CHAPTER - I

INTRODUCTION

1.1 General:

Pile foundations are provided under heavy structures where the loads are to be transmitted to greater depths through weaker strata. In addition to vertical loads, large lateral loads act on pile foundations supporting structures such as bridge abutments, piers, anchorages and waterfront structures. High-rise office and residential buildings are often to be designed to resist lateral forces induced from wind and earthquakes. Such forces may be cyclic and reversible. It has been a design practice to provide batter piles if the lateral load is in excess of about 500 kg per pile (Teng, 1962).

The design of laterally loaded piles in general is based on the requirement that complete collapse of the pile group or of the supporting structure should not occur even under the most adverse conditions and that the deflections at working loads should not be so excessive so as to impair proper functioning of the foundation or the superstructure. Thus for the type of structure in which small lateral deflection can be tolerated the design is governed by lateral deflections at working loads, whereas for structures in which relatively large deflections are admissible the design is governed by ultimate lateral resistance of the pile or pile group.

References are presented in Appendix-III.