Section 5. DESIGN GRADING AND EROSION CONTROL

A. Slope Criteria

Earthen slopes shall conform to the following:

Maximum slope should not be steeper than 6:1 (horizontal to vertical) unless protected from erosion and slope failure through City Engineer/SSCAFCA approved means.

B. Grading near the Property Line

Particular attention must be given to grading (either cut or fill) near property lines. Care should be taken to ensure that existing foundations, retaining walls, stable slopes or other structures are not endangered and that the adjacent property is not or will not be damaged, or its use constrained due to grading at or near the property line. Grading must accommodate runoff onto the site and ensure discharge to the historic drainage location at or below the historic flow rates, unless an alternative is approved by SSCAFCA's Executive Engineer in writing.

C. Grading In and Adjacent to Major Facilities

No grading, excavation, or fill may take place in or adjacent to any watercourse defined as a major facility without express written approval from the City Engineer/SSCAFCA. Construction activities within major facilities shall provide for the safe passage of the 100-year design flow especially during the months of June, July, August and September. Construction activities in arroyos shall provide procedures and install systems that insure the safety of the public and personnel from runoff events. Particular attention shall be given to potential runoff from flash floods occurring upstream of the facility.

D. Grading in a Floodplain

No grading will be permitted within a FEMA Special Flood Hazard Area (A or V zone designations) without an approved drainage report and financial guarantees for the permanent improvements.

E. Violations As To Construction Or Site Alteration

No grading or other alteration of a site shall take place:

(A) Prior to approval of an infrastructure list/preliminary plat, building permit or development plan by SSCAFCA, if the grading or site alteration is related to a proposed subdivision;
(B) Prior to approval of a drainage plan or report, or a determination by the City Engineer/SSCAFCA that no such plan or report is required;

(C) Contrary to the provisions of a drainage plan or drainage report or to the specifications of a preliminary or final plat, approved under the provisions of this section; or
(D) Prior to the submittal of a construction schedule for the proposed drainage infrastructure improvements/grading.
(E) Prior to the issuance of any permits required pursuant to this section.
(F) Prior to submittal of financial guarantees required by the City/SSCAFCA.
(G) Prior to:
- Submittals and review of Storm Water Pollution Prevention Plan
- Filing and activation of Environmental Protection Agency Notice of Intent
- Installation of Best Management Practices per Storm Water Pollution Prevention Plan
- USACE 404 permit approval, if required.

F. Erosion and Stormwater Pollution Control

All grading within the City of Rio Rancho/SSCAFCA area must be performed in a manner which prevents the movement of significant and damaging amounts of sediment onto adjacent property and public facilities by both water and wind, and minimizes the impacts to stormwater runoff quality. Every project involving the grading of more than 1.0 acre or the importation or excavation of more than 500 cubic yards of soil must be accompanied by an erosion control plan accepted by the City Engineer/SSCAFCA. All grading shall conform with EPA Stormwater Regulations. See Section 9 of this chapter for detailed information on the Stormwater Pollution Prevention Plan. All required stormwater pollution improvements/drainage infrastructures must be constructed at the start of the project.

1. Construction Phase:

It is the responsibility of the contractor to implement the erosion and stormwater pollution control plans during the construction phase. Repair of damaged facilities and clean-up of sediment accumulations on adjacent property and in public facilities is the responsibility of the contractor. Failure to do so promptly may result in a "stop-work order" being issued that will remain in force until repair and clean-up is completed to City Engineer/SSCAFCA satisfaction. All exposed earth surfaces must be protected from wind and water erosion prior to final acceptance of any project. The continued maintenance of these protective measures is the responsibility of the owner or his assigns. Penalties will be assessed for graded sites left inactive for fourteen (14) days or more as provided for in SSCAFCA's Drainage Policy/City's Drainage Ordinance.

2. Phased Construction:

Areas graded in conjunction with phased projects, but not left in their permanent condition must be protected during the interim from wind and water erosion and must not increase stormwater pollution from the existing pre-project conditions per City/SSCAFCA policies.

G. Means of Erosion Control

There are numerous mechanical and vegetative methods for preventing soil erosion. The U.S. Environmental Protection Agency Publication EPA-R2-72-OIS Guidelines for Erosion and Sediment Control Planning and Implementation, New Mexico Department of Transportation Manual and the local U.S.D.A. Natural Resource Conservation Service Office can provide numerous, inexpensive and effective erosion management techniques.

1. The soils in SSCAFCA's jurisdiction are highly erosive requiring special attention during the design, construction and post construction phases of development.

2. METHODOLOGY
   The SSCAFCA Erosion and Sediment Design Guide will be the basis for analysis and evaluation of erosion control, sediment transport, sediment deposition and related issues.

3. EROSION AND SEDIMENT GENERATION
   Erosion, both on-site, off-site and from natural arroyos and channels shall be considered and incorporated in the analysis, evaluation and design of site development. The volume of sediment in the off-site flow shall be determined from the sediment bulking factors as defined in the hydrologic analysis procedures in this DPM will be the minimum volume of sediment generation considered in evaluating downstream capacity.

4. SEDIMENT TRANSPORT
   Sediment generation, transport and deposition shall be considered in the drainage and flood control system analysis and design and in determining downstream capacity.

H. Pond/Dam Design (City/SSCAFCA Maintained Facilities)

1. ACCESS: Access into a facility shall be opposite the outlet if possible with a minimum width of 12 feet. Maximum access slope shall be 10:1 or flatter. Standard design tube or pipe gates shall be installed to restrict vehicle access. Gates shall be set back 50 feet from arterial or collector streets so equipment does not have to park in the street.

