STORM WATER MANAGEMENT
EROSION AND SEDIMENT CONTROL NOTES

GENERAL NOTES
The following are requirements to be followed by the Contractor during all phases of the project. Please note that this construction will be accomplished under the provisions of the National Pollutant Discharge Elimination System (NPDES) of the U.S. Environmental Protection Agency (EPA). A Storm Water Pollution Prevention Plan (SWPPP) must be prepared for this project in conformance with EPA regulations (Code of Federal Regulations (CFR) 40, Part 122) and Oklahoma Department of Environmental Quality (ODEQ) General Permit (OKR-10). The Contractor will be responsible for compliance with the OPDES permit and the SWPPP, as well as with all provisions of the plans and specifications. It will also be the Contractor's responsibility to prevent soil or sediment loss from the construction site. The Contractor shall not leave the site until all erosion control, sediment control, and storm water management practices are in place; have been inspected and found satisfactory; and all temporary practices have been properly removed.

STORM WATER MANAGEMENT
The project must be designed to provide positive post-construction control of storm water runoff from the site using gutters, curbs, inlets, piping, and outlets to the receiving stream. The erosion and sediment control measures discussed below will also provide some temporary storm water controls. During the course of construction, the contractor will install and maintain storm water controls in the sequence specified herein to provide comprehensive management of storm water for a project of this nature.

EROSION AND SEDIMENT CONTROL
The project must be designed to minimize adverse off-site effects of soil erosion and resulting sediment loss through the use of proper construction techniques; and by installing both temporary and permanent management practices. All soil-disturbing activities performed by the Contractor will be accomplished in such manner as to prevent loss of sediment from the construction site during rainfall events. To accomplish this, the following specific steps will be taken during construction:

1. Immediately after mobilization but prior to initiation any soil-disturbing activities, the Contractor will install all specified perimeter controls on the site. These practices have been designed to trap all sediment produced during soil-disturbing activities, and to prevent off-site damage. It is recognized that some site preparation may be required to properly install these practices.

2. The recommended sequence for the installation and removal of erosion and sediment control measures is as follows:
   - perimeter control measures (silt barriers and fencing) installed at designated areas; cleaning of street during construction; site grading (including temporary slope stabilization) as needed; installation of utilities; building construction; paving; final grading; installation of sod or vegetative materials; building construction; paving; final grading; installation of sod or vegetative materials; removal of temporary practices and perimeter controls; and site cleanup.

3. During all soil-disturbing activities, the Contractor will take appropriate steps using accepted construction methods to minimize exposure of unprotected soil and other construction materials to rainfall. Particular care must be exercised when dealing with topsoil stockpiles, fill material, or soil on slopes. The Contractor will maintain a date log of all soil disturbance activities or major grading operations, and of all management practice or control measure installations.

4. If, during the course of construction, any area of soil (including stockpiles) remains exposed for more than fourteen calendar days without suitable erosion control, then temporary stabilization measures should be installed unless soil-disturbing activities are planned on such areas within an additional seven calendar days. Suitable temporary stabilization measures are perimeter controls and silt barriers (such as rock bags, sand bags, and silt fencing) along all side-slope and down-slope borders of the disturbed area. Note that perimeter controls alone may not be successful; movement of large amounts of sediment produced by heavy rain on exposed soil could overwhelm such measures.

5. At the Contractor's discretion, additional temporary erosion control practices (such as rock bags, sand bag barriers, and silt fences) may be installed along any down-slope of side-slope perimeter of a soil-disturbed area to prevent sediment movement. Anchored erosion control matting, mulches, or other acceptable methods may also be installed to stabilize any unprotected slopes during construction, and hold them to the appropriate grade.

As site conditions warrant, the Contractor may also choose to modify the type or arrangement of specified practices to improve their effectiveness. As with any other project changes, the Contractor must present all proposed modifications to the Project Engineer for approval prior to installation.

6. The Contractor will inspect all specified practices at least once every fourteen calendar days, and after all rainfall events to ensure that each specified practice remains intact. Any damage noted during such inspections shall be repaired promptly to restore the practice to original specifications. The Contractor will be responsible for maintenance of all erosion and sediment control practices as specified in the plans, including periodic regrading, and final grading after removal of all such practices.

7. When water is used for dust control or to promote vegetation, the Contractor will prevent the escape of this water and any sediment it may carry from the construction site.

8. Care must be exercised to prevent excessive off-site tracking of mud or sediment by construction vehicles. In addition to the specified gravel entrance, properly graded transition areas should be established at all temporary site exits to assist in mud removal from departing vehicles. The Contractor shall be responsible for cleaning the street daily, or as directed by the City, when mud is tracked onto the street from the construction site.

9. During the site cleanup prior to the possession date, each temporary practice will be completely removed and the area finished to the appropriate post-project condition. This involves final grading; installation of sod or vegetation; and site cleanup.

