



AL-DUQM INDUSTRIAL MASTERPLAN INVESTOR DESIGN GUIDELINES

JANUARY 2017



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GLOSSARY

Access Drive:	That portion of a vehicular use area that provides vehicular access from the public street to more than one dwelling unit or more than one non-residential building.
Accessory Building or Structure:	A building or structure that is subordinate in area, extent and purpose to the principal use and building on the lot and that is customarily used or occupied in conjunction with a permitted accessory use.
Accessory Parking:	Parking provided to comply with minimum off-street parking requirements and non-required parking that is provided exclusively to serve occupants and visitors to a particular use, rather than the public at-large. See “non-accessory parking,”
Accessory Use	A use that is subordinate in area, extent and purpose to the principal use and that is customarily found in conjunction with a permitted principal use.
Awning	A roof-like structure of fabric or similar non-rigid material attached to a rigid frame that is supported completely or partially by either an exterior building wall or wall exterior to an individual tenant space.
Awning Sign	A sign incorporated into or attached to an awning.
Banner or Banner Sign	A sign made of fabric or other similar non-rigid material with no enclosing framework or electrical components that is supported or anchored on two or more edges or at all four corners. Banners also include non-rigid signs anchored along one edge, or two corners, with weights installed that reduce the reaction of the sign to wind. See also “flag.”
Basement	The portion of any structure whose height measured from the floor to the underside of ceiling joists is located more than 50% below grade. Basement floor area does not count towards Floor Area Ratio (FAR).
Building:	Any structure that is permanently affixed to the land and built for the support, shelter, or enclosure of persons, animals, channels, or movable property of any kind.
Building Height	The dimension from grade to the highest point of the roof or parapet of a building, excluding roof top mechanical equipment, access stair enclosures, and rooftop shading devices.
Bulk	The general term used to refer to the size of a building or the building features allowed on a plot. Provisions that control bulk include the following: plot area, setbacks, open space, floor area, floor area ratio, building coverage, and building height.
Canopy	A roof like structure of a permanent nature that projects from the wall of a building and overhangs the public way.
Changing-image Sign	Any sign that, through the use of moving structural elements, sequential lights, lighting elements, or other automated method, results in movement, the appearance of movement or change of sign image or message. Changing-image signs do not include otherwise static signs where illumination is turned off and back on not more than once every 24 hours.
Commercial Establishment	A business in which, the ownership, management and physical location are separate and distinct from those of any other place of business located on the same zoning plot, as partly evidenced by maintaining separate and distinct doors and access points.
Commercial Message or Commercial Message Sign	Any sign, wording, logo or other representation that, directly or indirectly, names, advertises or calls attention to a business, product, service or other commercial activity.
Density	The general term used to refer to the number of building units allowed per unit of land area. It is controlled in these regulations by the maximum number of building units allowed on a lot and implies a number of building units per acre or hectare
Drive-Thru Facility	Any service window, automated device or other facility that provides goods or services to individuals in motor vehicles.
Driveway	That portion of a vehicular use area that provides vehicular access from the public street to a single dwelling unit or factory building.

Electric Sign	Any sign containing electrical wiring, lighting or other electrical components, but not including signs illuminated by a detached exterior light source.
Facade	The exterior plane or “face” of a building.
FAR	An abbreviation for “floor area ratio.”
Flag	A sign made of fabric or other similar non-rigid material supported or anchored along only one edge or supported or anchored at only two corners. If any dimension of a flag is more than 3 metres as long as any other dimension, it is classified and regulated as a banner regardless of how it is anchored or supported. See also “banner”.
Flashing Sign	Any sign or portion of a sign that contains an intermittent or flashing light source or that changes light intensity in sudden transitory bursts. Example of flashing signs include signs that contain or use strobe lights, or rotating lights; signs with blinking or flashing features that are designed to merely to attract attention rather than convey a message; and changing-image signs that do not comply with applicable standards.
Floor Area Ratio (FAR)	The ratio of the gross floor area of all principal buildings to the total area of the plot upon which such buildings are located. Floor area ratio is calculated by dividing the gross floor area by the gross plot area. Standards for floor area ratio in these provisions are stated as the maximum permitted.
Free Standing Sign	A sign on a frame, pole, or other support structure that is not attached to any building.
Front Property Line	That property line that abuts or is along an existing or dedicated public street, or when no public street exists, is along a public way.
Grade	The curb level adjacent to the front property line or the mean elevation of the finished lot, as measured along exterior building walls of the principal building, whichever is higher.
Gross Floor Area	Gross floor area, for the purpose of calculating floor area ratio, is defined as the gross horizontal areas of several floors of the building measured from the exterior walls. Gross floor area shall include elevator and stairwells at each floor; floor space used for mechanical equipment except equipment open or enclosed, located on the roof;; interior balconies or mezzanines; enclosed porches; and floor area devoted to accessory uses. Below grade accessory parking and exterior balconies and/or porches are excluded from gross floor area."
Gross Plot Area	The entire land area within the boundaries of a plot.
Incidental Sign	A sign that contains no commercial message and that is exclusively used to convey directions or other information for the convenience of the public. Included are signs designating rest rooms, address numbers, hours of operation, entrances to buildings, help wanted, public telephone, etc. Also included are signs on private property designed to guide or direct pedestrians or vehicular traffic, such as “entrance” and “exit” signs.
Individual Letter Sign	A wall sign or high-rise building sign consisting of raised individual letters, script or symbols. The background of an individual letter sign is either the exterior building wall surface or another opaque, non-illuminated surface.
Land Leasee	The investor of land from SEZAD which seeks to develop the land for Industrial use purposes.
Landscaped Area	Substantially covered with turf, ground cover, shrubs, trees or other living plant material. m: Meter (30m = 30 meters). (See also Shelterbelt).

GLOSSARY

Marquee	A roof-like structure of a permanent nature that projects from the wall of a building and overhangs the public way.
Marquee Sign	A sign incorporated into or attached to a marquee or permanent canopy.
Motor Vehicle	Any passenger vehicle, truck, truck-trailer, trailer or semi-trailer propelled or drawn by mechanical power.
Non-Accessory Parking	Parking spaces (and the drive aisles and circulation area associated with such parking spaces) that are provided to serve the general public rather than being reserved exclusively for occupants of and visitors to a particular use (e.g., public parking garages).
Off Premise Sign	A sign that directs attention to a business, commodity, service, or entertainment conducted, sold, or offered elsewhere than upon the plot upon which it is located or to which it is affixed.
On-Premise Sign	A sign that directs attention to a business or profession conducted or to a commodity, service, or entertainment sold or offered upon the premises where the sign is located.
Ornamental Fencing	A decorative fence, including wrought iron or fencing that gives the appearance of wrought-iron fencing, but expressly excluding chain-link, barbed wire and similar non-decorative fences.
Painted Wall Sign	A sign applied to a building wall with paint or a thin layer of vinyl, paper or similar material adhered directly to the building surface and that has no sign structure.
Permanent Sign	Any sign not classified as a temporary sign.
Permitted Use	A use permitted by-right in the subject district in accordance with the applicable use regulations of this document.
Plot Coverage	The area of a plot covered by principal and accessory buildings, as measured along the exterior building wall at ground level, and including all building projections other than those expressly allowed encroaching into required setback areas.
Podium	The portion of a building encompassing the ground floor or the ground and several additional floors or mezzanine serving as a base for a tower above.
Portable Sign	Any sign not permanently attached to the ground or other permanent structure or a sign designed to be transported, including, but not limited to, signs designed to be transported by means of wheels and signs made as A-frames or T-frames.
Principal Building	A building or combination of buildings of chief importance or function on a lot. In general, the principal use is carried out in a principal building. The difference between a principal building and an accessory building or structure is determined by comparing the size, placement, similarity of design, use of common building materials, and the orientation of the structures on the plot.
Principal Use	An activity or combination of activities of chief importance on the lot. One of the main purposes for which the land, buildings or structures are intended, designed, or ordinarily used.
Product Display Window	An illuminated window display area in which products and goods are displayed to pedestrians but do not generally allow visibility into the interior of the building.
Projecting Sign	A sign attached to and projecting out from a building face or wall, generally at right angles to the building. Projecting signs include signs that are totally in the right-of-way, partially in the right-of-way, or fully on private property.
Public Open Space	Any publicly-owned open area, including, but not limited to parks, playgrounds, beaches, waterways, parkways and streets.
Public Way	Any sidewalk, pedestrian path or trail, street, alley, highway, or other public thoroughfare.

Roof Line	The peak of a roof or top edge of a parapet, whichever is higher.
Roof Sign	A sign or any portion of a sign that is erected upon or projects more than 24 inches above the roof line of any building whether the principal support for the sign is on the roof, wall or any other structural element of the building.
Satellite Dish Antenna	A device designed or used for the reception or the transmission of television or other electric communication signal broadcast or, relayed from a satellite. It may be a solid, open mesh, or bar configured structure in the shape of a shallow dish or parabola.
Setback	An open, unobstructed area that is required by these regulations to be provided from the furthestmost projection of a structure to the line of the plot on which the building is located.
Shelterbelt	A major landscape strip of land dedicated to mitigate the strong winds from the South-West across the Duqm Industrial area.
Special Economic Zone Authority Duqm (SEZAD)	The authority appointed by the government of Oman, to monitor and regulate Al Duqm Industrial City.
Sign	Materials placed or constructed, or light projected, that: (1) conveys a message or image and (2) is used to inform or attract the attention of the public. Some examples of “signs” are materials or lights meeting the definition of the preceding sentence and that are commonly referred to as signs, placards, A-boards, posters, billboards, murals, diagrams, banners, flags, or projected slides, images or holograms. When not qualified with the terms “on-premise” or “off -premise,” the term “sign” refers to all signs, whether on or off premise in nature.
Story	That portion of a building included between the surface of any floor and the surface of the floor next above, or if there is no floor above, the space between the floor and the ceiling next above. A basement or below-grade floor will be counted as a story when more than one-half of the clear floor height is above grade.
Street	Any public road, communal street, private street, right-of-way or other shared access way that provides the pincipal frontage to a dwelling but does not include an access leg to a single battleaxe lot.
Street Frontage	Any portion of a lot that abuts a street (also plot Frontage).
Temporary Sign	A sign that is designed to be used only temporarily and not permanently mounted to a structure or permanently installed in the ground.
Use	The purpose or activity for which the land, or building thereon, is designed, arranged or intended, or for which it is occupied or maintained. Unless otherwise expressly indicated, the term “use” means principal use.
Vehicular Access Point	Any area of the plot not located within any enclosed or partially enclosed structure and that is devoted to a use by or for motor vehicles including parking (accessory or non-accessory); storage of automobiles, trucks or other vehicles; gasoline stations; car washes; motor vehicle repair shops; loading areas; service areas and drives; and access drives and driveways.
Video Display Sign	A sign capable of displaying full-motion imagery of television quality or higher.
Wall Sign	A single-faced sign attached flush to a building or other structure or a sign consisting of light projected onto a building or other structure. Wall signs do not include signs that are attached to sign structures.
Window Display Sign	A single-faced sign attached flush to a product display window or other window or glazed surface.

PREAMBLE



PREFACE

PURPOSE

The purpose of this document is to provide developers and future plot owners' in Duqm Northern and Central Industrial zones with clear planning framework, design guidelines and plot regulations.

This document provides a simple and straightforward summary of the design guidelines, development control regulations and planning requirements to be followed in the Duqm Industrial Zones.

HOW, WHY & WHO

How to use this document?

The document provides straightforward information to guide the development of Duqm Northern, Central and Southern Industrial zones supported by illustrative charts, diagrams and the different development guidelines adopted by the Duqm Special Economic Zone Authority (SEZAD).

Why is this document needed?

This handbook will provide answers to many plot owners/developers' questions and queries. It will also establish a set of rules and urban guidelines that will ensure creating well designed spaces with integrated building forms and characters.

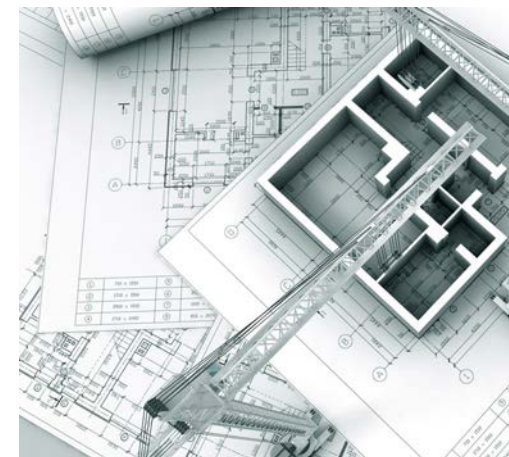
Who should use this document?

This handbook is essential for plot owners of industrial plots and future developers of Duqm Northern and Central Industrial zones. It is also beneficial for consultants, designers and engineers commissioned by plot owners/developers to perform design/construction services for industrial plots, however, Plot Sheets should be referred to for specific plot guidelines.

DOCUMENT STRUCTURE

This document is broken into the following sections:

1. Preamble
2. Introduction
3. Duqm Master plan
4. Light Industry Regulation
5. Medium Industry Regulation
6. Heavy Industry Regulation
7. Renewable Energy Industry Regulations
8. General Architectural Guidelines
9. Utility Regulations
10. Environmental Regulations





1. INTRODUCTION

DUQM INDUSTRIAL PROJECT

PROJECT DESCRIPTION

As part of the new industrial port city at Duqm, SEZAD is developing a substantial industrial zone featuring a wide array of industries and logistical uses.

The Duqm Industrial Master plan project is a significant element of national and economic development for the Sultanate of Oman. The development of the Industrial master plan and the Port of Duqm should enhance and significantly improve the capacity of exports of petrochemicals, minerals, and key manufactured goods, which will act to benefit the Omani people.

