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\*\*\*\*THIS IS A NEW IM. - PLEASE READ CAREFULLY.\*\*\*\*

**SAFETY GRATES FOR  
CONCRETE BOX CULVERS**

**GENERAL**

Safety grates are designed to provide a suitable safety guard for the exposed end of the box culverts.

**REQUIREMENTS FOR SAFETY GRATES**

1. Safety grates must comply with the requirements of the [Design Standard RF -29](#).
2. Safety grates shall be constructed from the original construction plans.
3. Thru dimensions shall be verified at the site before fabrication of the components.
4. Shop drawings shall be required and must be submitted for approval prior to fabrication.
5. Proper fitting of the safety grates into the headwall opening shall be the responsibility of the contractor.
6. Pipes for the safety grates shall be schedule 40 meeting the requirements of ASTM A 53 Grade B and the requirements of [Article 4153.05](#)
7. Bolts shall meet the requirement of ASTM A 307, Class A with full body diameter with hexagonal head. Threads shall meet the requirements of ANSI B1.1, united coarse thread series Class 1A and Class 1B fit.
8. Nuts shall meet the requirements of ASTM A 563, Grade DH or DH3, and shall comply with the requirements of [Article 4153.06](#)
9. Plain washers meeting the requirements of ASTM F 436 and / or the requirements of ASME B 18.22.1, Type A or B plain washers.
10. Galvanizing of all threaded components shall be in accordance with the requirement of ASTM F 2329 and / or B 695 Class 55. Threaded components (bolts and nuts) shall be coated by the same zinc coating process and the galvanizer's option is limited to one process with no mixed processes.
11. Galvanizing of all other items (bars, brackets, and strips) shall be in accordance with the requirements of ASTM A 123

**APPROVAL**

Acceptance of safety grates shall be based on approved shop drawings and approved fabricators. Approved fabricators are listed in [Appendix A](#) of this IM.