

**EROSION CONTROL GENERAL NOTES**

- The Contractor is responsible for the control of erosion control during construction and until the Owner accepts the work as complete. The erosion control measures are shown on this plan as a typical minimum installation. The Contractor shall be responsible for adjusting or adding to these measures as necessary during the phasing of the construction to assure adequate control.
- Clearing and grubbing within 50' of a defined drainage course should be avoided when possible. Where changes to a defined drainage course occur, work should be delayed until all materials and equipment necessary to protect and complete the drainage change are on site. Changes shall be completed as quickly as possible once the work has been initiated. The area impacted by the construction activities shall be revegetated or protected from erosion as soon as possible, areas within 50' of a defined drainage ways should be recontoured as needed or otherwise protected within five (5) working days after grading has ceased.
- Where soil disturbing activities cease in an area for more than 14 days, the disturbed areas shall be protected from erosion by stabilizing the area with mulch or other similarly effective erosion control measures if activities cease for more than seven (7) days.
- Existing vegetation shall be preserved to the extent and where practical. In no case shall disturbed areas remain without vegetative ground cover for a period in excess of 60 days.
- Additional site management practices which shall be adhered to during the construction process shall include:
  - Solid and hazardous waste management including providing trash containers and regular site clean up for proper disposal of solid waste such as building material, product/material shipping waste, food containers and cups, and providing containers for the proper disposal of waste paints solvents, and cleaning compounds.
  - Provisions of portable toilets for proper disposal of sanitary sewage.
  - Storage of construction materials away from drainage courses and low areas.
  - Installation of containment berms and use of drip pans at petroleum product and liquid storage tanks and containers.
- All disturbed areas shall be seeded, fertilized and mulched, or sodded, in accordance with the Standards and Specifications adopted by the City of O'Fallon, Missouri and good engineering practices. This shall be completed within fourteen (14) days after completing the work, in any area. If this is outside of the seeding period, silt barriers or other similarly effective measures shall be provided until such time that the areas can be seeded.
- All erosion control measures, temporary or permanent, require maintenance to preserve their effectiveness. All erosion control devices shall be inspected immediately after each heavy rainstorm and at least daily during prolonged rainfall. Any required repairs should be made immediately. All costs associated with the repair work including related incidentals will be the contractor's responsibility and shall be included in the Contractor's bid for the proposed work. Only after the project is complete and accepted can the erosion control be removed.
- Seeding shall be done before the proposed seedbed becomes eroded, crusted over, or dried out and shall not be done when the ground is frozen, or covered with snow. The seed shall comply with requirements of Missouri Seed Law and the Federal Seed Act. Also, it shall contain no seed of any plant on the Federal Noxious Weed List. Other weed seed shall not exceed one percent by weight of mix.

**VEGETATION ESTABLISHMENT**

**Seedbed Preparation**  
 \* Loosen Soil to depth of 3 inches for broadcast seeding or drilling.  
 \* Avoid Excessively wet conditions

**Amendments**  
 \* Per Soil text or following table

	LBS./1,000 SF			
	N	P	K	Lime
Temporary Seeding	0.7	0.7	0.7	14 ENIM+
Permanent Seeding	1.0	1.4	1.4	14 ENIM+

+ Soil test results take precedence, due to highly variable soil pH.

**Seeding Rates**

Temporary	
Oats	80 LBS / AC
Wheat or Rye	90 - 120 LBS / AC
Permanent	
Fescues	80 LBS / AC
Kentucky Bluegrass	50 LBS / AC
Perennial Ryegrass	80 LBS / AC

**Seeding Periods**

Temporary	
Oats	February 1 - June 1 / August 1 - October 1
Wheat or Rye	January 1 - June 1 / July 15 - November 15
Permanent	
Fescues	February 1 - June 1 / August 1 - November 1
Kentucky Bluegrass	February 1 - June 1 / August 1 - November 1
Perennial Ryegrass	February 1 - June 1 / August 1 - November 1

**Mulch**

\* 75% of Ground surface shall be covered

**EROSION AND SEDIMENT CONTROLS**

The layout of erosion control best management practices (BMPs) shown on the engineering plans is intended to control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The Contractor shall be responsible for the evaluation of existing surface drainage patterns and for making adjustments to the BMP locations to best control erosion and minimize, if not eliminate, the transport of sediment from the disturbed areas. The following are measures to achieve the control of erosion and sediment.

