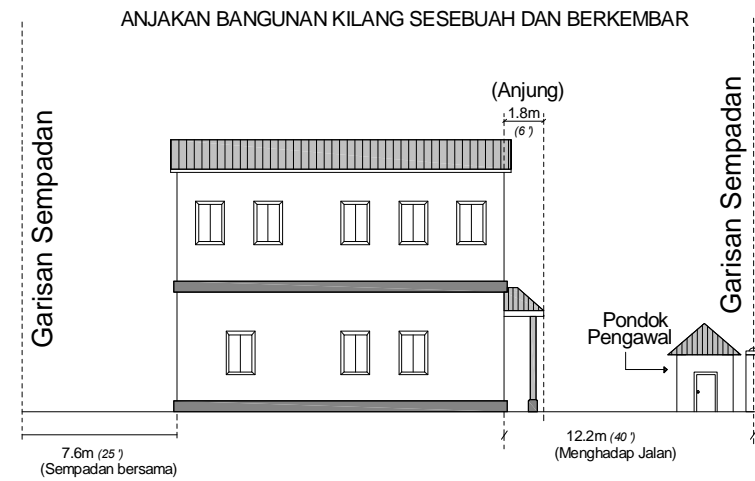
Rajah 3.1.1: Keperluan Zon Penamparan bagi Zon Industri

