**Cut and fill study**

Significant amount of cut and fill leads to project cost and project duration increase without any significant value addition to the end user. While site contours are a reality and can often be used to the benefit of the design, it is critical that optimized cut-and-fill is an integral goal of the concept design (rather than a reactional after thought and/or necessary evil).

Principles:

i. Site contour map at 1: ___ scale to be done as early as possible in the design process.
ii. Cutting is more expensive than filling. Larger land parcels can be divided into zones of ~15, in which cutting depth should always be less than 800-900 mm. When we start crossing the 1 m mark, this should be an alarm bell as roots of trees start getting exposed
iii. Cutting = filling is an incorrect measure to do this exercise and cutting quantity should always be <= 60% (max. 75%) of the filling quantity.
iv. Building plinths being at different levels is ok, terracing/sloping of landscape and pathways and roads is fine.
v. Generally plinth should be 300 mm from nearest 'vehicular road' and 150 mm above the drop-off point; in flood prone areas, plinth can be kept 450 mm above nearest 'vehicular road' i.e. 300 mm above the drop-off point.
vi. While finalizing levels, infra (storm water, sewage etc.) dig + construction costs should be considered.

For any site which is > 15 acres OR is <15 acres but >10% of the land area has slope of >=1:10, a cut and fill study will be done jointly by:

a. External Master planner (in some cases, the external architect or the external landscape designer may play this role)
b. External Infra Consultant (who may involve a grading consultant if the site has significant contours or the grading consultant can be directly appointed by Lodha)
c. Lodha Project architect lead
d. Lodha MEP Infra lead on the project
e. CM Lead for the site

Before finalization of concept design and will aim to minimize / optimize the cut-and-fill costs. The final cut-and-fill plan will be signed off by a-e above as being '*optimized for the site*'.