- Stabilization Practices** - Stabilization practices are very effective at preventing erosion by shielding the soil surface from the impact of rain, slowing the velocity of runoff, holding soils in place, and increasing infiltration of runoff and allowing the soil to absorb more rainfall.
  - Temporary Seeding Stabilization** - During acceptable growing periods (Vegetation Establishment); temporary seeding of annual vegetation with a straw mulch cover shall be used as a temporary cover until permanent vegetation is established. If there is a possibility that a vegetative cover will be required to control erosion for more than 1 year, then consider the addition of a perennial/permanent grass species as part of a seeding mixture.

**Seedbed Preparation** - For broadcast seeding or drilling, loosen soil to depth of 3 inches. For no till drilling, loosen soil if it is compacted. Loosen compacted, hard or crusted soil surfaces with a disk, ripper, chisel, harrow or other tillage equipment. Avoid preparing the seedbed under excessively wet conditions. For establishment and long-term growth, apply a complete fertilizer at rates recommended by soil tests or as specified in plans and specifications. If soil pH is less than 6.0, apply lime according to soil tests. Incorporate necessary lime and fertilizer to a depth of 3 to 6 inches of soil.

**Installation** - For the best results use certified seed. Apply seed uniformly using a cyclone seeder, drop-type spreader, drill, cultipacker seeder or hydroseeder. When using a drill seeder, plant rye or other grains about 1 inch deep and plant grasses no more than 1/2 inch. A vegetative straw mulch cover shall be applied over the seed mixture to help germinate and establish plant cover, control weeds, and protect seed mixture against temperature extremes. Follow straw mulch preparation and application procedures described herein.

- Temporary Mulch Stabilization** - During non-growing periods, a straw mulch cover shall be applied in unseeded areas to protect against erosion until temporary or permanent vegetation is established.

**Site Preparation** - Divert runoff water from areas above the site that will be mulched. Remove stumps, roots and other debris from the construction area. Grade area as needed to permit the use of equipment for seeding, mulching and maintenance. Shape area so that it is relatively smooth.

**Application** - Spread straw mulch uniformly over the area with a power blower, hydroseeder, or by hand. No more than 25% of the ground surface should be visible after spreading. Apply straw mulch at a rate of 1.5 tons per acre as a seed cover or 2.5 tons per acre as a stand alone cover. The straw should be dry, unchopped, unweathered; free of weed seeds and rot. In areas of steep slopes or high winds, or in critical areas such as swales, mulching may need to be secured to the ground with a binder, netting, or tacking.

- Permanent Seeding Stabilization** - All disturbed areas except for the areas designated for sodding shall be permanently seeded with a cool season grass mixture as specified by the Owner.

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- Permanent Sodding Stabilization** - Areas designated sodding shall be sodded with a cool season grass mixture.

**Site Preparation** - Apply amendments according to soil test recommendations or as specified in plans and specifications. Incorporate amendments to a depth of 4 to 6 inches with a disk or chisel plow. Rake or harrow to achieve a smooth, final grade on which to lay the sod. The surface should be loose, and free of plants, trash, and other debris.

**Laying Sod** - Sod should not be laid on soil surfaces that are frozen. During high temperatures, moisten the soil immediately prior to laying sod. This cools the soil and reduces root burning and dieback. The first row of sod should be in a straight line with subsequent rows placed parallel to and butting tightly against each other. Stagger joints to create a brick-like pattern and promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight to prevent spaces which would cause drying of the roots. On slopes 3:1 or steeper, or wherever erosion may be a problem, lay sod with staggered joints and secure by stapling or pegging, immediately after laying the sod, roll or tamp it to provide firm contact between roots and soil, then irrigate sod deeply so that the underside of the sod pad and the soil 4 inches below the sod is thoroughly wet.

**2. Structural Practices**

- Silt Fence** - A temporary sediment barrier consisting of a geotextile fabric shall be installed as shown on the attached engineering plans and details. Silt fencing shall be installed to maintain sediment onsite.