3.2 GARIS PANDUAN DAN PIAWAIAN MENGIKUT JENIS PEMAJUAN PERINDUSTRIAN

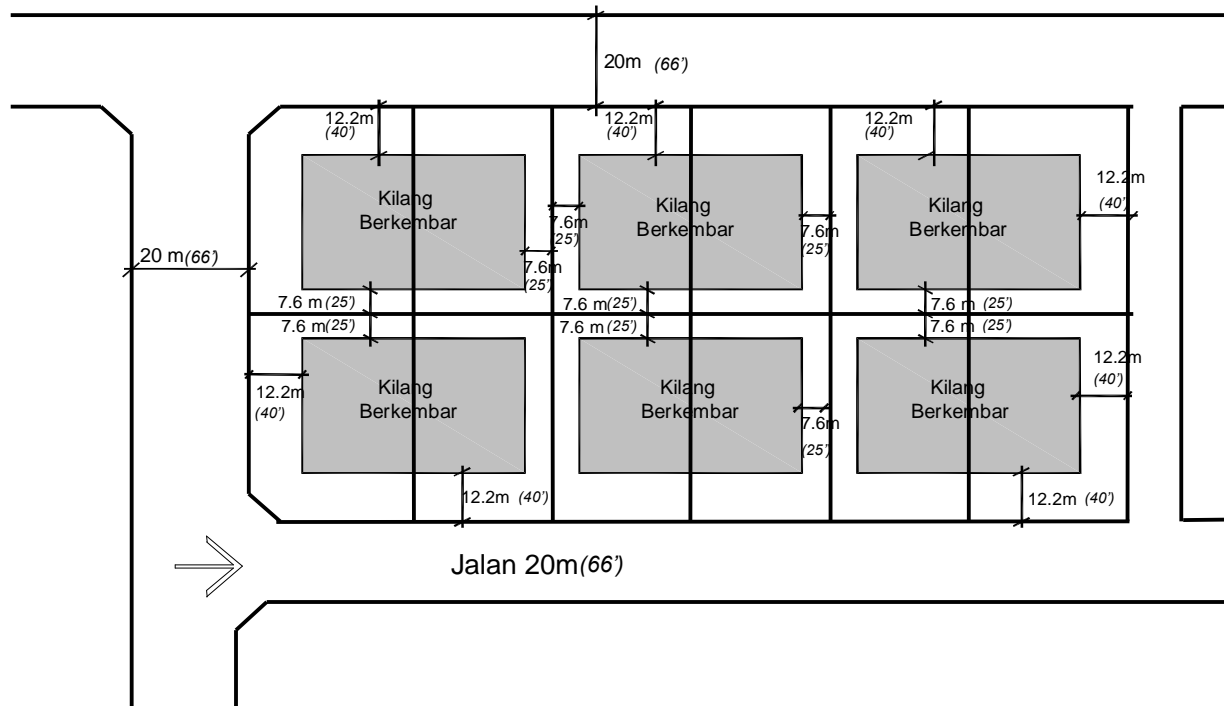
Elemen	Jenis Industri						Lain-Lain Catatan			
	Kilang Sesebuah		Kilang Berkembar		Kilang Teres					
Luas Tapak minimum	0.4 hek (1 ek)		18.3 m x 40.0 m (60' x 132') maksimum 0.4 hek (1.0 ek)		6.1 m x 24.4 m (20' x 8')		Keperluan Gudang dan Stor	Disediakan untuk penyimpanan bahan mentah dan bahan buangan dengan kapasiti stor dapat menampung keperluan tampungan bagi tempoh dua (2) bulan.		
Ketinggian Bangunan	25.5 m (83'7")		24 m (78'7")		12.2 m (40')					
Anjakan Bangunan	Hadap Jalan	12.2 m (40')	Hadap jalan	12.2 m (40')	Hadap jalan	20 m (66')	Surau	<ul style="list-style-type: none"> • Ruang lantai = 6.1 m x 6.1 m (20' x 20') • Arah kiblat = 292° 30q • Perlu disediakan secara bersepadu dengan tempat mengambil air sembahyang 		
	Sisi	7.6 m (25')	Sisi	7.6 m (25')	Tiada					
	Belakang	7.6 m (25')	Belakang	7.6 m (25')						
	(Rujuk Rajah 3.2.1 , 3.2.2 dan 3.2.3)				(Rujuk Rajah 3.2.4 dan 3.2.5)					
Tingkat	Nisbah plot 1:3		maksimum 3 Tkt. 12.2m (40')		Maksimum 3 Tkt. 12.2 m (40')					
Kawasan Plinth	60 %		-		-					
Kemudahan Tempat Letak Kenderaan	a. 1 petak kereta / 150 mp (1615 kp) ruang lantai b. Tambahan 1 petak kereta / 50 mp (538 kp) ruang pentadbiran c. Tambahan 1 petak motosikal / 100mp (1076 kp) ruang lantai d. Tambahan 1 petak lori . 2000 mp (597 kp) e. Semua petak kereta, motosikal dan lori perlu disediakan di dalam lot industri (kecuali tempat letak kenderaan berkelompok)				a. 1 petak kereta / 150 mp (1615 kp) ruang lantai		Ruang Kantin	<ul style="list-style-type: none"> • 2 % daripada jumlah keluasan lantai binaan (kilang) • 0.5 % daripada jumlah keluasan lantai binaan (gudang) • Ruang makan diperlukan bagi pekerja 50 orang 		
					b. Tambahan 1 petak kereta / 50.0 mp (538 kp) ruang pentadbiran				Hierarki Jalan	<ul style="list-style-type: none"> • Jalan Perkhidmatan = 20 m (66') • Lorong Tepi dan Langkau Api = 12.2 m (40') • Lorong Belakang = 12.2 m (40')
					c. Tambahan 1 petak motosikal / 100 mp (1076 kp) ruang lantai					
Keperluan Sokongan	Anjung / Kanopi hadapan bangunan maksimum 1.8 m (59") dibenarkan memasuki anjakan bangunan				d. Tambahan 1 petak lori / 5 unit kilang teres		Tempat Pemunggahan Barang	<ul style="list-style-type: none"> • Disediakan dalam kawasan tapak tanpa mengganggu laluan kenderaan 		
					Tiada					



