SECTION 6 - GRADING

CITY OF CARO

ENGINEERING DESIGN STANDARDS

A. Requirements for Master Grading Plans

A Master Grading Plan is required for all developments. Master Grading Plans shall accompany the set of engineering construction plans and shall include the following:

1. Benchmark locations, descriptions and elevations (USGS) to be used for the development.
2. The minimum scale for grading plans is one inch equals fifty feet (1" = 50').
3. The grades of existing adjacent houses, buildings, drainage structures and streets shall be shown One (1) foot existing contours shall be shown for the site and one hundred (100) feet past the property line(s). The drainage pattern of all adjacent land shall be indicated. All off site drainage flowing onto the site shall be clearly labeled and identified.
4. Match existing grade at the property boundaries.
5. Grading plans shall correspond with proposed landscape and soil erosion requirements. Any revisions in the grading plan may require Planning Department approval if it directly or indirectly effects the approved landscape.
6. The grading plan shall be designed to ensure that if a failure occurs in the storm system, water will drain without flooding structures.
7. Show proposed building finish floor grade to hundredths of a foot. For residential developments, place house grades within the plan view of the typical house to be built in this development.
8. The finish grade shall be compatible with the grades of surrounding buildings and yards.
9. For non-residential developments show the proposed sidewalk grades at lot lines, center of driveway crossings and at fifty (50) foot intervals to hundredths of a foot.
10. Rear yard storm drainage is required in all residential developments where necessary to prevent storm drainage from running onto adjacent properties.
11. All existing and proposed earth grades are to be in tenths of a foot.
12. Rear yard swales shall be, in general, no longer than four hundred (400) feet before being intercepted by a catch basin and shall have a minimum grade of 0.5%.
13. Rear yard storm drain piping shall be twelve (12) inches minimum diameter.
14. Show existing and proposed ground grades at lot corners around the perimeter boundaries.
15. Show the proposed side yard swale elevation between all buildings. This elevation must be a minimum of 0.5 feet below the lower adjacent building grade. The side yard swale must have a minimum slope of 0.5% to the front and rear.

16. Where topography prevents rear yard drainage from being practical, rear to front or rear to side drainage may be allowed.
17. The general direction of flow of all yard drainage and all swales must be indicated with arrows.
18. Additional grades shall be shown under special conditions as required.
19. The lot number or address shall be shown for each lot.
20. Any required storm sewer easements shall be a minimum of twenty (20) feet wide. All drainage easements for swales shall be a minimum of ten (10) feet wide. Easements for drainage ditches shall include the ditch plus a minimum of ten (10) feet beyond the top of banks. The City shall require additional easement width when sewer size or depth and soils or other conditions warrant a wider easement. Easements are required for all public storm drains and private drains serving more than one (1) parcel.
21. Drainage shall be adequately discharged off site to either the street or a dedicated storm drain. Drainage from adjacent properties or "offsite drainage" that flows onto project on site, shall be maintained.
22. Sodded swale or ditch slopes shall be a maximum slope of one (1) foot vertically and three (3) feet horizontally.
23. No berms shall be placed over any underground public water main, sanitary sewer, storm drain, or within the designated easements for such facilities.
24. Drainage water runoff from building roofs shall be piped to a point five (5) feet away from the outside walls of any building. No drainage water runoff shall be allowed on adjacent property. Drainage water, sump pump water and/or ground water shall not be discharged to the sanitary sewer system.
25. It shall be unlawful for any person to interfere with, modify or obstruct the flow of drainage water across any property in any manner different from the approved plan.
26. During periods of the year when weather conditions make site grading work impractical, a temporary Certificate of Occupancy may be issued, subject to the furnishing of a satisfactory Bond, Letter of Credit, or Cash Deposit in an amount determined by the City guaranteeing the completion of the work when weather conditions permit.

B. Retaining Walls

1. Retaining walls should be used when adequate grading cannot be accomplished.
2. Retaining walls exceeding forty-two (42) inches in height should include protective fencing on top or as required by State and County codes.
3. Retaining walls exceeding thirty-six (36) inches in height shall be designed by a licensed Professional Engineer. Design calculations shall be submitted with the construction plans.