The subject land is known as Northern, Central and Southern Industrial Zones of Duqm and is shaped like a right-angled triangle located to the north and west of the port of Duqm, inland to the north-west of the existing airport. It is predominately desert landscape with very sparse areas of plants and trees, and is traversed by a series of large wadis, or natural water channels. The proposed area for development is approximately 244 square kilometres.

The project boundary covers the central and northern parts of Duqm industrial area masterplan. The area includes the main highway, internal roads, train route and other facilities that support the industrial area. Currently it is estimated that the public facilities will be a total of 10% of the area (this will be confirmed when further information is available). The industrial area will be considered as 244 km² (inclusive of the 10% public facilities area).

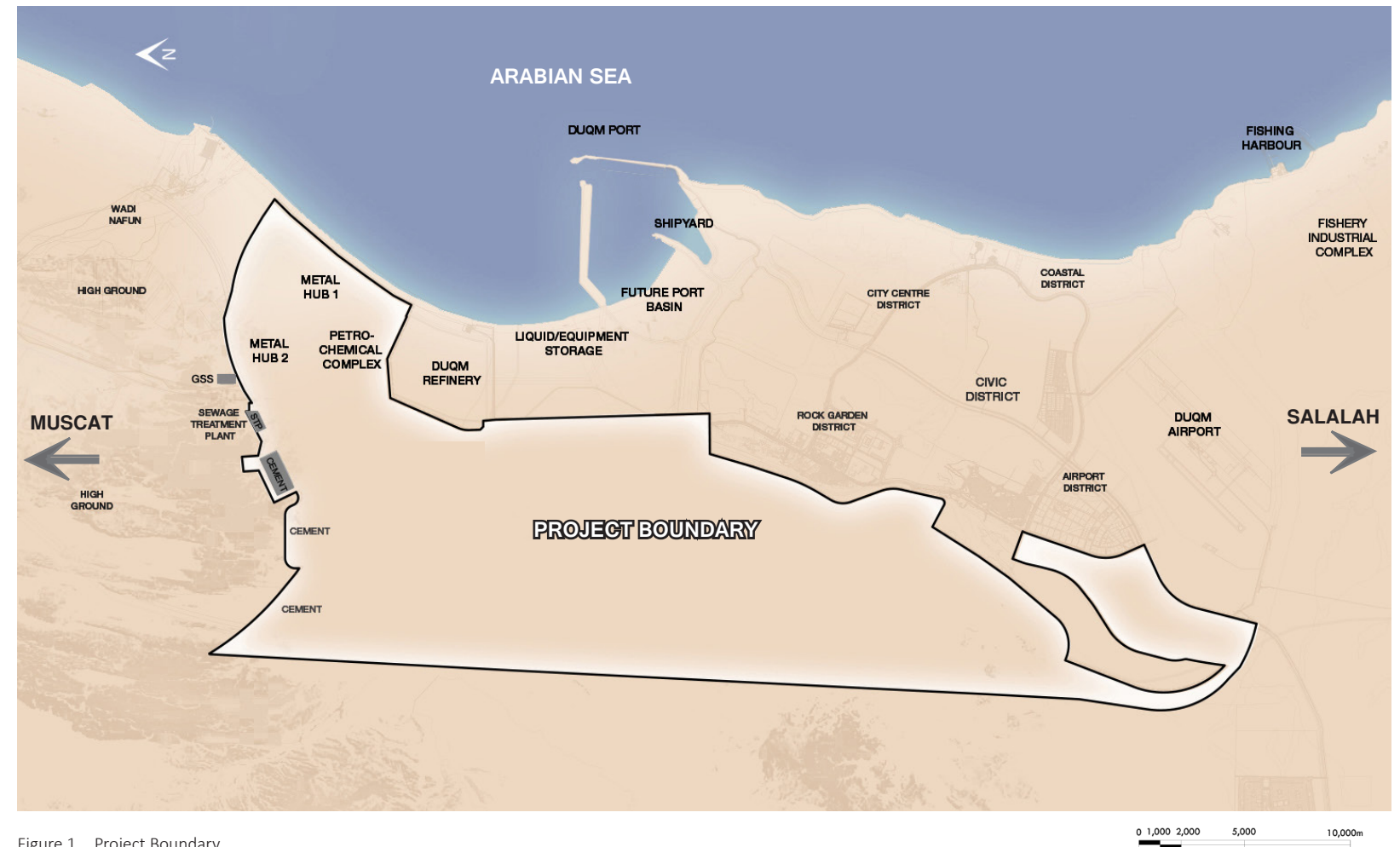


Figure 1 Project Boundary

DUQM INDUSTRIAL PROJECT

SEZAD VISION

The following is the vision for the Special Economic Zone at Duqm:

To create a bustling activity zone featuring a wide spectrum of economic activities that have an economic appeal; an attractive business and investment core; an efficient industrial hub for heavy, medium and light industries; an integrated model of economic development; and creates a sustainable economic industrial park

SEZAD OBJECTIVES

The objectives for the Special Economic Zone at Duqm are as follows:

- To facilitate the establishment of a diverse range of industries within the industrial clusters;
- To ensure orderly, economical and beneficial use and development of industrial land;
- To maintain and improve the quality of the built environment;
- To ensure development decisions, now and in the future, reflect the values and needs, wants and desires of the SEZAD and reduce the likelihood of land use conflicts;
- To preserve the natural environment and to reduces and/or mitigates impacts associated with industrial development.

The Al Duqm Industrial Master plan Design Guidelines have been prepared to guide development to achieve the SEZAD Vision and achieve the specified objectives.



DUQM SPECIAL ECONOMIC ZONE AUTHORITY

SEZAD VISION

Inspired to create a world renowned industrial hub, the Special Economic Zone Authority Duqm (SEZAD) vision for Duqm Industrial City can be summarized by the following:

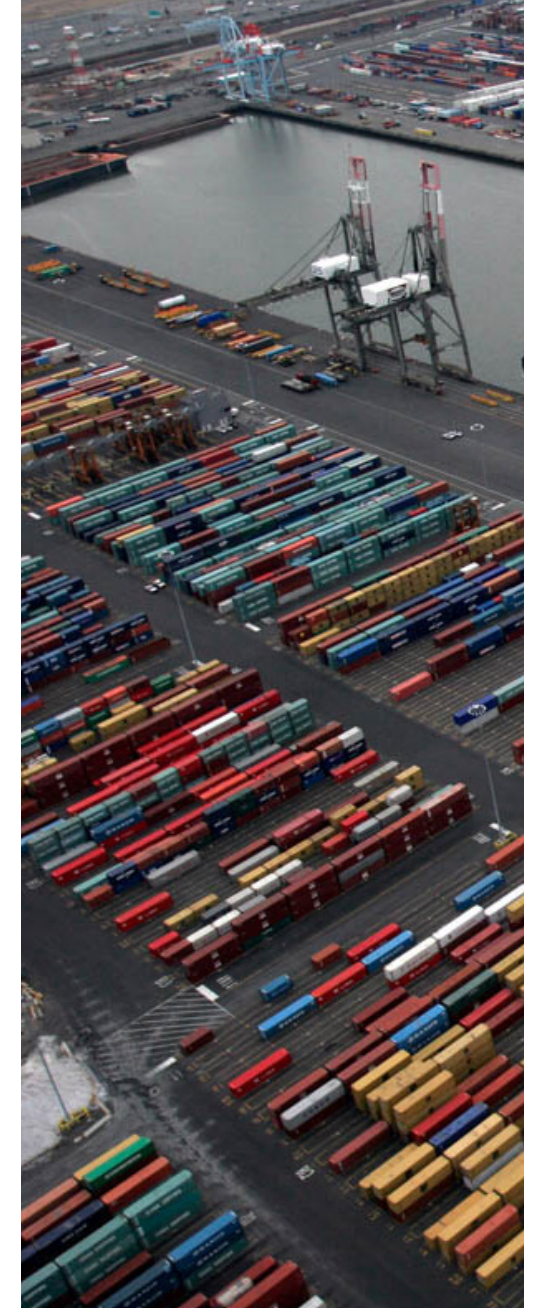
- A bustling activity zone featuring a wide spectrum of economic activities
- An appealing economic hub
- An attractive business and investment core
- An efficient industrial hub for heavy, medium and light industries
- An integrated model of economic development
- A sustainable economic industrial park

SEZAD

Established by a Royal Decree in 2011, the Duqm Special Economic Zone Authority (SEZAD) is the sole government entity responsible for managing the economic zone. Fundamentally, SEZAD will run, regulate, manage and oversee all economic activities and operations within the Special Economic Zone and will be referred to as the “Authority” in this document.

Furthermore, the role of SEZAD expands beyond the daily complex operations of the economic zone to provide insightful strategic planning for the development of the modern Duqm City. Committed to creating livable spaces, establishing an economically efficient hub and protecting the environment, SEZAD envisions Duqm City to become a popular regional destination offering residential, recreational and investment opportunities.

Under the wise supervision of SEZAD, the Special Economic Zone is set to develop into an attractive business hub, with a wide-ranging economic center and advanced industrial sector appealing to many investors through offering great incentives, simple business transactions and one-stop shop dealings.



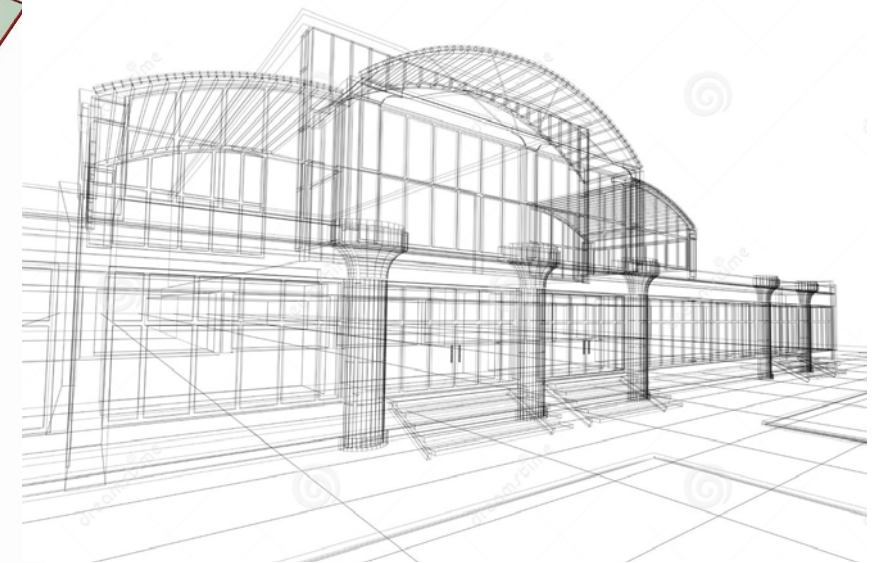
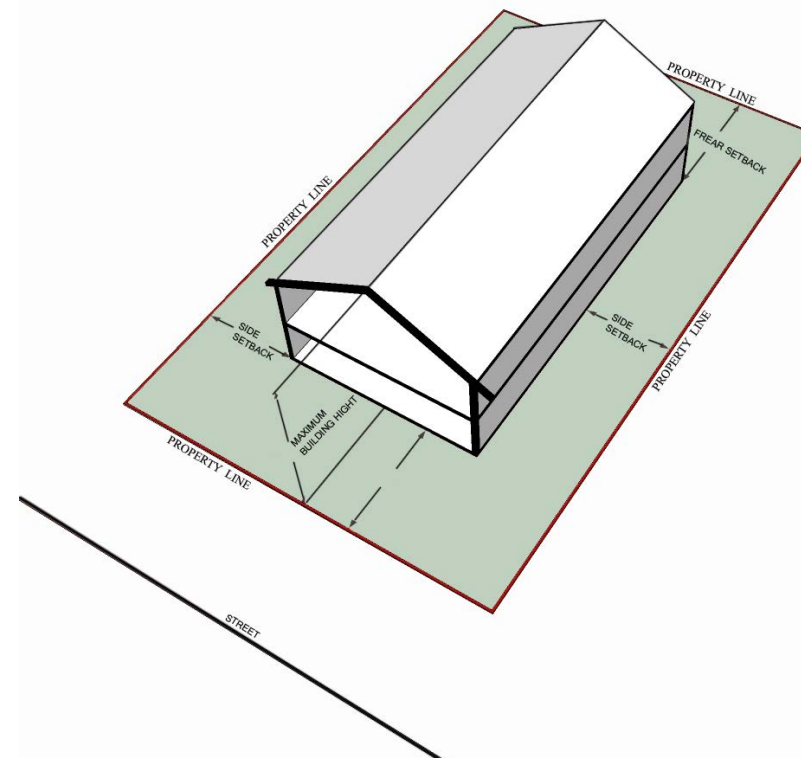
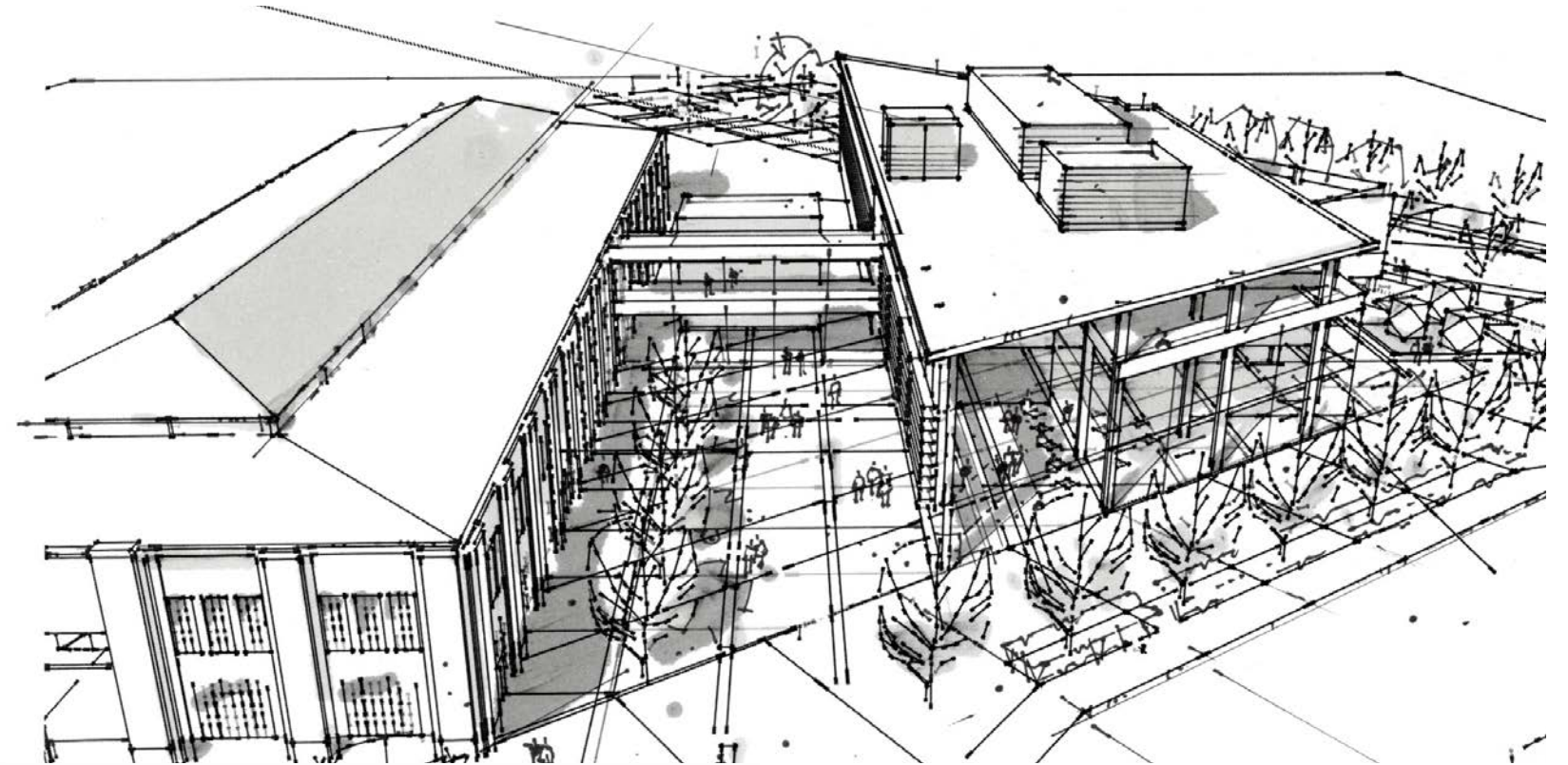
DUQM INDUSTRIAL IDENTITY