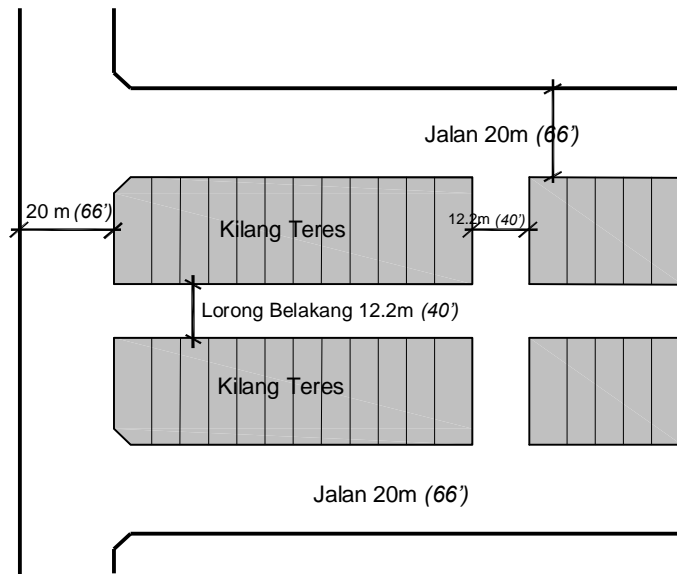
Rajah 3.2.1: Garisan Anjakan Bangunan Kilang Sesebuah



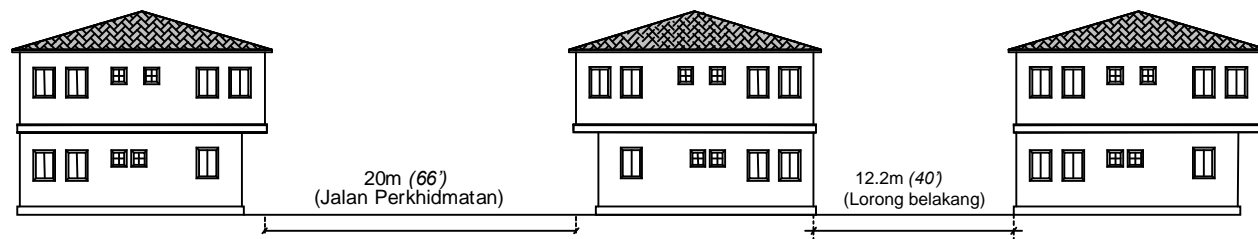
Rajah 3.2.2: Profil Anjakan Bangunan Bagi Kilang Jenis Sesebuah dan Berkembar



Rajah 3.2.3: Garisan Anjakan Bangunan bagi Kilang Jenis Berkembar



Rajah 3.2.4: Garisan Anjakan Bangunan Bagi Kilang Jenis Teres



Rajah 3.2.5: Anjakan Bangunan Kilang Teres (Pandangan Tepi)

3.3 KELAS-KELAS AKTIVITI PERINDUSTRIAN

Kelas-kelas aktiviti perindustrian berdasarkan Guidelines for Siting and Zoning of Industries yang dikeluarkan oleh Jabatan Alam Sekitar adalah seperti berikut:

Industries	Descriptions and Standards Requirements
Light Type A	<ul style="list-style-type: none"> Industries shall not generate excessive noise. Industries shall not accommodate stacks or chimneys thus producing no gaseous emissions. Industries shall not discharge industrial effluent apart from sewage and kitchen waters and non-toxic solid wastes. Industries shall not use any raw materials which are toxic and hazardous and therefore will not produce any scheduled wastes. Industries shall have height restrictions determined by the Local Authority. Industries shall use electricity and gas as fuels. Industries shall not use any radioactive material and scheduled wastes. <p><i>Note : Light Industries (Type A) shall not produce any Industrial emissions and significant discharges</i></p>
Type B	<ul style="list-style-type: none"> Industries shall not generate excessive noise. Industries shall not accommodate stacks or chimneys thus Producing no gaseous emissions. Industries shall not use any raw materials or produce any scheduled wastes. Industries shall have height restrictions determined by the Local Authority. Industries shall produce industrial effluent that can be treated on site before being discharged to meet Standard A or B of the Environmental Quality (Sewage and Industrial Effluent) Regulation 1979 depending on the site. Compatibility in industrial mixing, eg. Between food-based industries and leather-based industries. Industries shall not use any radioactive material and scheduled wastes. <p><i>Note : Industrial Effluent discharge and gaseous Emissions shall met the relevant environment Quality Regulations as stipulated in the Environment Quality Act 1974.</i></p>

