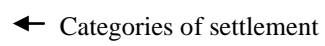


Precinct Plan





-  Historic village
-  Main development zone
-  Centre zone
-  Scattered settlement zone
-  Service
-  Institutional zone
-  Football field
-  Open space within settlement
-  Forest / steep slope
-  Existing structures



Settlement Rules / Precincts / DCR

The center of the city is what gives it life and character. It is essential that the core generates exuberance and a variety of activities. It must be safe, clean and easy to move around. Presently, the core gives a unique character with the presence of the Dzong, lake and the heritage village at the top of the town, which gives an opportunity to enhance Bhutanese tradition and culture as well as public domains that could suit the place climatically and be acceptable to the users. The Kolikha area will also serve as the commercial centre for the town.

The residential area has to be lively for residents to interact, live and play. It will be characterized by sufficient greenery, children play area and safe for the communities. To achieve this, a set of regulations called DCR or settlement rules have to be in place.

The settlement rules or the development control regulations are set of rules/regulations to regulate development to achieve the vision and objectives of the plan. The DCR regulates

1. Land use type - centre zone(commercial,public use), main development zone (mixed use, residential) etc.
2. Land use intensity - through regulation of building height, ground coverage and density using parameters such as ground coverage, set-backs
3. Form of built fabric - through regulation of building typology

The rules/regulations are outlined in the following pages :-

← Categories of settlement

-  Historic village
-  Main development zone
-  Centre zone
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Centre zone

Objective	develop
Range of Use	commercial mixed use Public amenities
Density	high
Storeys	2
Plot Coverage	50-55 %
Building material	mud, stone masonry, wood
Maximum floor height (measured from top of the floor to the surface of the ceiling)	2.8m



This zone will be vibrant with high level of commercial activities and people from different areas for shopping or relaxing in the central green public space.

High-quality public spaces which bring together the various public usages are important (meeting rooms, facilities for social interaction, spaces for intercommunication). The entire floors of a building can serve as commercial, offices etc , however mixed uses are also permitted in this zone. 1.5 m front setback shall be maintained for all plots within this zone. Plot subdivision/ fragmentation shall not be allowed. The set-back area shall not be paved or built on but shall be landscaped permeable area with trees, shrubs or groundcovers. **The boundary walls construction shall not be allowed. Use of local materials(wood, stone, mud) is mandatory for building construction.** The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.

Plot Size (Sq.m)	Range of Uses	Minimum Setback
222.967	Commercial Mixed use Public amenities	Front—1.5m Sides –2 m

Main development zone

Objective	develop
Range of Use	residential mixed use
Main Use	residential
Density	medium
Storeys	1- 2
Plot Coverage	45-50 %
Building material	mud, stone ma- sonry ,wood
Maximum floor height (measured from top of the floor to the sur- face of the ceiling)	2.8m

This zone represents the highest development potential area within Gasa. The development shall be in such a way that blends with the existing beauty and character of Gasa. The maximum number of storey permitted are two . The ground floor can be used for commercial purpose. A 2 meters setback at the front shall be maintained for all the plot within this zone. The set-back area shall not be paved or built on but shall be landscaped permeable area with trees, shrubs or groundcovers. Plot subdivision/fragmentation shall not be allowed. **Use of local materials (wood, stone, mud) is mandatory for building construction. The boundary walls construction shall not be allowed.** The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.



Plot Size (Sq.m)	Range of Uses	Minimum Setback
371.612	Residential Mixed Use	Front– 2m Sides– 3m

Scattered Settlement Zone

Objective	develop
Range of use	residential resorts*
Main Use	residential
Density	low
Storeys	1-2
Plot Coverage	35-40%
Building material	mud, stone masonry, wood
Maximum floor height (measured from top of the floor to the surface of the ceiling)	2.8m

The Kolikha Phase II has been designated as the scattered settlement zone. It will be low residential development connected by pedestrian paths and no vehicular entry shall be allowed except for emergency vehicles. The set-back area shall not be paved or built on but shall be landscaped permeable area with trees, shrubs or groundcovers. Plot subdivision/fragmentation shall not be allowed. **The boundary walls construction shall not be allowed. Use of local materials(wood, stone, mud) is mandatory for building construction.** The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.