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1. Immediately after mobilization but prior to initiation any soil-disturbing activities, the Contractor will install all specified perimeter controls on the site. These practices have been designed to trap all sediment produced during soil-disturbing activities, and to prevent off-site damage. It is recognized that some site preparation may be required to properly install these practices.

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   - perimeter control measures (silt barriers and fencing) installed at designated areas; cleaning of street during construction; site grading (including temporary slope stabilization) as needed; installation of utilities; building construction; paving; final grading; installation of sod or vegetative materials; building construction; paving; final grading; installation of sod or vegetative materials; removal of temporary practices and perimeter controls; and site cleanup.

3. During all soil-disturbing activities, the Contractor will take appropriate steps using accepted construction methods to minimize exposure of unprotected soil and other construction materials to rainfall. Particular care must be exercised when dealing with topsoil stockpiles, fill material, or soil on slopes. The Contractor will maintain a date log of all soil disturbance activities or major grading operations, and of all management practice or control measure installations.

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6. The Contractor will inspect all specified practices at least once every fourteen calendar days, and after all rainfall events to ensure that each specified practice remains intact. Any damage noted during such inspections shall be repaired promptly to restore the practice to original specifications. The Contractor will be responsible for maintenance of all erosion and sediment control practices as specified in the plans, including periodic regrading, and final grading after removal of all such practices.

7. When water is used for dust control or to promote vegetation, the Contractor will prevent the escape of this water and any sediment it may carry from the construction site.

8. Care must be exercised to prevent excessive off-site tracking of mud or sediment by construction vehicles. In addition to the specified gravel entrance, properly graded transition areas should be established at all temporary site exits to assist in mud removal from departing vehicles. The Contractor shall be responsible for cleaning the street daily, or as directed by the City, when mud is tracked onto the street from the construction site.

9. During the site cleanup prior to the possession date, each temporary practice will be completely removed and the area finished to the appropriate post-project condition. This involves final grading; installation of sod or grass seed on all bare soil areas. A minimum vegetation density of seventy percent, or an equivalent sediment stabilization measure (geotextiles, mulches, or gabions), is required until vegetation is established.

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NOTES:

1. A 5' - 0" minimum radius is approved for one & two family residences not abutting a limited access or major street. All other Driveways will have a 10' 0" minimum radius.

2. The Driveway Contractor may saw cut & remove the complete Curb and Gutter section or remove the curb and the section of gutter directly under the curb. Saw cuts shall be 2" or 1/3 the depth of the gutter, whichever is greater. Saw cuts shall include the top & face of curb as well as the gutter. Saw cuts shall be made prior to the removal of concrete.

3. If a gutter holds water prior to any construction by driveway Contractor, he should notify the City Engineer of the situation before doing any work. The completed driveway work will not be accepted if the gutter holds water due to poor construction by the Contractor.

4. It is recognized that this driveway detail will not cover every possible situation encountered in construction. Additional expansion joints will be required as needed.

5. Clean and seal all joints and saw cuts in accordance with standard specifications.


7. Transverse Joints Required at 15' Maximum Spacing.

8. Do not turn radius in front of adjacent property without written permission from adjacent property owner.
NOTES:
1. Vertical tubes to be set on 6' centers, 4" clear from back edge of sidewalk.
2. Materials shall comply with the Std. Specifications. Submit shop drawing for approval prior to fabrication.
3. All materials shall be galvanized or galvanized / powder coated as specified in the proposal.
4. 3" steel pipe required when railing is adjacent to traffic.

GENERAL NOTES:
ALL CONSTRUCTION AND MATERIAL SHALL BE IN ACCORDANCE WITH THE OKLAHOMA CITY STANDARD SPECIFICATIONS
ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" CHAMFER.
ALL CONCRETE SHALL BE CLASS "A" CONCRETE 3500 PSI.
EXPANSION JOINTS SHALL BE AT A MAXIMUM OF 30'-0" INTERVALS.
ALL REINFORCING STEEL BARS SHALL BE DEFORMED BARS COLD BENT, NO WELDS PERMITTED.
ALL EXPOSED CONCRETE SURFACES SHALL HAVE A CARBORUNDUM FINISH.
THIS DETAIL ADAPTED FROM O.D.O.T RETAINING WALL RW-1.

HEAVY DUTY - 3" PIPE RAILING and LIGHT DUTY - 1.5" PIPE RAILING
**GENERAL NOTES**

1. All construction and material requirements shall be in accordance with the Oklahoma Department of Transportation 1998 Standard Specifications and applicable Special provisions covering that project.

2. All bolts, nuts, cable anchors, groundline cables and bearing plates shall be galvanized in accordance with section 732 of the Standard Specifications for Highway Construction.