Type A

SIC NO.	Descriptions
32113	• Handicraft spinning weaving.
32120	• Manufacture of made up textile goods except wearing apparel.
32201	• Clothing factories.
32202	• Custom tailoring and dress making.
32209	• Miscellaneous wearing apparel (not elsewhere classified).
33120	• Manufacture of wooden and cane containers and small cane ware.
33190	• Manufacture of wood and cork products n.e.c.
35593	• Manufacture of rubber footwear.
39091	• Manufactures of brooms, brushes and mops.
39094	• Umbrella making

Type B

SIC NO.	Descriptions
31213	• Tea factories.
32111	• Nature fibre spinning and weaving mills.
33120	• Rattan processing including splitting.
32150	• Cordage, rope and twine industries.
32400	• Manufacture of products of leather and leather substitutes except footwear and wearing apparel.
34120	• Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear.
35220	• Manufacture of containers and boxes of paper and paperboard. Packaging of pharmaceutical.

Medium	<ul style="list-style-type: none"> • These industries could generate significant noise from machineries, generators etc but which could be controlled to meet the level not exceeding 65dB (A) leq at the factory boundary, and not exceeding 55 and 45 dB (A) Leq at the residential/buffer zone boundary during day and night time respectively. • Industries could emit some gaseous emission but which can be controlled to comply with the Environmental Quality (Clean Air) Regulation 1978. • The industries could produce some industrial effluent that can be treated on site before being discharged to meet the Environmental Quality (Sewage and Industrial Effluent) Regulation 1979, Standard A or B depending on the site. • These industries could use toxic and hazardous raw materials in its productions. • The industries could produce scheduled wastes but which can be treated on site to comply with the Environmental Quality (Scheduled Wastes) Regulation 1989 or disposed off from their premises. • The industries could produce fumes and odours that can possibly affect the workers health and the neighbouring plant, but for which design solutions are available for prevention and shall comply with the Environmental Quality (Clean Air) Regulation 1978. • The stack height shall conform to the production capacity of the specific plant to be based on air quality modeling and simulation with the DOE approval. • The industries shall be located in designated industrial estates or zones with compatibility within the industrial estates and zones to ensure good industrial mixing. • These industries shall not use any radioactive materials. <p><i>Note : All discharge and emissions shall meet the relevant Environmental Quality Regulations stipulated in the Environmental Quality Act, 1974.</i></p>
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SIC NO.	Descriptions
31121	• Ice cream.
31129	• Other dairy products.
31131	• Pineapple canning.
31139	• Other canning and preservation of fruits and vegetables.
31140	• Canning preserving and processing of fish crustacean and similar foods.
31161	• Small rice mills.
31163	• Flour mills.
31164	• Sago and tapioca factories.
31171	• Biscuit factories.
31172	• Bakeries.
31190	• Manufacture of cocoa, chocolate and sugar confectionery.
31211	• Ice factory.
31212	• Coffee factories.
31214	• Meehoon, noodles and related product.
31215	• Spices and curry powder.
31216	• Manufacture of starch and its products.
31219	• Other food products (n.e.c).
31220	• Manufacture of prepared animals feeds.
31340	• Soft drinks and carbonated water industries.
31400	• Tobacco Manufacture.
32112	• Dyeing, bleaching, printing and finishing of yarns and fabric (other than batik).

SIC NO.	Descriptions
32114	• Batik making.
32115	• Synthetic textile mills.
32119	• Manufacture of miscellaneous primary textiles.
32130	• Knitting mills.
32140	• Manufacture of carpets and rugs.
32190	• Manufacture of textiles (not elsewhere classified).
32310	• Tanneries and leather finishing.
32320	• Fur dressing and dyeing industries.
33200	• Manufacture of furniture and fixtures except primary of metals.
34200	• Printing, publishing and allied industries.
35231	• Manufacture of soap and cleaning preparations.
35239	• Manufacture of perfumes, cosmetics and other toilet preparations.
35290	• Matches factory.
35600	• Manufacture of domestic plastic products n.e.c.
36100	• Manufacture of pottery, China and Earthenware.
36992	• Cut stone and stone products.
38111	• Manufacture of cutlery, hand tools and general hardware excluding tin smithing and black smithing.
38112	• Tin smithing and black smithing.
38130	• Manufacture of structural metal products.
38191	• Manufacture of tin cans and metal boxes.
38192	• Manufacture of wire and wire products.