resorts*	
Density	low
Storeys	1-2
Plot Coverage	35-40%
Building typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm. A distance of 6m shall be maintained between the structures within the plot
Building material	mud, stone masonry ,wood
Maximum floor height (measured from top of the floor to the surface of the ceiling)	2.8m

Plot Size (Sq.m)	Range of uses	Minimum Setback
371.612	residential	All sides– 3.5 m
1589.294	Resort	



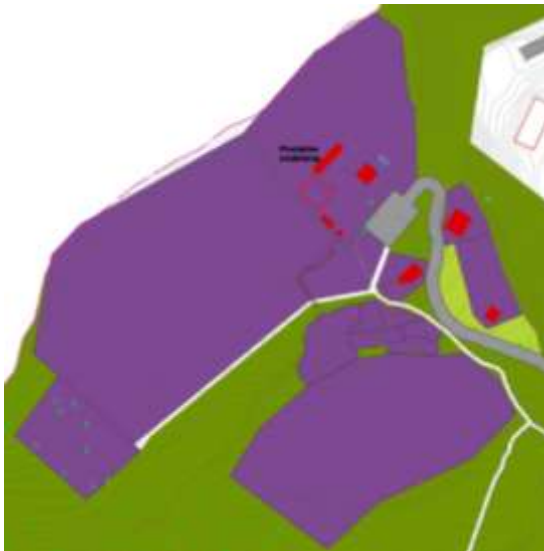
Historic village

Objective	protect / add
Range of Use	residential mixed use heritage hotel
Main Use	residential
Density	medium
Storeys	2
Plot Coverage	30-40 %
Building typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm
Building material	mud, stone masonry, wood

The area is characterized by traditional village settlement around *Phulakha Lhakhang*, which needs be preserved or enhanced further.

The existing traditional structures shall not be dismantled/ replaced instead preserved, and renovated and restored with care. The local material such as mud, wood etc shall be used for new constructions and the new structures should blend/ enhance the existing character of the village. The structures can be converted into heritage hotels, restaurants for tourists while preserving the essence of the village. **Construction of RCC and modern structures shall be strictly prohibited.**

The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.



Plot Size (Sq.m)	Range of use	Minimum Setback
371.612 - 743.224	residential mixed use	All sides -3m
> 743.224	mixed use residential public amenities heritage hotels	All sides - 3 m

Objective	develop
Range of use	community parking

Community Parking/ Bus & Taxi Parking

This zone is reserved for the community parking for the residence and the visitors.

Objective	preserve / develop
Range of use	fuel station automobile workshop vegetable market other services
Density	low / medium
Plot Coverage	30-40 %
Minimum setback	All sides– 3m
Building Typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm (exception for town hall and movie hall)
Maximum floor height ((measured from top of the floor to the surface of the ceiling))	2.8m

Services

This zone include services required for the development zones such as fuel station, workshop, power station, solid waste site etc The solid waste disposal site needs to be identified outside the town by the Dzongkhag Administration.

Objective	develop
Range of use	kindergarten offices town hall movie hall Other ancillary structures
Storeys	2
Plot coverage	30– 40%
Minimum setback	All sides– 3m
Building Typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm (exception for town hall and movie hall)
Maximum floor height ((measured from top of the floor to the surface of the ceiling))	2.8 m (exception for movie hall and town hall given the nature of use)

Institutional zone

This area includes existing public facilities such as kindergarten, town hall, movie hall, offices buildings, etc. All the institution structures shall be built in such as way that it blends with the site and does not overshadow the Dzong.



Open space within settlement areas

Objective	preserve
Range of use	open space public uses temporary uses

The open spaces in the town will serve as a space for public gathering, social interaction ,passive/active recreational spaces etc. The spaces shall be designed with minimum paved surfaces and more green which will also form as a connection to surrounding landforms.