DEVELOPMENT CONTROL REGULATIONS INTENT

The Duqm Development Regulations are intended to create a well-integrated industrial development with a unified and synchronized urban form to achieve the desirable business image, the bustling industrial vibe and the appealing investment environment sought by SEZAD. Creating an urban identity compatible with the operational nature of the Duqm industrial site and realizing a well-coordinated business environment are the ultimate goals behind these development regulations.

DISCLAIMER

The development control regulations provided within this document provide minimum regulations and shall not be considered as a substitute for internationally accepted codes and standards. Future plot owners, developers and consultants shall refer to internationally recognized building codes, fire, life and safety codes, environmental codes and disability codes.

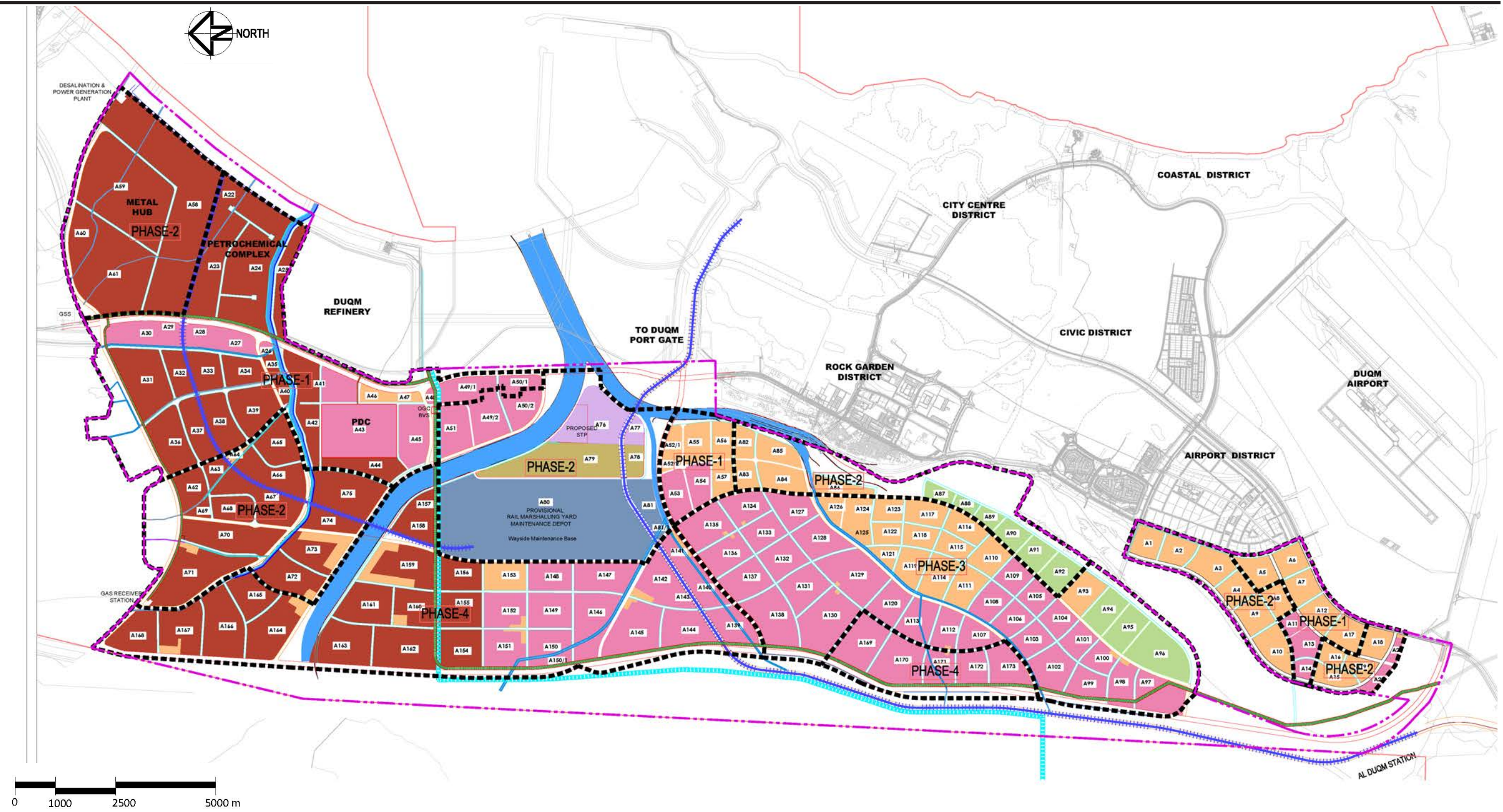




2. DUQM MASTERPLAN

DUQM INDUSTRIAL MASTERPLAN

LAND USE PLAN



DUQM INDUSTRIAL MASTERPLAN

LAND USE BREAKDOWN

Following the feasibility study and the current Duqm Industrial Area Masterplan, Table 1 below summarizes the areas of the various land uses within the project boundary:

PHASE	HEAVY INDUSTRY	MEDIUM INDUSTRY	LIGHT INDUSTRY	SABKHA MED. INDUSTRY	RENEWABLE ENERGY IND.	RAILWAY YARD	UTILITIES HUB	Total Area (km ²)
PHASE-1	15.267	8.326	3.710	-	-	-	-	27.303
PHASE-2	24.366	2.189	6.349	2.770	2.232	10.576	2.001	50.483
PHASE-3	-	20.252	5.365	-	-	-	-	25.617
PHASE-4	14.333	13.359	1.328	-	-	-	-	29.020
Total Area (km ²)	53.966	41.354	16.752	2.770	5.004	10.576	2.001	132.423

TABLE 1 Area by Land Use and Phase



3. RENEWABLE ENERGY INDUSTRY

GUIDELINES

OVERVIEW

DEFINITION

Renewable Energy is defined as energy from a source that is not depleted when used, such as wind or solar power, but is increasingly considered to include biomass and waste-to-energy practices. Renewables are vital to the long-term goals and objectives for SEZAD within the context of the Duqm project. The future use of natural and sustainable energy resources within Duqm is aligned with the core values of SEZAD which seeks the optimal use of both natural and environmental resources. This approach reflects the longer term economic and environmental objectives of the Sultanate as a whole. Whilst Oman's existing economy is predicated on an abundance of natural oil and gas reserves, the Authority for Electricity Regulation (AER) has recognized the future potential for renewable resources within the Sultanate.

Sources of renewable energy include Solar, Wind, Geothermal, Wave and Waste-to-Energy Plants. The Duqm Master plan does not include the coastal areas outside of Duqm Port, which precludes this report from including guidelines on wave energy developments which may occur outside SEZAD's boundary. The AER report has demonstrated that the potential for geothermal energy within the Duqm region is relatively limited. These energy types are therefore excluded from the scope of these guidelines.

These guidelines deal with the three likely contributors to the renewable energy sector in Duqm: Solar, Wind, and Waste-to-Energy. These industries will increasingly form a significant role within the local energy sector, and such developments, due to their potential impact, are required to be carefully managed within the context of the overall master plan for Duqm.



PERMITTED USES

PERMITTED USE



Permitted uses are functions and operations that are authorized and approved to be located on a plot within the Renewable Energy Industry area and that are considered suitable within the context and correspond to the vision of the area.

The following uses are permitted in areas designated by land use as a renewable energy industrial plot. All other uses are prohibited.

- Solar-farm / Photovoltaic complex
- Wind farm
- Waste-to-Energy plants
- Any combination of the above uses
- Ancillary repair and maintenance facilities
- Ancillary office use, staff accommodation, prayer rooms

RENEWABLE ENERGY INDUSTRY AREA COMPONENTS

The masterplanning process has resulted in the allocation of lands on the periphery of Duqm for appropriate industrial uses. Some plots, due to their undulations and natural topography, are readily adaptable for commercial use. However, such sites may be more suited to uses within the renewable energy sector. Upland sites are traditionally associated with wind farming. Similarly, such sites also readily accommodate solar energy developments through the installation of photovoltaics.

Waste-to-Energy plants may be accommodated more easily within a traditional industrial setting given the nature of the practice, which involves significant trip generation, industrial processes, and more significant staffing numbers than both solar and wind farms.

In addition to Renewable Energy functions, the general layout of the project covers supporting and ancillary functions, such as office buildings and repair and maintenance buildings which may be necessary at some sites where renewable energy is produced.

The accompanying sitemap demonstrates the location of sites which have been allocated for renewable energy industries in the Duqm masterplan.



The land use plan (Figure 58) shows the zone designated for the Renewable Energy Industrial Area. The total area reserved is estimated to be 5.01 km², where the largest area is concentrated in the far south and the south east areas while smaller Light Industry zones are scattered throughout the entire industrial zone.