38193	• Manufacture of brass, copper, pewter and aluminium products.
38199	• Manufacture of other fabricated metal products n.e.c.
38299	• Machinery and equipment, n.e.c.
38250	• Manufacture of office, computing and accounting machinery.
38322	• Gramophone records and pre-recorded magnetic tapes.
38391	• Cables and wires.
38393	• Electric lamps and tubes.
38399	• Miscellaneous electrical apparatus and supplies (not elsewhere classified).
38449	• Manufacture and assembly of bicycles, tricycles and trishaws
38490	• Manufacture of transport equipment (n.e.c).
38520	• Manufacture of photographic and optical goods.
38530	• Manufacture of watches and clocks.
39010	• Manufacture of jewellery and related articles.
39020	• Manufacture of musical instruments.
39030	• Manufacture of sporting and athletic goods.
39092	• Manufacture of pen, pencil, office and artist supplies.
39093	• Manufacture of toys.
39099	• Other manufacturing industries (n.e.c).
71920	• Storage and warehousing.
71919	• Other services incidental to transport.

Heavy Industries

Industries	Descriptions and Standards Requirements
Heavy	<ul style="list-style-type: none"> Heavy industries must be sited in designated industrial Estates or designated industrial zones with sufficient buffer Zones from residential areas, livestock farm, agricultural farms, recreation areas and tourist designated areas. A minimum distance from the fence of the industry to the nearest residential area is 500 meters to be finalized by the EIA report. These industries could generate excessive noise from its operations but for which design solutions are incorporated in the form of appropriate high technologies to reduce the noise level of not greater than 65 dB(A) at the factory boundary and not exceeding 55 and 45 dB(A) at the residential/buffer zone boundary during day and night time respectively. These industries could produce gaseous emissions at rates, volumes and concentrations that will require detailed engineering design incorporated into the operation and control mechanisms to meet the Environmental Quality (Sewage and Industrial Effluent) regulation 1979 and/or to disposed such wastes to the Central Treatment Facilities. These industries could generate scheduled wastes which cannot be treated on-site or which exceed the levels recommended in the Environmental Quality (Scheduled Wastes) Regulation 1989. Thus in compliance with the above regulation the industries shall incorporate necessary technologies to reduce the scheduled wastes generation to the acceptable level or they can be disposed for treatment at a centralized scheduled wastes treatment plant, or recycled within its premise or sold to other parties for the purpose of recycling. Sitting within an industrial estate or zones should take into consideration the compatibility in industrial mixing. Hot water discharges shall be supported by thermal plume modelling and simulations to be clearly presented in the EIA Report. <p><i>Note : All discharge and emissions shall meet the relevant Environmental Quality Regulations as stipulated in the Environmental Quality Act, 1974 and using appropriate control measures</i></p>

Heavy Industries

SIC NO.	Descriptions
11191	• Pig rearing.
11192	• Cattle rearing and dairy farming.
11193	• Poultry rearing and hatching.
11199	• Other livestock n.e.c rearing or keeping
21000	• Coal Mining.
22000	• Crude Petroleum And Natural Gas Production.
23010	• Iron ore mining.
2302	• Tin dredging.
23022	• Tin Mining other than dredging.
23023	• Dulang Washing.
23024	• Amang Treatment.
23025	• Bauxite Mining.
23026	• Gold Mining.
23027	• Copper Mining.
23028	• Antimony Mining.
23029	• Non-ferrous Metal Ore Mining (not elsewhere classified).
29011	• Limestone quarrying.
29012	• Other stone quarrying.
29013	• Clay, sand and gravel pits.
29021	• Guano gathering.
29029	• Other chemical and fertilizer mineral mining.
29030	• Salt mining.