Forest/Steep slope

Objective	preserve
Range of use	Activities related to environment enhancement or recreational activities elements like gazebo,footbridges,ped estrain path etc.

No constructions or development shall be allowed in forest/steep slope precinct. It should be preserved as forestland and plantation may be done on steep slopes to prevent landslides or other hazards.

Site Development

During the site development, there should be minimal grading to retain the natural topographic character as much as possible. This implies minimum cut and fill during site development/construction. Besides the building drawings, a site plan with topographical information such as contours and any other natural features such as streams gully and drops, etc., shall be submitted for sanction by the Authority.

Plot Coverage and Set Back Rules

The permissible plot coverage shall be within the set back rules. Balconies (not enclosed or roofed) projecting up to 1.2m from the external wall face shall be permitted for residential buildings and such cantilevered balconies shall be allowed only at the rear side of the commercial or mix use buildings.

In case of corner plots having curvature on one or two sides, the shape of the building shall be developed in line with the shape of the plot.

Discharge of Storm Water

Every site should have storm water drain/channels at lower elevation/level of the site which collects rainwater runoff over the site and discharges into public storm water drains or the rain water harvesting mechanism installed in the plot. The lower plot shall provide an easement or allow/ provide a right of way or channel for the discharge of storm water runoff from natural sources or adjacent plots of higher elevation into the public storm water drains.

Tree Plantation



Pine Tree / Blue Pines



Willow Tree



Rhododendron



Blue Poppy

Tree plantation at the rate of one tree at every 100 square meter of plot area, shall be undertaken and maintained in all developments within the Thromde . These trees shall preferably be planted at a spacing of 4m along the edge of the footpaths and common open spaces. Cutting down trees in the Forest/steep slope precinct is strictly prohibited.

Deciduous trees that shade in summer and shed their leaves to let sunlight through in winter are ideal for Gasa. Only native trees should be planted on streets in order to minimize irrigation requirements and prolong tree life.

The main street specially in Kolikha, tree plantation should be mandatory. Colorful trees for example rhododendron should be planted at a definite interval along the main roads.

Street Lighting

There are no proper street lighting systems in the existing Gasa Thromde. Therefore, an adequate street lighting system is proposed along the road network. Appropriate lighting will also be provided along the off-street footpaths. This would aid the safety of pedestrians on pavements after dark.

Street lighting must not pollute the environment, i.e. no night sky light pollution. Energy efficient fixtures should be utilized. While placing street lights, ensure adequate gaps and spacing from the tree canopies to ensure that performance of lighting is not compromised.



Prayer flags in Kolikha



Chorten in Gasa Tsachhu area

Land Marks and Way Findings

Landmarks that blends with the natural character of Gasa has to be developed/built separately or as a part of a project for instance in resort area or kindergarten.

Parking

Different community parking area has been proposed in Kolikha area to cater to the future parking needs, The parking area shall be develop in such a way that it allows for infiltration during rain and prevent too much of surface runoff. The ecological aspect have to be taken care during its development. There should be tree plantation along the boundary of parking and green landscapes within the parking area