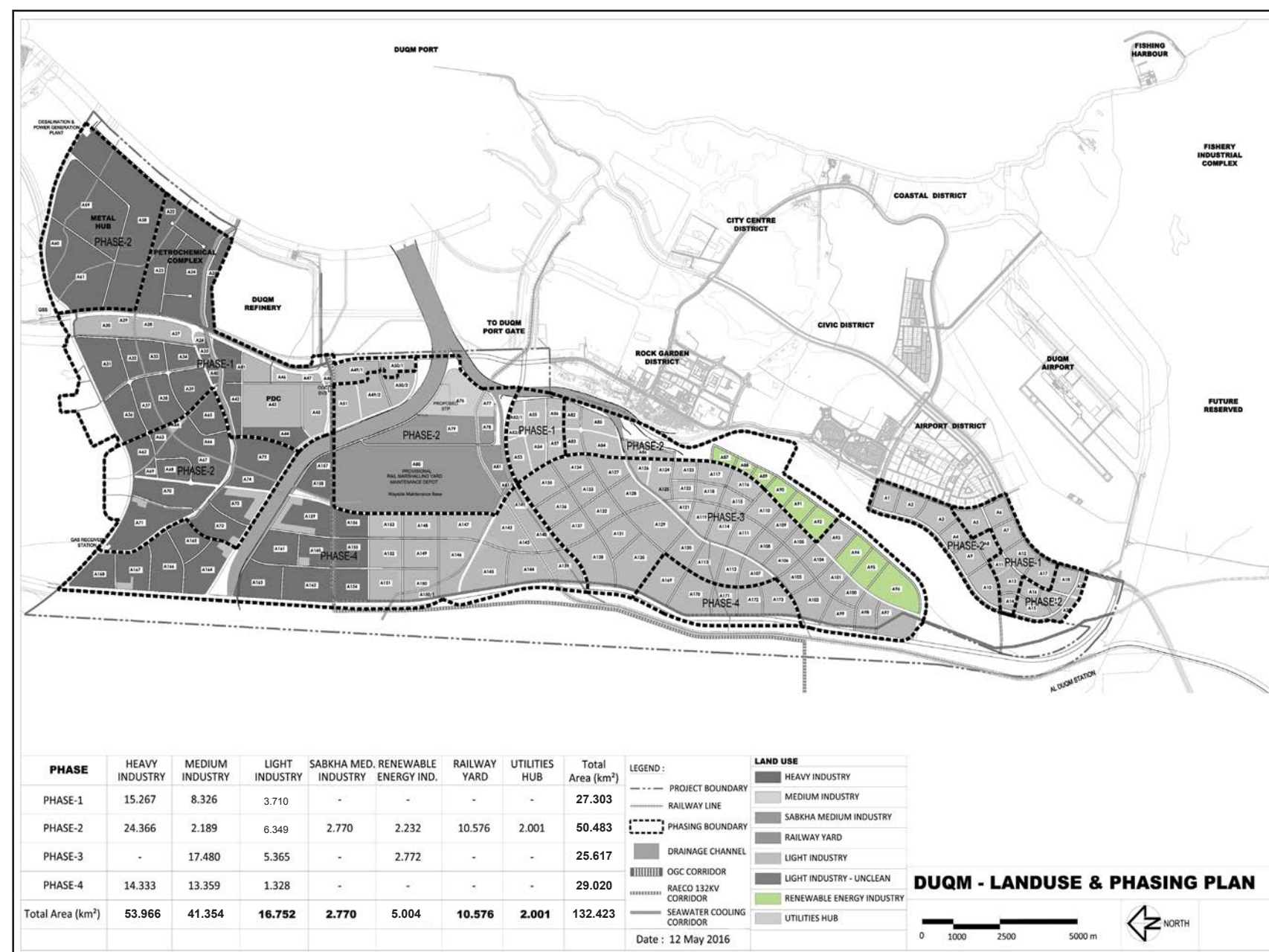


Figure 60 Renewable Energy Industry

DEVELOPMENT STATISTICS

The Design Statistics section is yet to be completed as it is reliant on information from the final plot sheets. Much of the information that would be contained in the Design Statistics section is included in the overall Design Guidelines. SEZAD to determine whether to include the Design Statistics section in the final Design Guidelines document.



DESIGN GUIDELINES

PLOT ENVELOPE

ACCESS AND CIRCULATION

Vehicle Access:

The location of ingress and egress points for vehicles accessing the designated sites, circulation within the site itself, and the implications of those on public traffic, are all considered in setting the access and circulation design guidelines. The following parameters shall be followed for car and truck access and circulation within plots designated as Renewable Energy Industry sites:

- Access points and internal roads within each plot shall be paved with hard surfaced material with appropriate drainage.
- All building structures on the plots shall be accessible by civil defense and fire department vehicles
- Vehicle driveways within the plot shall be located so as to minimize conflict with pedestrian circulation. Minimum width for driveways shall be 4m, while parking ramps and egress and ingress points shall be determined taking into consideration the type of trucks and vehicles required to service the nature of industry on each specific plot given that approvals are granted by SEZAD for the dimensions of these access points
- Ornamental entrance structures, pylons and gateways for vehicle driveways are permitted on plots
- Vehicle driveways shall be located a minimum of 2.0m from fire hydrants, a minimum of 1.0m from street lights and adjacent plot lines while egress and ingress points to be located away from street intersections
- Exits and entrances to the plots shall be adequately provided so as not to create congestion at the entry point or generate queuing or safety issues at public roads. Location of the exits and entrances to the plots are shown in plot sheets and shall be followed
- Truck access and circulation within the plot shall be separated from passenger car access and circulation
- It is recommended within the Renewable Energy Industry sites to secure the perimeter and regulate entry by providing controlled guarded entrances and check points at all plot accesses
- The minimum lane width is 3.65m with a minimum radii of 10m

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.

Pedestrian Access:

The following parameters shall be followed for pedestrian circulation within the plots in the Renewable Energy Industrial Zone:

- Paving material and dimensions of primary pedestrian connections shall differ from those of secondary pedestrian connections and shall be of a material suitable for pedestrian use around administration and maintenance buildings
- Access to solar power cells and wind turbines shall be provided in a manner that enables safe pedestrian access
- Pedestrian entrances to buildings shall be clearly defined, visibly marked and easily accessed
- Pedestrian connections and walkways shall be safely buffered and protected from vehicular traffic and circulation on plot
- Minimum width of the sidewalk shall be 1.5m in all ROWs and 1.2m within plots.
- A pedestrian connection shall run continuously from the public pedestrian sidewalk through the parking area pedestrian walkways to the main building pedestrian entrances, where applicable



PLOT ENVELOPE

BUILDING HEIGHTS

BUILDING HEIGHT

Wind Turbine

Max height: **160m**

Solar Cell

Max height: **8m**

Waste to Energy Plant

is equal to **4 floors**

maximum height of **24m**

Structure height requirements will vary considerably between renewable energy industries. As a result, each industry use is treated with separate guidelines under each subject heading. The building height within the renewable energy sites is to follow the guidelines below in order to create a balance between the requirements of the renewable industry and the effect of the development on the character and the vision of the area. Notwithstanding the following guidelines, proposed solar / PV developments and proposed wind-farms will need to satisfy all Civil Aviation Authority requirements.

Wind:

- The total turbine structure height permitted on plots designated as renewable energy industry sites is 160m (including rotor blade) from natural ground level
- For specific operational necessities that require exceeding the set height limit, an exception may be made subject to approval. Building heights equal to 50% of the building setback from the property boundary could be filed for approval
- The total ancillary building height permitted on plots located within Renewable Energy Industry sites is equal to 3 floors measuring a maximum sum of 18m

Solar / PV Cell:

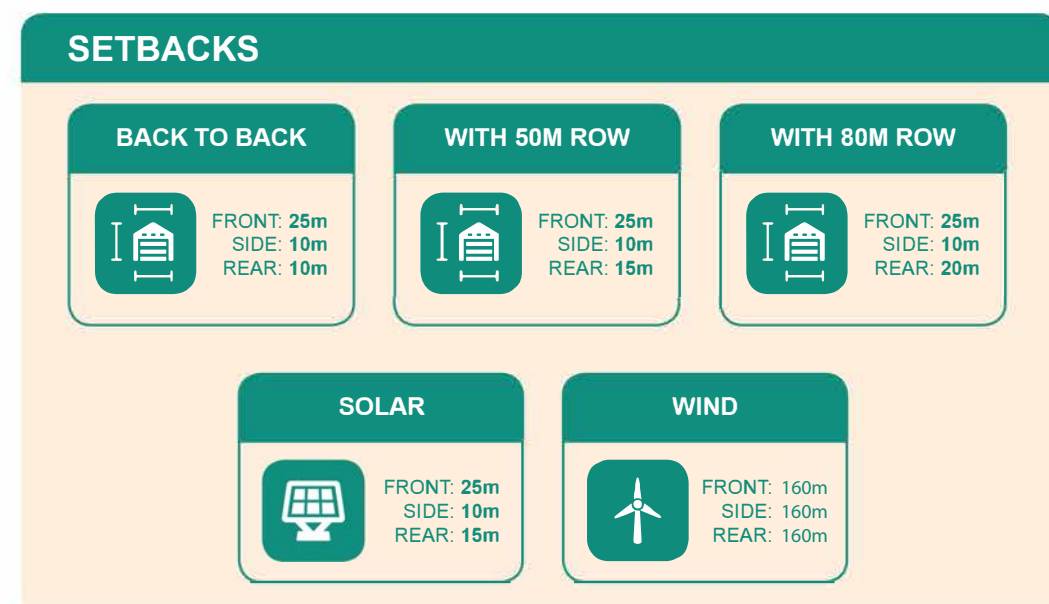
- The PV cell structure height allowed on plots designated as renewable energy industry sites is 8m from natural ground level
- For specific operational necessities that require exceeding the set height limit, an exception may be made subject to approval. Building heights equal to 50% of the building setback from the property boundary may be filed for approval
- The total ancillary building height permitted on plots located within Renewable Energy Industry sites is equal to 3 floors measuring a maximum sum of 18m.

Waste to Energy:

- The total building height for waste-to-energy plants permitted on plots located within the Renewable Energy Industrial Zone is equal to 4 floors measuring a maximum sum of 24m
- For specific operational necessities that require exceeding the set height limit, an exception may be made subject to approval. Building heights equal to 50% of the building setback from the property boundary may be filed for approval
- Examples of structures that may be exempt from height limit restrictions (upon approval) are chimneys required for operational purposes
- The ground floor of industrial buildings may be raised by 1.2m (maximum) for loading and unloading purposes

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.





Setbacks are specified distances required between the plot boundary and the external face of a building or boundary wall. The purpose of setbacks is to provide a degree of separation between land uses and to provide room for emergency vehicles' access. Below are requirements to be followed for each of the Renewable Energy Industry types:

Wind:

- The setbacks for all wind turbines on Renewable Energy Industry plots are as follows:
 - The front setback shall be equal to 160m
 - The side setback shall be equal to 160m
 - The rear setback shall be equal to 160m

Solar:

- The setbacks for all PV / Solar cells on Renewable Energy Industry plots are as follows:
 - The front setback shall be equal to 25m and shall incorporate a 10m landscape buffer
 - The side setback shall be equal to 10m
 - The rear setback shall be equal to 15m

Ancillary Buildings or Wind and Solar Developments:

The setbacks for all ancillary buildings or Wind Energy and Solar Energy sites are as follows:

- Setbacks for back to back plots at Renewable Energy Industry plots are as follows:
 - The front setback shall be equal to 25m and shall incorporate a 10m landscape buffer
 - The side setback shall be equal to 10m
 - The rear setback shall be equal to 10m
- Setbacks for sites with a 50m ROW along the rear are as follows:
 - The front setback shall be equal to 25m
 - The side setback shall be equal to 10m
 - The rear setback shall be equal to 15m and shall incorporate a 10m landscape buffer
- Setbacks for sites with an 80m ROW along the rear are as follows:
 - The front setback shall be equal to 25m and shall incorporate a 10m landscape buffer
 - The side setback shall be equal to 10m
 - The rear setback shall be equal to 20m shall incorporate a 10m landscape buffer
- The green buffer is the section of the setback area closest to the plot boundary where only trees may be planted and landscaping applied. On plot storm water drainage strategies that utilize landscape areas may be adopted and applied within the buffer section
- The green buffer area along the 30m, 50m, and 80m Right of Way must commence at the plot boundary and continue into the plot

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.

Justifiable setback variations may include:

- Additional landscaping planted to screen development from the street
- A landmark architectural development that addresses the street is to be constructed
- Parking and major industrial activities are to be located to the rear of the plot
- Parking is to be located below ground or at ground level with G+1 above



Waste to Energy:

The setbacks for waste-to-energy developments at back to back plots are shown in the previous graphic:

- The front setback shall be equal to 25m and shall incorporate a 5m landscape buffer
- The side setback shall be equal to 10m
- The rear setback shall be equal to 10m
- The setbacks waste-to-energy developments at for plots with a 50m ROW along the back are shown in the previous graphic:
 - The front setback shall be equal to 25m and shall incorporate a 5m landscape buffer
 - The side setback shall be equal to 10m
 - The rear setback shall be equal to 15m and shall incorporate a 3m landscape buffer
- The setbacks for waste-to-energy developments for plots with an 80m ROW along the back are shown in the previous graphic:
 - The front setback shall be equal to 25m and shall incorporate a 5m landscape buffer
 - The side setback shall be equal to 10m
 - The rear setback shall be equal to 20m and shall incorporate a 5m landscape buffer

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.