Heavy Industries

SIC NO.	Descriptions
29090	• Mining and quarrying (not elsewhere classified).
31110	• Slaughtering, preparing and preserving meat.
31151	• Manufacture of coconut oil.
31152	• Manufacture of palm oil.
31153	• Manufacture of palm kernel oil.
31159	• Manufacture of other vegetable and animal oils and fats.
31169	• Other grain milling.
31180	• Sugar factories and refineries.
31310	• Distilling, rectifying and blending spirits.
31320	• Wine industries.
31330	• Malt liquors and malt.
33111	• Sawmills.
33112	• Plywood, Hardboard and Particle Board mills.
33113	• Planing mills, window and door mills and joinery works.
33114	• Manufacture of prefabricated wooden house.
33119	• Manufacture of other wood products.
34190	• Manufacture of pulp, paper and paperboard.
35111	• Manufacture of pulp, paper and paperboard articles (not elsewhere classified).
35119	• Manufacture of industrial gases whether compressed, liquefied or in solid state.
35120	• Manufacture of fertilizers and pesticides.
35130	• Manufacture of synthetic resins, plastics materials and man made fibres except glass.
35210	• Manufacture of paints, varnishes and lacquers.

Heavy Industries

SIC NO.	Descriptions
35220	• Manufacture of drugs and medicine.
35290	• Manufacture of chemical products.
35300	• Petroleum refineries.
35400	• Manufacture of miscellaneous products of petroleum and coal.
35510	• Tyre and tube industries.
35591	• Rubber remilling and rubber latex processing.
35592	• Rubber smokehouses.
35599	• Manufacture of other rubber products (not elsewhere classified).
36200	• Manufacture of Glass products.
36922	• Manufacture of Lime and plaster.
36910	• Manufacture of structural clay.
36921	• Manufacture of hydraulic cement .
36991	• Manufacture of cement and concrete products.
36999	• Manufacture of other non-metallic mineral products (not elsewhere classified).
37101	• Primary iron and steel industries.
37102	• Foundries.
37109	• Other iron and steel basic industries.
37201	• Tin smelting /Tin recycling.
37202	• Other non-ferrous metal basic industries.
37209	• Manufacture of engines and turbines.
38210	• Manufacture of agricultural machinery and equipment.

Heavy Industries

SIC NO.	Descriptions
38230	• Manufacture of metal and wood working machinery
38240	• Manufacture of special industrial machinery and equipment except metal and metal and wood working machinery
38291	• Manufacture of refrigerating, exhaust, ventilating and air conditioning machinery
38310	• Manufacture of electrical industrial machinery and apparatus
38321	• Radio and televisions sets, sound reproducing and recording equipment
38329	• Semi conductors and other electronic components and components and communication equipment and apparatus
38330	• Manufacture of electrical appliances and housewares
38392	• Dry cells and storage batteries
38410	• Shipbuilding and repairing
38420	• Manufacture of railroad equipment
38431	• Manufacture of motor vehicle bodies
38432	• Manufacture and assembly of motor vehicles
38439	• Manufacture of motor vehicle parts and accessories
38441	• Manufacture and assembly of motor cycles and scooters
38450	• Manufacture of aircraft
38510	• Manufacture of professional and scientific and measuring and controlling equipment (n.e.c).
41010	• Electric light and power
41030	• Steam and hot water supply
42000	• Water works and supply
41020	• Gas Manufacture and Distribution

Heavy Industries

SIC No.	Descriptions
92000	Sanitary and similar services <ul style="list-style-type: none"> • Fossil-base Power Plants • Chemical incinerator • Production of Radioactive Materials Establishment of processing of nuclear Wastes or production of nuclear components Processing of Toxic and Hazardous Waste Dangerous Cargo Complex Recycling recovery and treatment of scheduled wastes (* - NO SIC number)

Special Industries

Industries	Descriptions and Standards Requirements
Special	<ul style="list-style-type: none"> • Heavy industries which technically are able to adopt or Modify the production process and pollution control Mechanism by use of the best available control technology (BACT) • Industries that by their process description and plant outputs are involved in the manufacturing of products that are generally accepted as being categorized as high technology based products • Industries that utilize high/advanced and clean technology in their process and control mechanisms, as verified by EIA documents and backed up by examples of parent plants or other plants operating elsewhere • Industries that will eliminate or minimize emissions wastewater discharged and scheduled waste production • Industries shall be located within designated special industries zones, being compatible with the neighbouring plants, which are designed to be environmentally friendly <p><i>Note : Near-zero emissions and discharges shall Be achived by incorporating clean technologies</i></p>