2. SPILLWAYS: Principal spillways shall be designed, at a minimum, for the 100 year fully developed condition and shall always be provided, be erosion resistant, and discharge to a public right-of-way, drainage easement and/or historic flow path.

   a. Emergency spillways for ponds shall be designed, at a minimum, for the 500-year storm event for fully developed conditions and discharge to a public right-of-way, drainage easement and/or historic flow path.

   b. Emergency spillways for dams shall be designed, at a minimum, to meet the Office of the State Engineer criteria and discharge to a public right-of-way, drainage easement and/or historic flow path.

3. OUTLETS:

   a. Facility outlets shall always be gravity flow whenever feasible and located in a corner or accessible edge of facility, opposite of facility access point if possible. Outlet pipe shall be a minimum of 24 inches in diameter with a slope such that when flowing at ¼ full, velocity is 2 fps or greater.

   b. The outlet will be surrounded by a stabilized grade pad appropriately sized for maintenance with a minimum of 6 feet of stabilized grade in all directions.

   c. To protect downstream properties, outlets may be sized to restrict flows below historic or existing conditions at the sole discretion of the Executive Engineer.

4. POND BOTTOMS:

   a. Facility bottoms shall be designed to convey nuisance flows from the inlet to a storm water pollution prevention feature (such as a pervious bottom area for infiltration) prior to discharging to the outlet. Ease of maintenance shall be a consideration in all dams/detention basins. A feature such as a low flow channel having minimum dimensions of 3' wide by 8" thick, structurally reinforced concrete with a 1" invert shall be considered to allow maintenance crews a non-saturated, hardened surface to perform maintenance and provide a grade check in the bottom of the basin. Special care should be given to insure that the channel is not under cut. Each dam/detention basin should be evaluated with regard to such features as ease of maintenance, water quality, desirability of vegetation and habitat, effect on neighborhoods (odors, mosquitoes, vectors), stability/safety of the foundation and embankment, well wash water and possible recharge.

   b. The minimum pond bottom slope is 0.5%, both cross slope and longitudinally.

5. SIDE SLOPE AND BOTTOM TREATMENTS:

   a. Vegetation will be accepted if seeded per the New Mexico APWA Standard Specifications for Public Works Construction, most recent edition.

   b. Side slopes shall be treated with gravel mulch per New Mexico APWA Standards Specifications for Public Works Construction, most recent edition.

   c. A geotechnical investigation and report will be required.

6. MINIMUM POND SIZE:

   In order for a pond to be publicly maintained by SSCAFCA, it must be a minimum of two (2) acre-feet.

7. FENCING:

    a. Detention ponds will require five (5) strand barbless wire fencing with wooden posts in accordance with SSCAFCA Standard Details.

8. DRAINAGE – All detention ponds must be evacuated in twenty four (24) hours or less, unless discharge is limited by downstream constraints. In any event, all ponds shall be evacuated within 96 hours unless approvals are received from both SSCAFCA and the Office of the State Engineer. Ponds that take more than six (6) hours to drain will be designed for a design storm equal to or exceeding the evacuation time. No percolation credit for volume reduction will be given.

9. SIGNAGE- All ponds shall have a sign fixed to the fence, in the vicinity of the access gate and visible to the public, that designates the name of the facility and the agency or organization responsible for maintaining the pond. The sign location and sign face shall be included in the infrastructure plans.

10. FREEBOARD- All ponds shall have a minimum of one (1') foot of freeboard.

11. IN-POND SEDIMENT STORAGE- An evaluation shall be performed to insure sufficient in pond storage of sediment deposited during a 100 year event will not affect the functional capability of the structure.

12. SEDIMENT STOCK PILE AND TRANSPORT PROVISION- An evaluation shall be performed to determine how sediment and debris shall be removed from the facility and transported offsite.

I. Temporary Ponds

1 Interim or temporary facilities shall be protected by a covenant. These covenants may cover a tract of land larger than needed for the final permanent facility in lieu of financial guarantees.

2. An emergency spillway must be provided that will safely convey the 100 year design flow entering the pond.

3. Temporary ponding may be allowed if the owner performs all operations and maintenance, accepts all liability and owns the downstream property. SSCAFCA approval is required.

J. Private Storm Drain Improvements Within Public Rights-of-Way and/or Easement.

Frequently a grading and drainage plan developed for a particular property involves either discharge directly into a public facility or across a portion of a public right-of-way to a public

facility. Examples include connections to the back of an existing storm inlet, construction of sidewalk culverts or a connection to a storm drain manhole or a channel. When such solutions are employed the construction of private storm drain improvements within the City's rights-of-way must comply with the following requirements:

1. Professional Engineer's stamp with signature and date.
2. Vicinity map
3. North Arrow
4. Plan drawings size 24"x36"
5. Address of the project
6. Detail of the proposed improvements
   a. All work details on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in agreement with the New Mexico APWA Standard Specifications for Public Works Construction.
7. An excavation permit will be required before beginning any work within City of Rio Rancho City's right-of-way. An approved copy of these plans must accompany the application for permit.
8. Two working days prior to any excavation, contractor must contact **Line Locating Services** for location of existing utilities.
9. Backfill compaction shall be according to City Standards.
10. Maintenance of these facilities shall be the responsibility of the owner of the property served. Include this maintenance note on the plan.
11. A signature block for approval by either the City Engineer/SSCAFCA.
12. A signature block for approval by either the City Engineer's/SSCAFCA's inspector.

Note #1: If the proposed improvements are part of a building permit application, this information can be incorporated on the appropriate drainage submittal.

Note #2: Private Storm Drain Improvements within SSCAFCA's ROW are not allowed without SSCAFCA's approval.