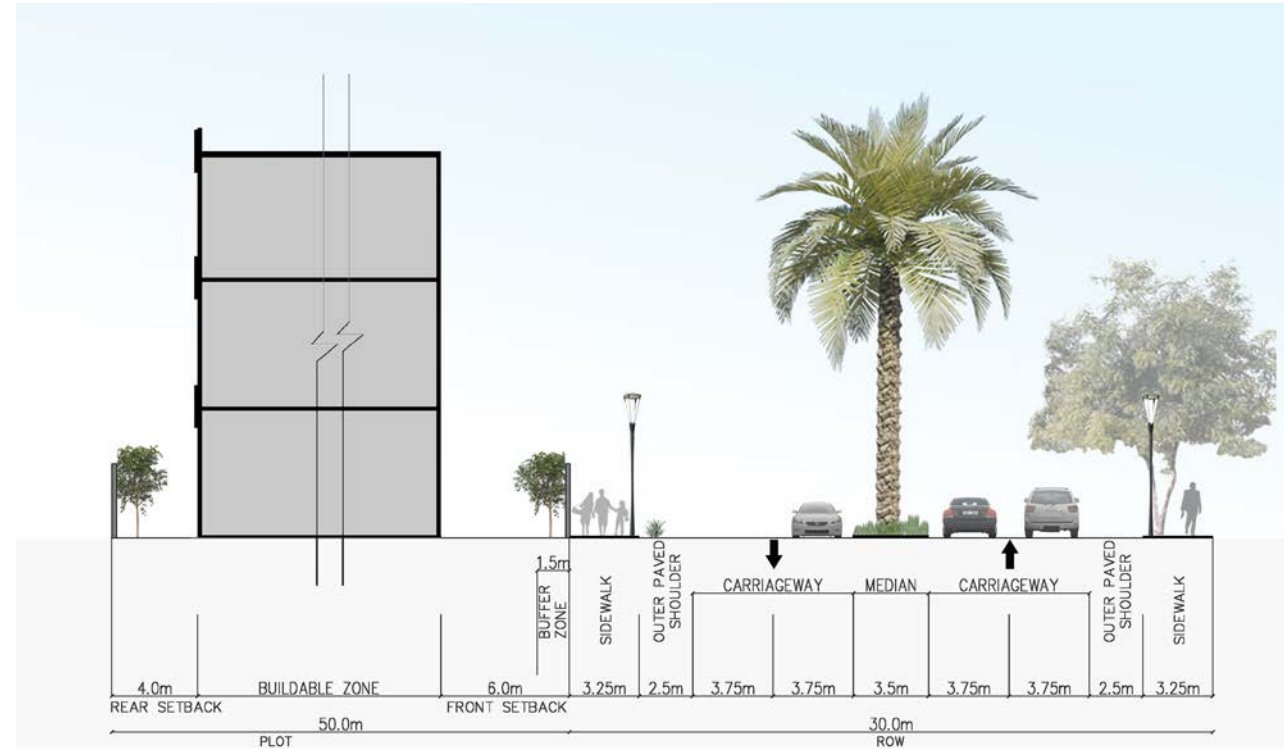


Figure 61 Plot on 30m ROW

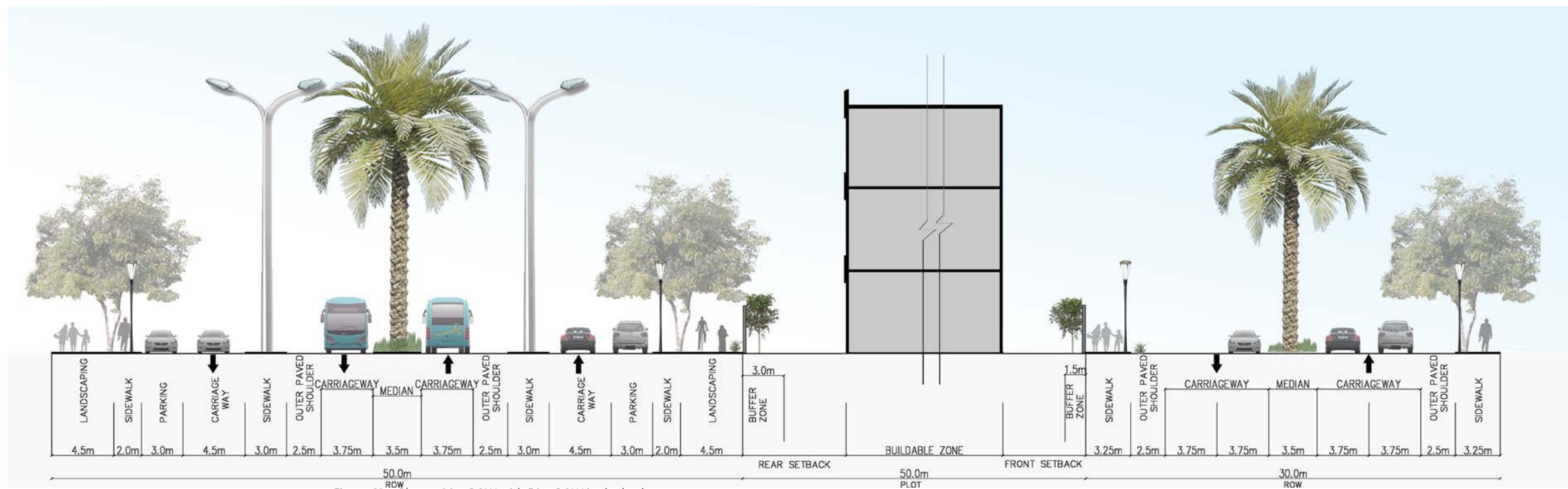


Figure 62 Plot on 30m ROW with 50m ROW in the back

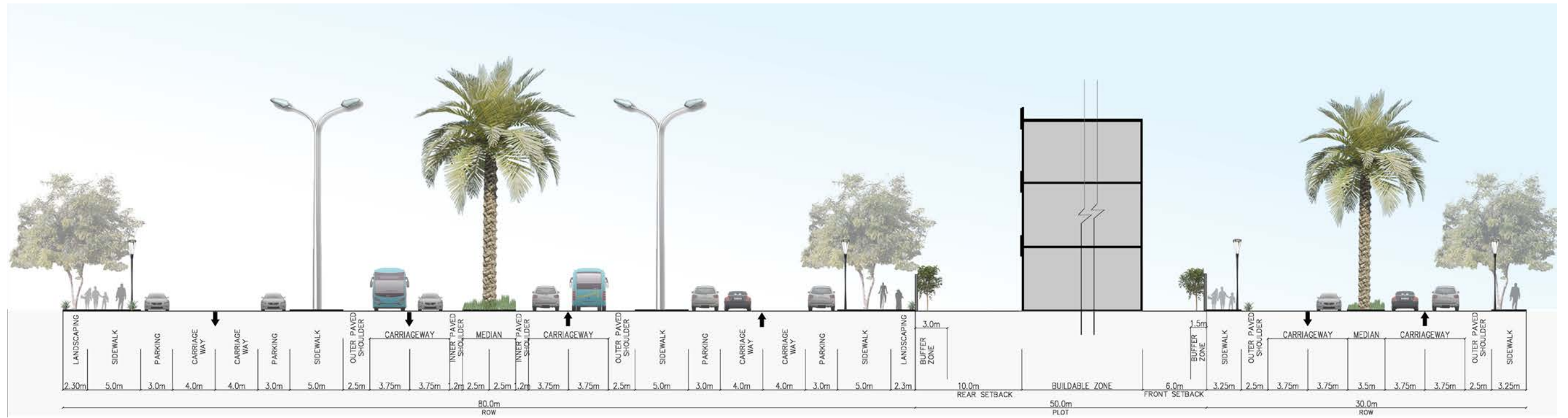


Figure 63 Plot on 30m ROW with 80m ROW in the back

PLOT COVERAGE



Building Area
is not to exceed 65%
of the Plot Area

Plot coverage is the maximum percentage of the plot area permitted to be covered by the buildings or structures applied to ensure that the built environment within the area is not compromised. The following clarifies the purpose of plot coverage and its value within the area:

- Plot coverage guarantees that no structure abuts the boundary of the plot for lighting, fire prevention and ventilation purposes
- Plot coverage controls contribute to increasing the height of buildings by limiting the single floor area in order to achieve an appealing urban environment
- Plot coverage percentage is enforced and applied in order to allow for space within the plot for car and truck entering, circulating, loading etc
- Plot coverage shall allow for open space, landscaped areas and green buffers reserves required on plot
- Plot coverage shall allow for the Civil Defense vehicles to enter and reach all parts of all structures built on plot
- Plot coverage for plots within the Renewable Energy Industry Zone is not to exceed 65% of the site area
- The percentage mentioned above includes all buildings within the plot boundaries. Examples of such include; electric rooms, substations, guard and storage facilities as well as any light ancillary buildings that may be located within the premises

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.



FLOOR AREA RATIO



The FAR in Renewable Energy Industry is equal to **0.75**



The FAR in Waste to Energy Plant is equal to **0.60**

The Floor Area Ratio directs the intensity of usage of a building on a specific plot. It is related to the volume of all principle built structures on the plot, the plot coverage percentage, the number of floors and the GFA. The Floor Area Ratio is the total area of all floors divided by the total area of the plot.

- The purpose behind applying a FAR is to ensure that the land is optimally utilized while still enabling an attractive built environment to be developed
- The FAR for plots designated for Renewable Energy Industry uses is equal to 0.75, except in the case of Waste-to-Energy developments where the FAR is equal to 0.6

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.



PLOT SUBDIVISION / AMALGAMATION

PLOT AMALGAMATION

In cases where investors are willing to amalgamate 2 or more plots within the Renewable Energy Industry Zone, the following shall be taken into consideration:

- All Renewable Energy Industry Zone guidelines shall apply to the amalgamated plots
- The resulting plot shall maintain all external setbacks of the amalgamated boundary so as to preserve the character of the area
- The total GFA allocated for the amalgamated plot shall not exceed the sum GFA of all plots separately
- Accesses and connections to the amalgamated plot shall be based on the approved connections and entrances for the separate plots
- The amalgamation request is subject to the approval of SEZAD

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.

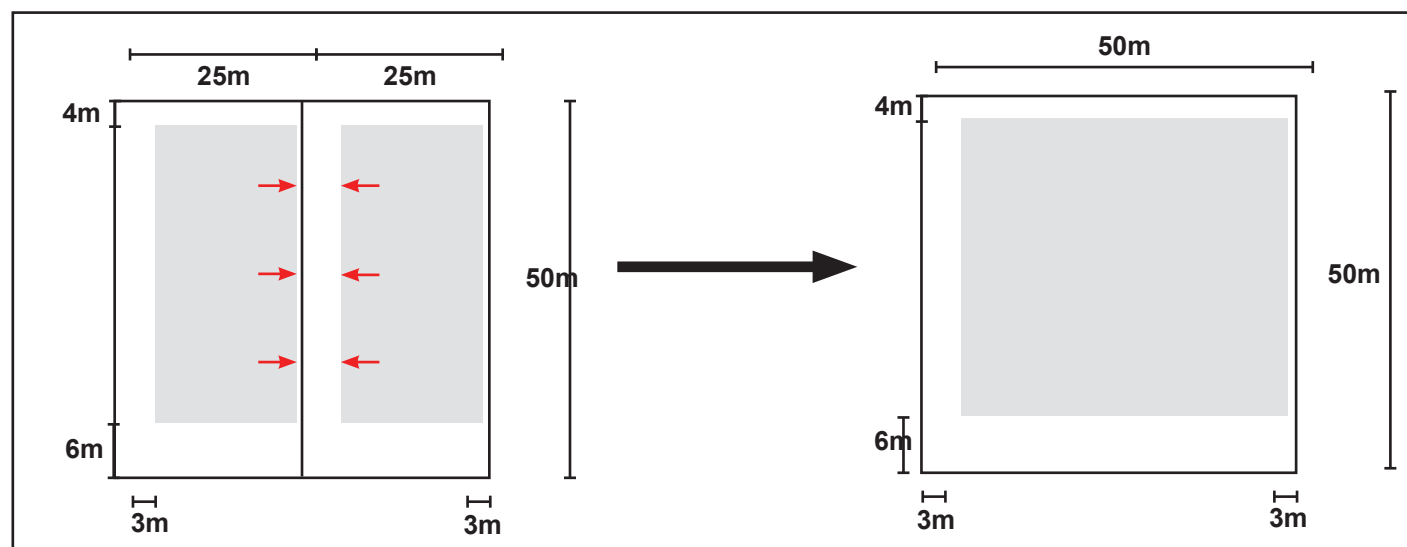


Figure 64 Plot Amalgamation

PLOT SUBDIVISION

In cases where investors are willing to subdivide a plot within the Renewable Energy Industry Zone, the following shall be taken into consideration:

- All Renewable Energy Industry Zone guidelines shall apply to the subdivided plot
- The resulting plot shall maintain all external setbacks of the new boundary as well as additional setbacks from neighboring plots so as to preserve the character of the area and provide sufficient space within the plot for vehicle entrance, circulation, parking and civil defense vehicle accessibility
- The total GFA allocated for the subdivided plot shall not exceed the maximum GFA based on 0.75 FAR for Solar and Wind Energy schemes, or 0.6 FAR for Waste-to-Energy schemes.
- Accesses and connections to the subdivided plots shall be based on the approved connections and entrances plan
- The subdivision request is subject to the approval of SEZAD

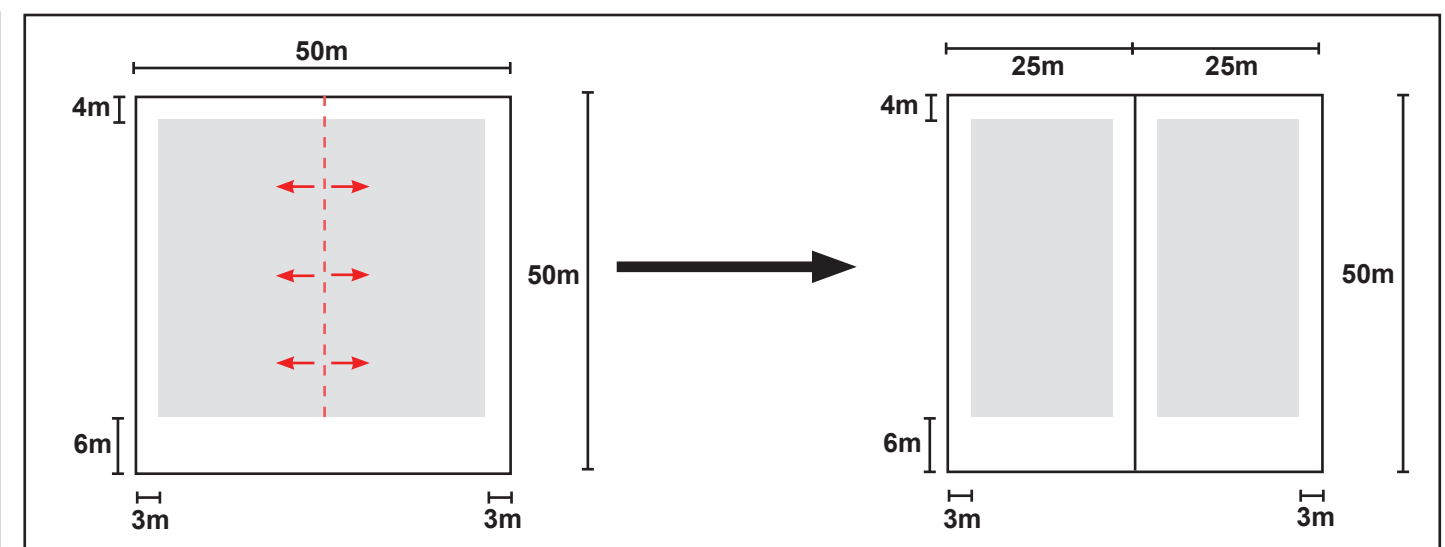
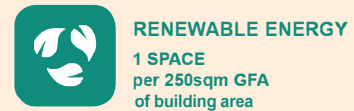