4. The sheet types shall not produce more than 0.01% above the general linear measure along a 3-foot edge.

5. Where possible, the geometry shall be established by H-30-121.5 and NCHRP Highway Geometric Design Guide for the Location and Design of Highway Geometry Design Guide for the Location and Design of Highway Construction.

6. All pipes shall be compacted to ensure no settlement of tube.

7. Post length above the rail will be removed if directed by the Engineer.

8. 5/8-inch flat washer is used under the nut behind the post only.

9. For curb installations, the soil tubes and posts shall be installed at the proper ground elevation according to section 734 of the Standard Specifications for Highway Construction, Compacted to Insure No Settlement of Tube.

10. Extruder type terminals shall be installed when adjacent driving lanes are within 25 feet of the Mid-Bevel Guardrail Extruder (MBGF). A 25 to 1 taper rate will be used at curb (horizontally) of extension side on the extruder terminal.

11. When rock excavation is encountered, a 12” diameter post hole, 20 inches deep, may be used if the post is driven with an approved driving head.

12. Extruder heads may be field cut to 18” x 18” end of the G.E.T. prior to installation.

13. Air bubbles with all edges free of air bubbles with all edges firmly bonded.

14. A 25 to 1 taper rate will be used at curb (horizontally) of extension side on the extruder terminal.

15. Post poles are required with the guardrail exclusive terminal (GET) for additional information on installing special terminal. See Standard AASHTO CURVED ENDWALL.

**BASIS OF PAYMENT**

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<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
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<td>MUTCD 965-101</td>
<td>GUARDRAIL, GRD consistency</td>
<td>SQY</td>
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Curb Ramps shall be located on various street locations where standard curb crosses.

### Sidewalk Notes
1. All work must meet or exceed American with Disabilities Act (ADA) requirements.
2. Minimum sidewalk width shall be as follows: residential, 6'-0" at curb, 4'-0" at property line; commercial, 4'-0" at curb, 5'-0" at property line.
3. Sidewalk cross slopes shall be a maximum of 2% and a minimum of 1/2% cross slopes.
4. Sidewalks shall be constructed of 6" thick concrete on top of 2" of 1 1/2" crusher run, 3/4" rock screenings, 1 1/2" clean recycled concrete or approved equal.
5. All obstructions into the walk, such as power poles, hydrants, sign posts, etc., must have a minimum 48" of clear travel space around the obstruction.

### General Notes
1. The cross-slope value of sidewalks shall not exceed 2% in any direction.
2. All work must meet current ADA guidelines.

### ADA Curb Ramp Details
- **Section C-C**: See detail for Isometric View
- **Section D-D**: See detail for Isometric View
- **Section G-G**: See detail for Isometric View
- **Detail 3**: See detail for Isometric View
- **Detail 4**: See detail for Isometric View

### Method of Transitioning a Ramp with Die Cut Curves
- A curb ramp is defined as the entire concrete surface which includes the ramp and flared sides. The minimum 6" wide center portion, including the detectable warning surface, shall have a maximum slope of 2% (1:50) maximum, and cross slope, not to exceed 2%. The “flared side” of the ramp shall be on a slope of 8.33% (1:12) maximum measured along the curb to the face of the curb. The “flared side” of the ramp shall lie on a slope of 10% (1:10) maximum measured along the curb. The minimum 15" high vertical clearance shall be provided at pedestrian push buttons at signalized crossings.
- The ramp center line and path of travel should be parallel to the sidewalk and downhill to the crosswalk. Whenever the width of the sidewalk is less than 5'-0", a 5' x 5' passing area with 2% maximum 2% slope and minimum 1/2% slope in any direction shall be provided at pedestrian push buttons at signalized crossings.
- The ramp center line and path of travel should be parallel to the sidewalk and downhill to the crosswalk. Whenever the width of the sidewalk is less than 5'-0", a 5' x 5' passing area with 2% maximum 2% slope and minimum 1/2% slope in any direction shall be provided at pedestrian push buttons at signalized crossings.
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### Residential Curb Ramps
- **Type E**: See detail for Isometric View

- **Type F**: See detail for Isometric View

- **Type G**: See detail for Isometric View
Sidewalk Bond Breaker Center Wall 4" ≥7'-0"

Sidewalk 4" Curb  #4's @ 12" c/c (Typical)

#5's @ 18" c/c (Typical) 4'-0" min. (Residential Street) 5'-0" or 6'-0" (Arterial Street)

Notes
1. The width of the sidewalk bridge must be at least as wide as the adjacent sidewalk.
2. #5 bars must extend to within 1 1/2" of the end forms.
3. Flume crossing with sidewalk bridges having a walking path greater than 5' wide require a separate design.
4. Flume crossing with a dimension of 18" or greater from the flume surface to the walkway surface will require pedestrian guardrail.
5. 3/4" chamfer (typical) required on all exposed edges.