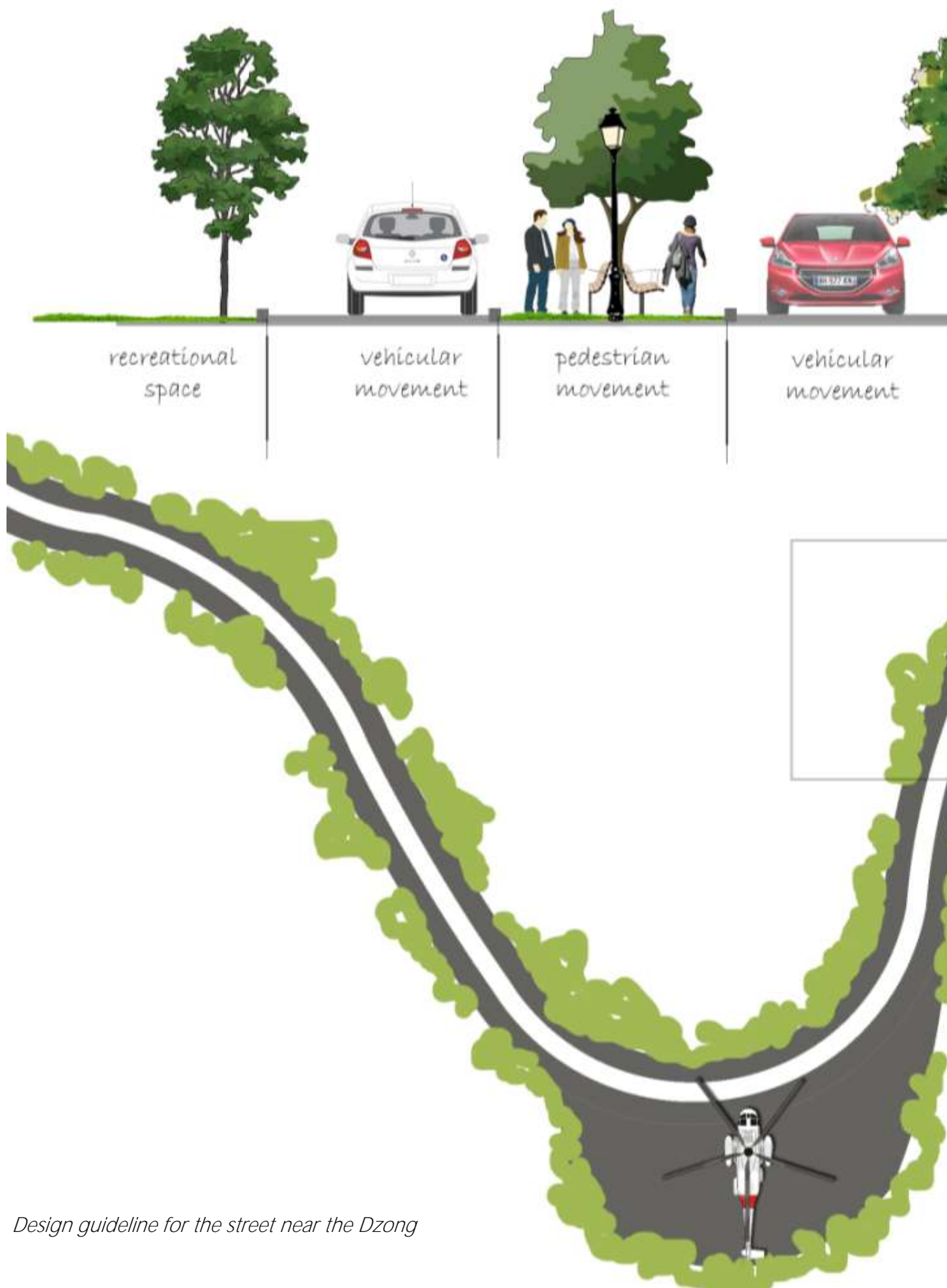
Parking in Kolikha



Parking in Kolikha

Rain Water Harvesting

Installation of rain water harvesting system should be made compulsory at every plot level in the long run. This can be done by collecting rain water from the roofs sheeted either with tiles or corrugated mild steel where the latter is preferable as it is the easiest to use and gives the cleanest water. Asbestos sheeting and lead painted surfaces should be avoided. This rain water can be collected from the roofs through gutters along the eaves of the building. The rain water drains through the down-pipes which discharge into the storage tank. These storage tanks can be installed either on the ground or underground. The first run-off collected should be flushed out since it may contain dirt from the roof and the surrounding air. It should be placed in a location where seepage from septic tank and soak pit doesn't occur. The collecting box with mesh strainers and other filter media should be used to prevent the ingress of potential pollutants.



Design guideline for the street near the Dzong

Street form near Dzong

The streets will have to be lively with wide pedestrian walkway and plenty of greenery along the street for social interaction, cycling and walking.