Figure 65 Plot Subdivision

PARKING REQUIREMENTS

P PARKING REQUIREMENTS



RENEWABLE ENERGY
1 SPACE
per 250sqm GFA
of building area



FACTORIES
1 SPACE
per 250sqm GFA



OFFICES
1 SPACE
per 80sqm GFA

On plot parking for vehicles within the entire industrial area is to be provided either within enclosed buildings or on designated areas. Parking shall be consistent with the parking standards and shall follow the guidelines below:

- All parking areas are to be at least 1.5m setback from the edge of any building, so as to allow for open space, walkways and overhangs
- Car parking and circulation shall be separate from truck parking and circulation
- Plot access and distance from junctions shall be designed in agreement with SEZAD highway design standards taking into account visibility and other safety issues
- No parking spaces shall be located near natural ventilation or air intakes on plot
- It is recommended to located the primary parking area at the side or the rear of the plot
- If the plot is located on more than one road, the access to the plot shall be provided from the minor road (30m ROW) maintaining that all accesses shall be from within the super block
- A sufficient number of trees shall be provided within the parking areas to provide shade at a rate of one tree for every six days
- Parking areas shall be screened from the public view
- Entrances and exits to and from parking and loading facilities shall be appropriately marked with clear directional signs
- For truck parking requirements, it is the responsibility of the developer to provide what they need and for the Authority to review and approve
- Ramps must comply with Oman Highway Design
- Disabled Parking Bays to be located to the closest point of access to the main administration building via the car park at a rate of 1 bay for every 25 standard bays

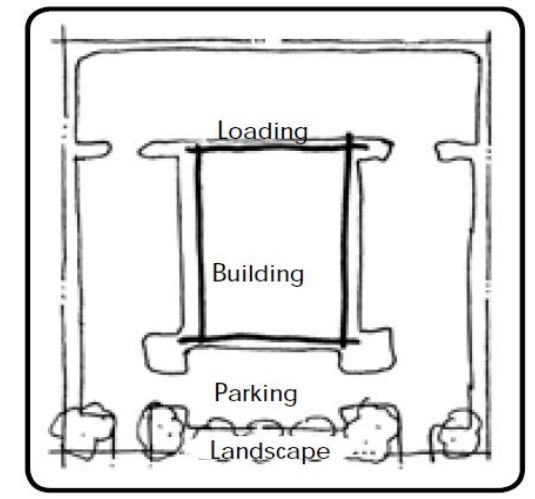
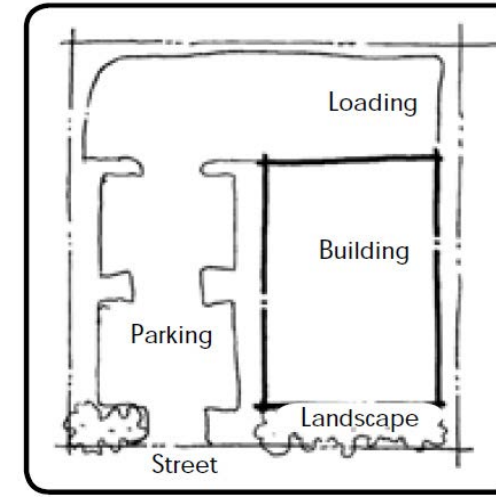
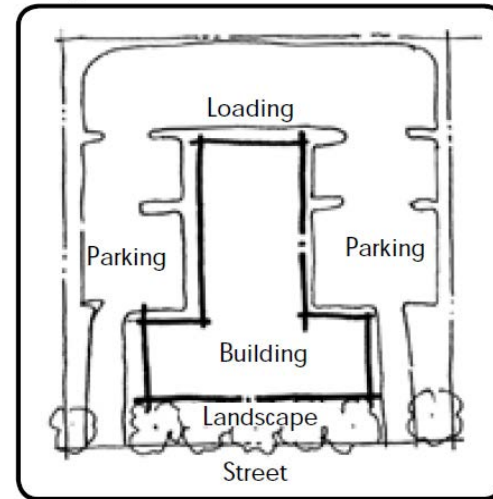


Figure 66 Three encouraged parking location samples

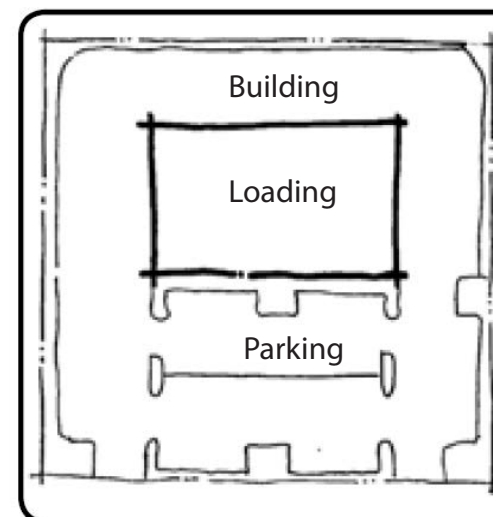


Figure 67 Discouraged front parking location sample

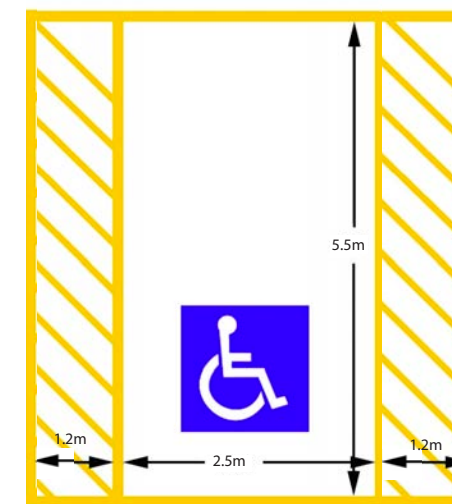
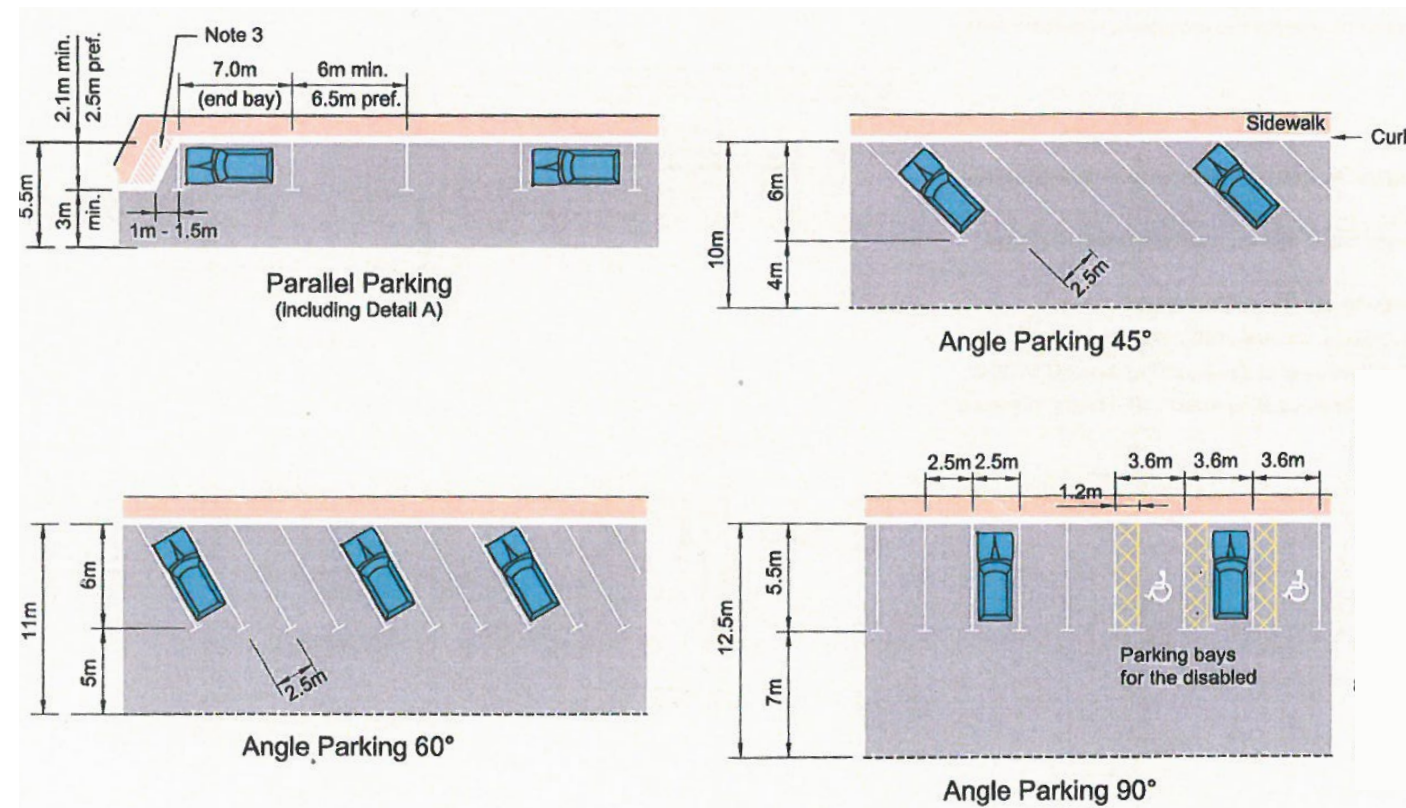
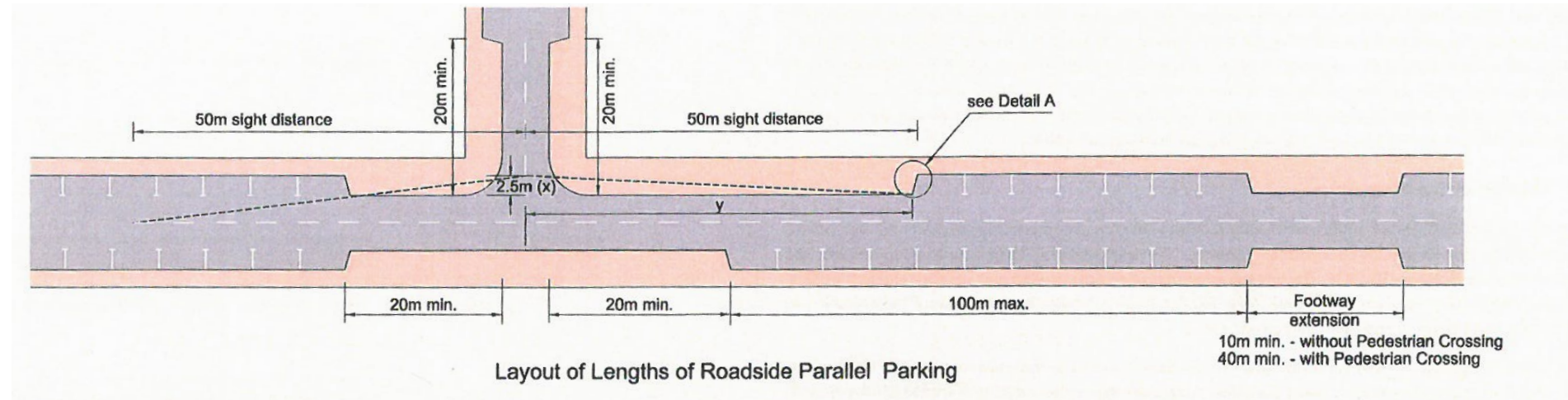


Figure 68 Disabled Parking Bays dimensions

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.



BOUNDARY WALLS

BOUNDARY WALLS



Boundary treatment acts as screening from the surrounding sites and surrounding land use types. Screening may obscure the loading/unloading areas, vehicles and utility functions on the plot while also acting as a security element where needed.

- Boundary treatment shall be employed at all plots within the Renewable Energy Industrial Zone
- The boundary wall structure and foundation shall be within the respective plot boundary.
- Boundary perimeter fencing shall be employed on all sites with a standard height of 3m.
- For the frontage of the plots, ringlock fencing between 3.0 - 4.5m is acceptable
- Plot owners may upgrade the frontage boundary to a 2m wrought iron simple linear elements in black matte finish and 1m solid base

Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.

A landowner can only build boundary walls on their own property, unless an agreement is reached with an adjoining landowner. Landowners are encouraged to prevent two walls being built adjoining each other and thus are recommended to agree to a cost sharing agreement with neighbors and build half on each other's land. If an adjoining landowner is not available then the first owner is required to build a boundary wall on their own land.

If required, the landowner can also construct solid boundary walls at some locations to buffer against loud disturbing noises. and spreading of dust. This shall be allowed subject to approval from SEZAD.

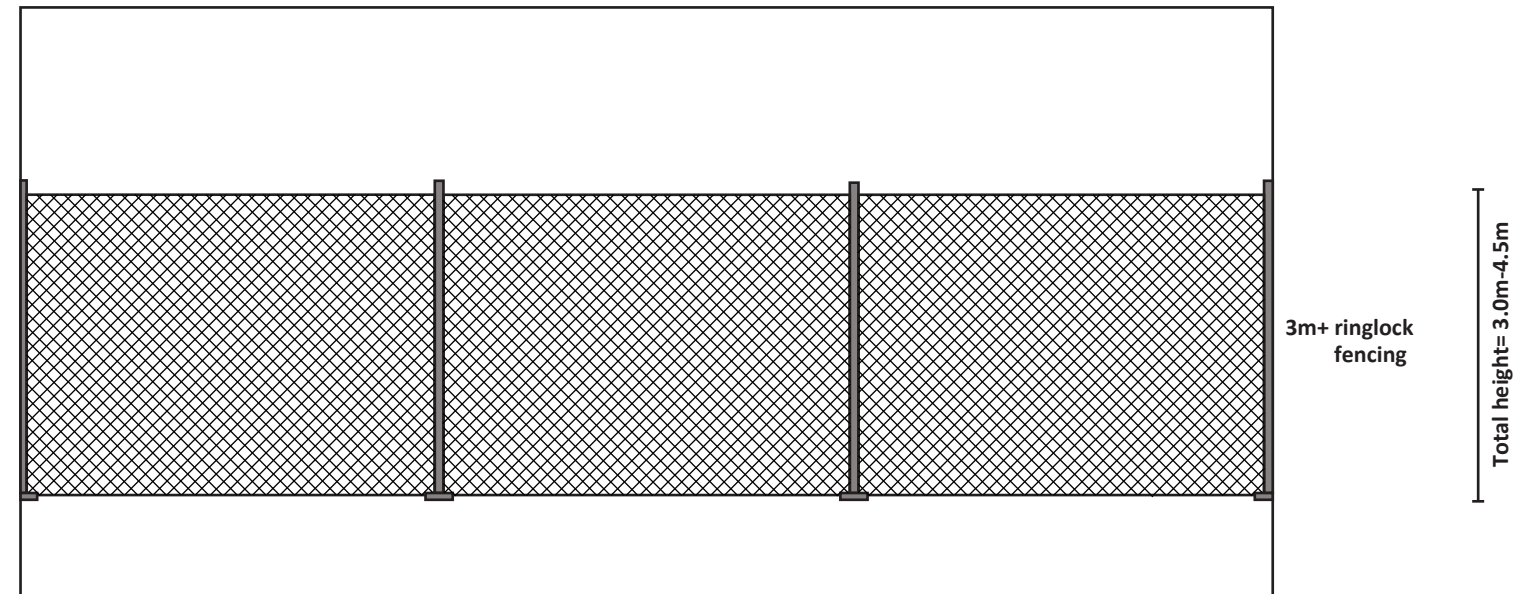


Figure 69 Frontage boundary wall facade



LANDSCAPING

LANDSCAPE



Boundary landscaping
along the perimeter is
compulsory

A portion of plots within the Renewable Energy Industrial Zone is to be allocated for landscaping for the purpose of providing for a visual amenity that will contribute to the environmental quality and lend a unified and embracing character to the area. In order to achieve this, the following shall be observed:

- Boundary landscaping along the entire perimeter of the site is compulsory, in order to preserve the environmental quality and visual amenity of the area.
- Planting materials shall consist of native or adapted to the local climate species
- Sustainable irrigation methods and technologies such as drip irrigation, moisture sensors and centralized programming and monitoring shall be considered for all planting areas
- A minimum of 25% of the total setback area facing the 30m ROW is to be soft landscape plantings (trees, shrubs, and groundcovers)
- A minimum of 25% of the total setback area facing the 50m ROW is to be soft landscape plantings (trees, shrubs, and groundcovers)
- A minimum of 30% of the total setback area facing the 80m ROW is to be soft landscape plantings (trees, shrubs, and groundcovers)
- Should retention ponds be required, a design that respects the landscaping theme shall be adopted
- The design of the landscape shall take into consideration the type of areas by providing visual appeal to key areas (e.g. entrances, walkways) while aiming to use cost effective design solutions to secondary areas (e.g. loading area)
- Shade trees shall be incorporated within vehicle parking areas to provide shade and visual appeal at a rate of one tree for every six bays
- Shade trees shall be incorporated into buffer areas, close to the street in order to contribute to creating a harmonious and appealing streetscape while also providing shade to pedestrians

STORMWATER MANAGEMENT AND DRAINAGE

Plot owners are responsible for storm water management. An on site strategy shall be adopted for retaining and managing storm water for reuse in buildings or for landscaping purposes.



Exemptions or slight deviations will only be allowed on a case by case basis depending on specific operational requirements and certain special requirements due to new business and technology. Cases as such have to be approved and permitted by the assessing authorities.



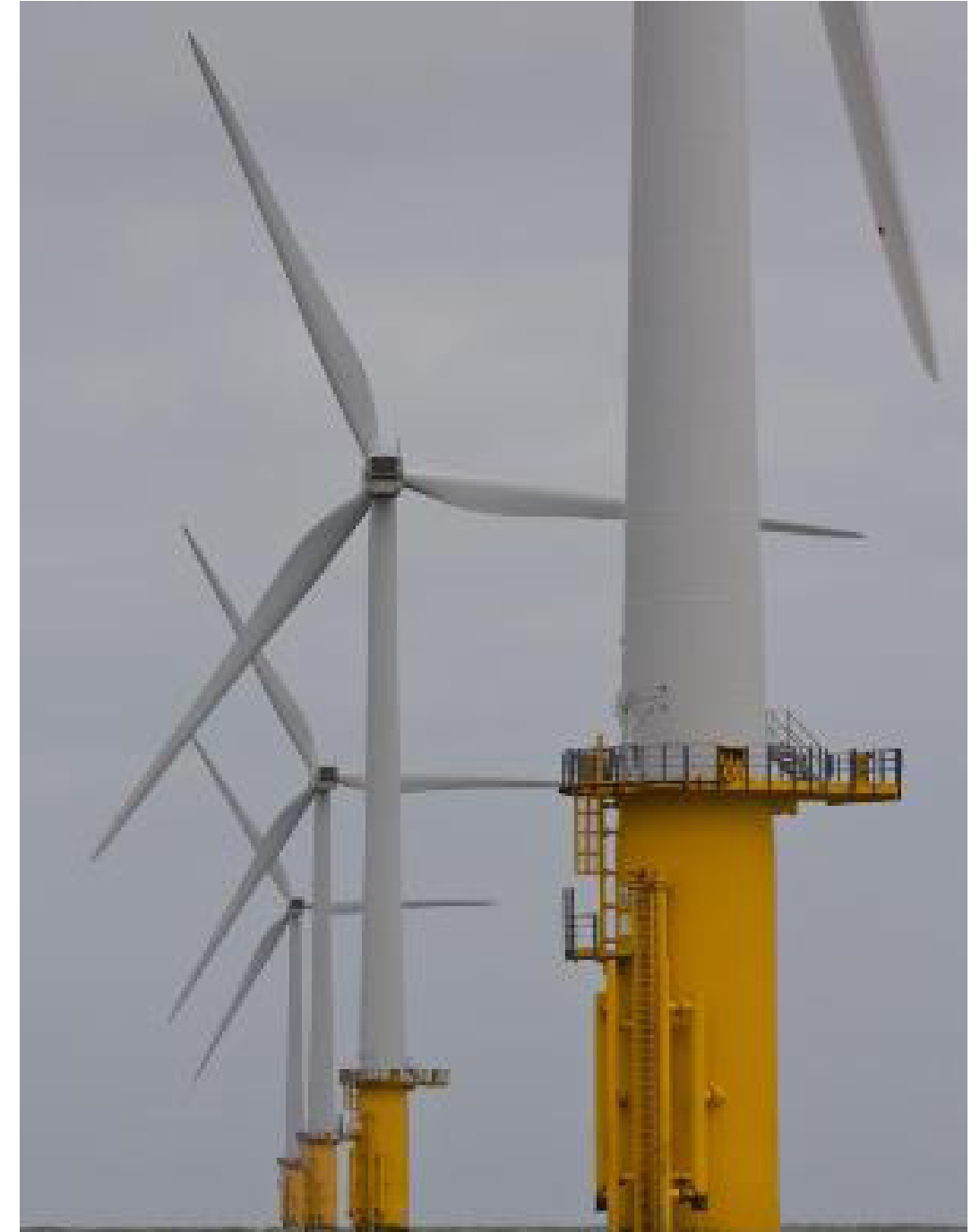
LANDSCAPE, COMMUNITY AND SAFETY CONSIDERATIONS

All solar and wind energy projects proposed will require the commission of a report which assesses the impact of the proposed development on the wider area. The visual impact of large scale renewable energy projects may be considerable on the wider Duqm area. The nature of wind turbine developments results in their visibility to large proportions of the population of the area in which they are sited. Potential impacts on the general population relate to adverse noise or visual impact on the natural environment. Solar / PV cells may also adversely impact upon the wider area through issues such as 'glint' and 'glare' which may have significant impacts upon local communities, and for road and traffic safety.

The report should demonstrate the proposed impact of the development on the wider Duqm area, including detailed assessments in terms of acoustic impact and visual impact. This report may be commissioned alongside any study necessary to be undertaken to satisfy the requirements of the Civil Aviation Authority.

In order for the proposed development to gain consent, it will be required to demonstrate to the satisfaction of SEZAD that:

- The proposal will not adversely impact the amenities of the local community
- The proposal will not compromise the use of surrounding sites for their designated uses under the Duqm Masterplan
- The proposal will not adversely impact the visual amenity of the Duqm landscape
- The proposal satisfies the safety requirements of the local Civil Aviation Authority



7. INFRASTRUCTURE GUIDELINES

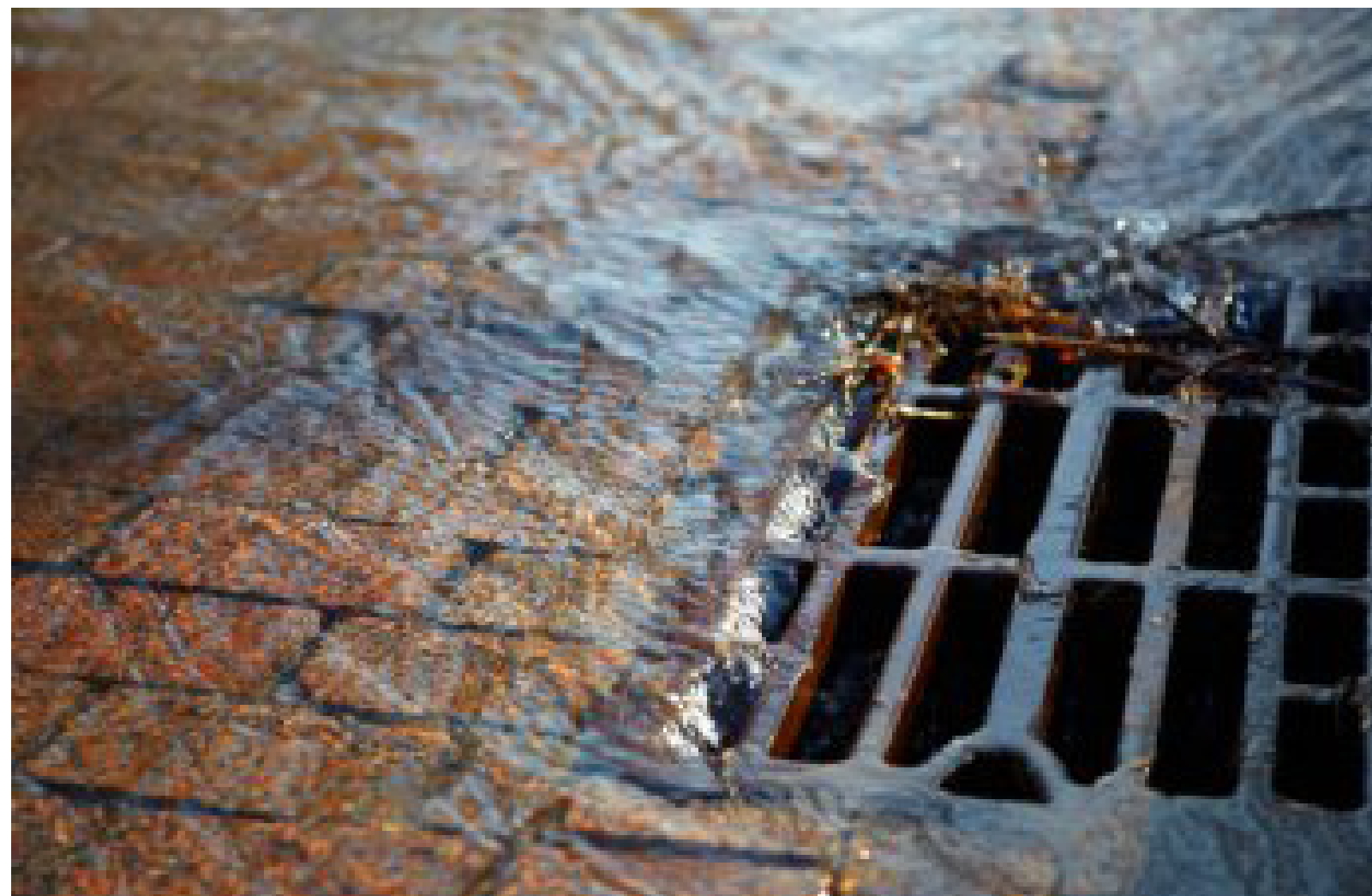


UTILITY SERVICES

SITE DRAINAGE AND RUNOFF

Any development or changing of grades within a plot is subject to obtain a DRAINAGE CONNECTION PERMIT from SEZAD. This will be obtained from SEZAD by submitting a Drainage Management Plan to SEZAD.

The developer must demonstrate in this Drainage Management Plan that there is no increase of run-off discharge to SEZAD's right of way from the proposed development or improvements. Therefore, the allowable discharge from the Developer's plot is based on the approach known as pre-development versus post-development.



All applications for power should be made direct to SEZAD.

The Developer shall follow the Oman Electrical Standards available via the Authority of Electricity Regulation (AER) of Oman. All design documents should be submitted formally for approval to the service providers RAECO (Rural Areas Electrical Company) for power arrangements up to 33KV, or OETC (Oman Power Transmission Company) for power requirements of 132KV and above.

Each leased site will be provided with a terminal point by the relevant local service provider. Where applicable, provision of an appropriate gated reserved area within the Customer's plot boundary is required for locating the terminal point. The enclosure or the substation shall be recessed into and alongside of the property and its exact size and location shall be finalized by the local service provider.

Customers are required to provide their own Primary Substation depending upon their demand requirement, as per the table below. The voltage rating, major equipment, and layout of the Substation shall be further coordinated and approved by the relevant service provider.

Load	Voltage Rating	Provider
30MW and above	220/132KV or 132/33KV	OETC
Below 30 MW	132/11KV or 33/11KV	RAECO

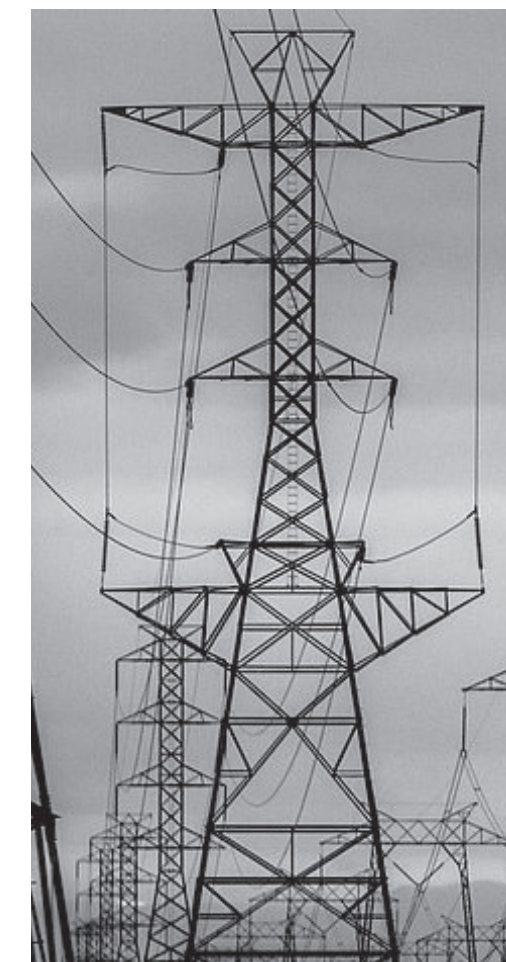
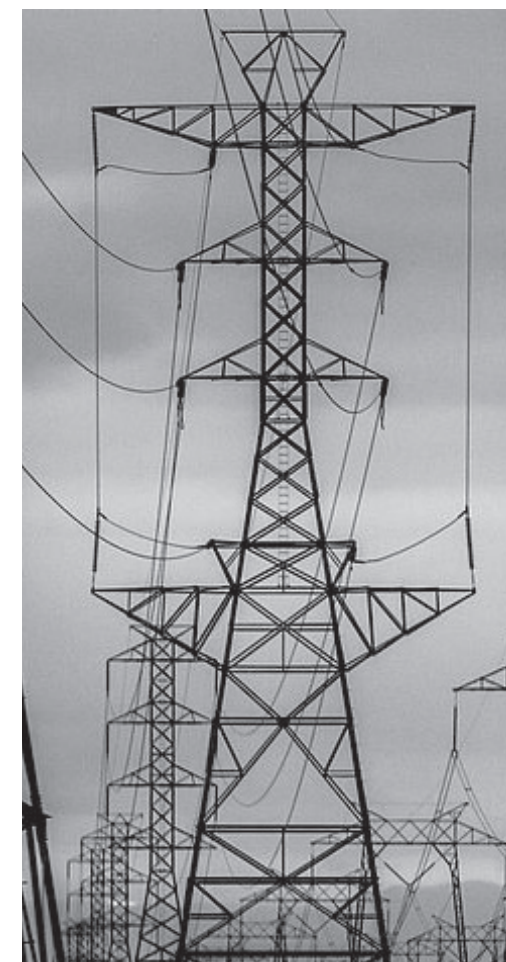
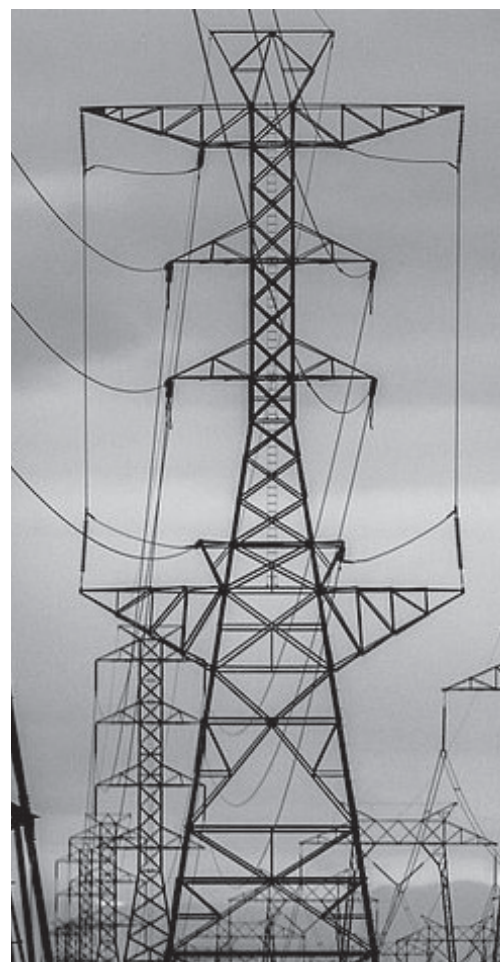
Electrical Supply will be provided at various voltage ratings depending on the loads. The voltage range will be ex: - 220KV, 132KV, 33KV, 11KV, 433 Volts and the Frequency will be at 50Hz. The voltage ratings will be at the discretion of the local service provider.

Tariff metering and the isolation facility will form part of the terminal point equipment and the access for these facilities will be strictly at the control of local service provider.

The Customer will be responsible for terminating all cables for power take off at the terminal locations. The developer is responsible for all the electrical works with in their property including statutory fee.

The developers will be provided with only one power connection per lease agreement unless approval granted by SEZAD, in coordination with the service provider.

Power demands more than 1000KVA are generally provided only through a dedicated 11KV feeder Loop in Loop out (LILO). However, special arrangements for the provision of dedicated feeders may be provided if agreed with local service provider in advance.



SITE POTABLE WATER SUPPLY

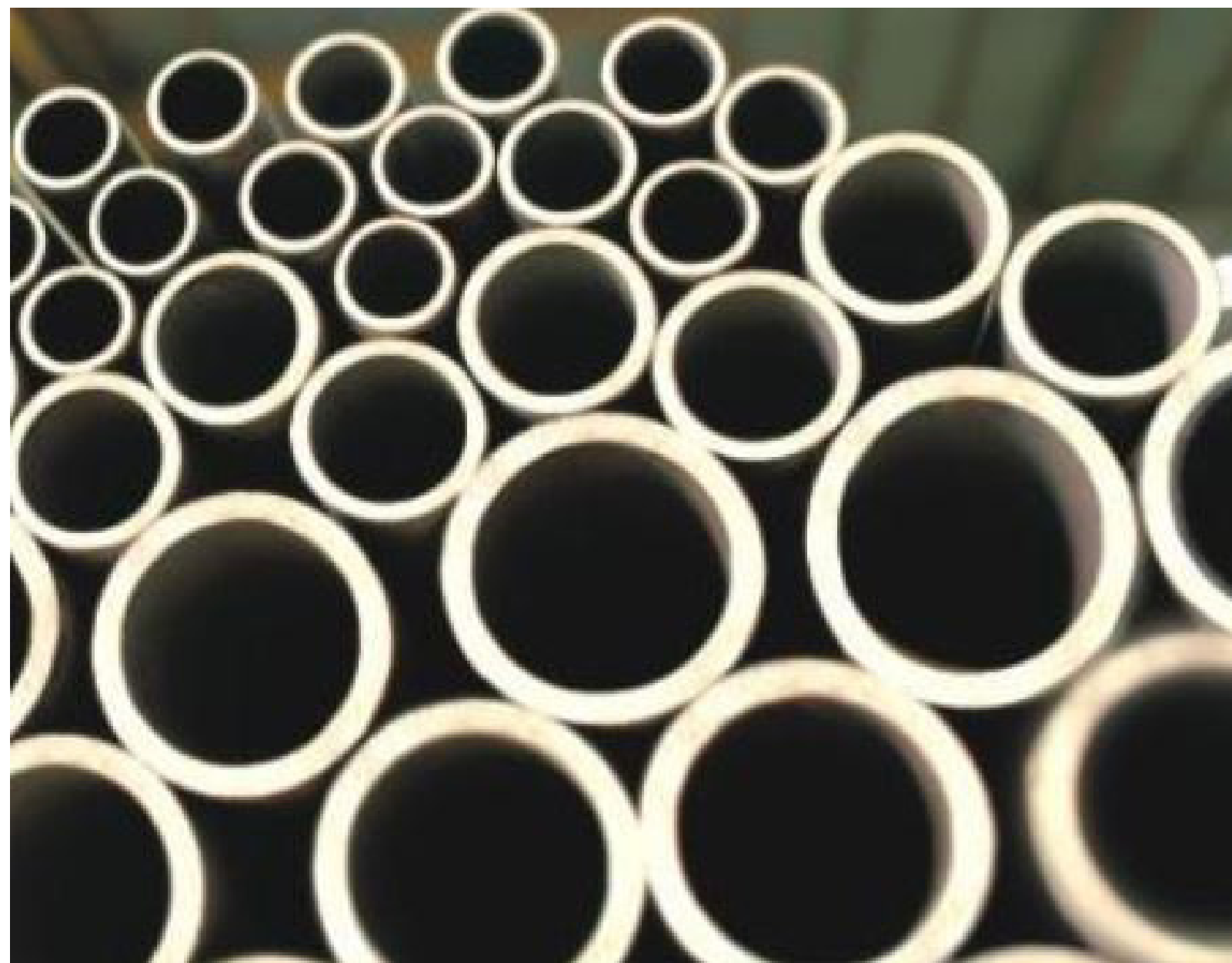
All applications for water connections should be made direct to SEZAD.

The Developer shall follow the PAEW (Public Authority for Electricity and Water) Design Standards. All design documents should be submitted formally for approval to the PAEW.

Each leased site shall be connected to the public potable supply network, unless an alternative proposal for water supply is presented to, and approved by SEZAD.

The Developer shall provide on site potable storage tanks sufficient to provide a minimum of twenty four hours supply. These tanks must be able to provide two hours coverage in the event of fire, and support the daily domestic demand of the plot. These tanks shall be located such that it can supply plot by gravity, and away from daily operations or potential sources of contamination.

The Developer will be responsible for implementing a compliant fire protection system for their plot, in accordance with the relevant design guidelines from the Directorate General of Civil Defense within the Royal Oman Police



All applications for sewerage connections should be made direct SEZAD.

The Developer shall follow the Haya Water’s ‘Wastewater Design Manual’ for all site design and installations. All design documents shall be submitted formally for approval to SEZAD.

Industrial wastewater should be treated and reused on the plot where possible. Any residual wastewater must be treated to the quality parameters outlined in the next table:

No form of waste/water, treated or untreated, is to be discharged to the local storm water network.

Site sewerage storage and network infrastructure must be of durable and impermeable materials. Storage tanks should be adequately vented.

Standards for Discharge of Non-household Wastewater into Sewerage System

Component	Units	Maximum Limits
pH	-	6 - 10
Colour	-	Raises no objection
B.O.D. (5 days @ 20°C)	mg/L	1000
Chemical oxygen demand (COD)	mg/L	1500
Temperature	°C	43
Suspended solids (SS)	mg/L	1000
Total dissolved solids (TDS)	mg/L	3000
Grease and Oil	mg/L	30
Sulphate (as SO ₄)	mg/L	500
Sulphide (total as S)	mg/L	3
Phenols (total)	mg/L	5
Cyanide	mg/L	1
Detergents	mg/L	30
Toxic metals	mg/L	10
Aluminium (as Al)	mg/L	10
Arsenic (as As)	mg/L	1
Barium (as Ba)	mg/L	10
Beryllium (as Be)	mg/L	5
Cadmium (as Cd)	mg/L	2
Chromium (total as Cr)	mg/L	2
Copper (as Cu)	mg/L	1
Iron (total as Fe)	mg/L	5
Lead (as Pb)	mg/L	2
Mercury (as Hg)	mg/L	0.1
Nickel (as Ni)	mg/L	2
Silver	mg/L	0.1
Zinc (as Zn)	mg/L	2
Calcium Carbide	mg/L	Not seen
Radioactive substance	mg/L	Not seen
Yeast, sugar, raw tar, crude oil	mg/L	Not seen
Hydrogen sulphide and polysulphides	mg/L	Not seen
Petroleum spirit, flammable solvent or volatile noxious solvents, gases and solids	mg/L	Not seen
Unpolluted water (including condensation, cooling water and water drained from roof top)	mg/L	Not seen
Insecticides, herbicides, pesticides, fungicides	mg/L	Imperceptible
Any material that may render wastewater harmful or makes formal treatment of such waste difficult	mg/L	Imperceptible



All applications for telecommunication connections shall be made direct to SEZAD.

The Developer shall ensure all design and installations are to the local service providers' standards. Local service providers are Ooredoo and Omantel.





Al Duqm Industrial Area

Design Guidelines

19-01-2017