**Minimum Requirements:**

**Location** - Fence should be built on a nearly level grade and at least 10 feet from the toe of the slope to provide a broad shallow sediment pool. Install on the contour, where fence can intercept runoff as a sheet flow; not located across channels, waterways or other concentrated flow paths; not attached to existing trees.

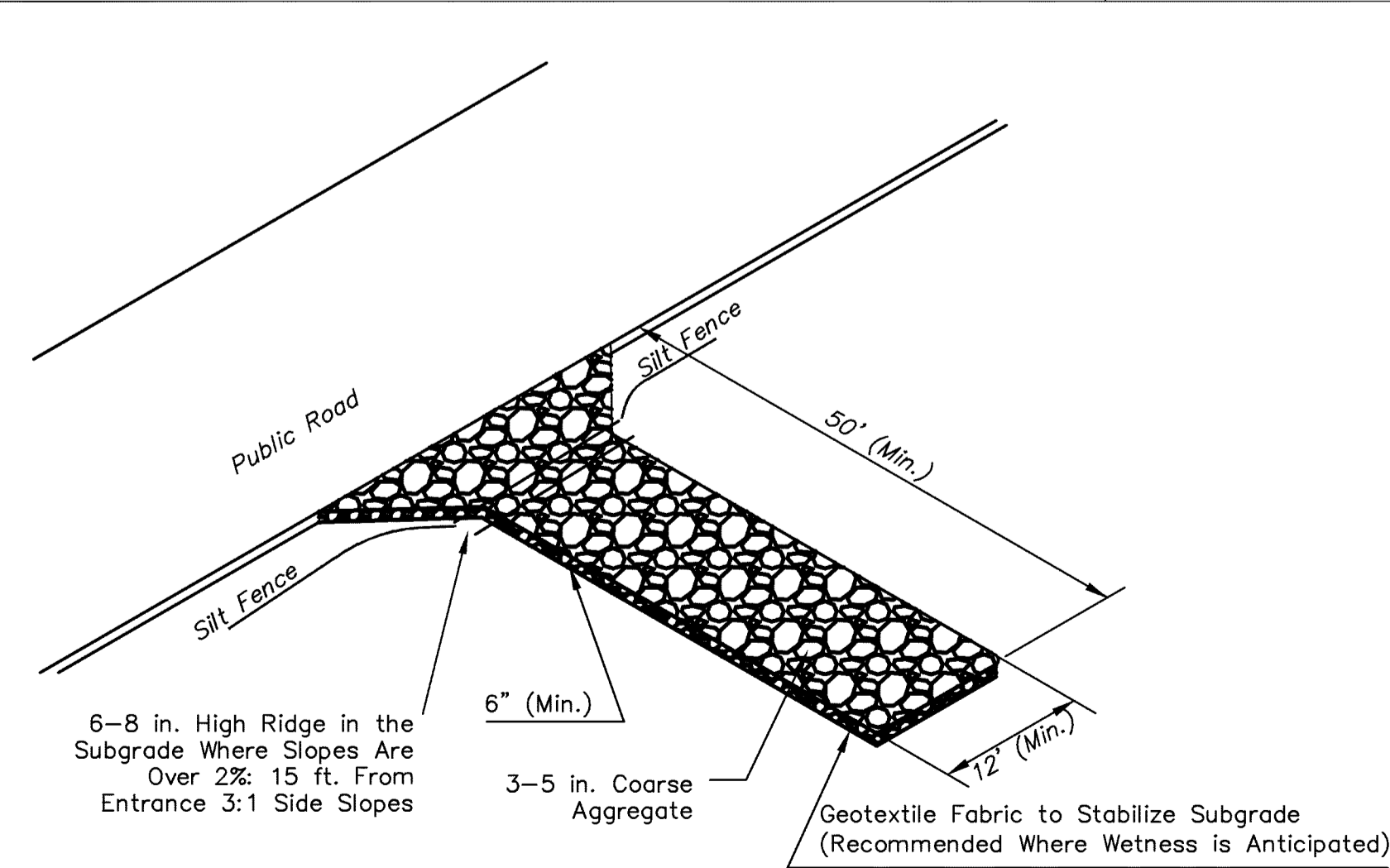
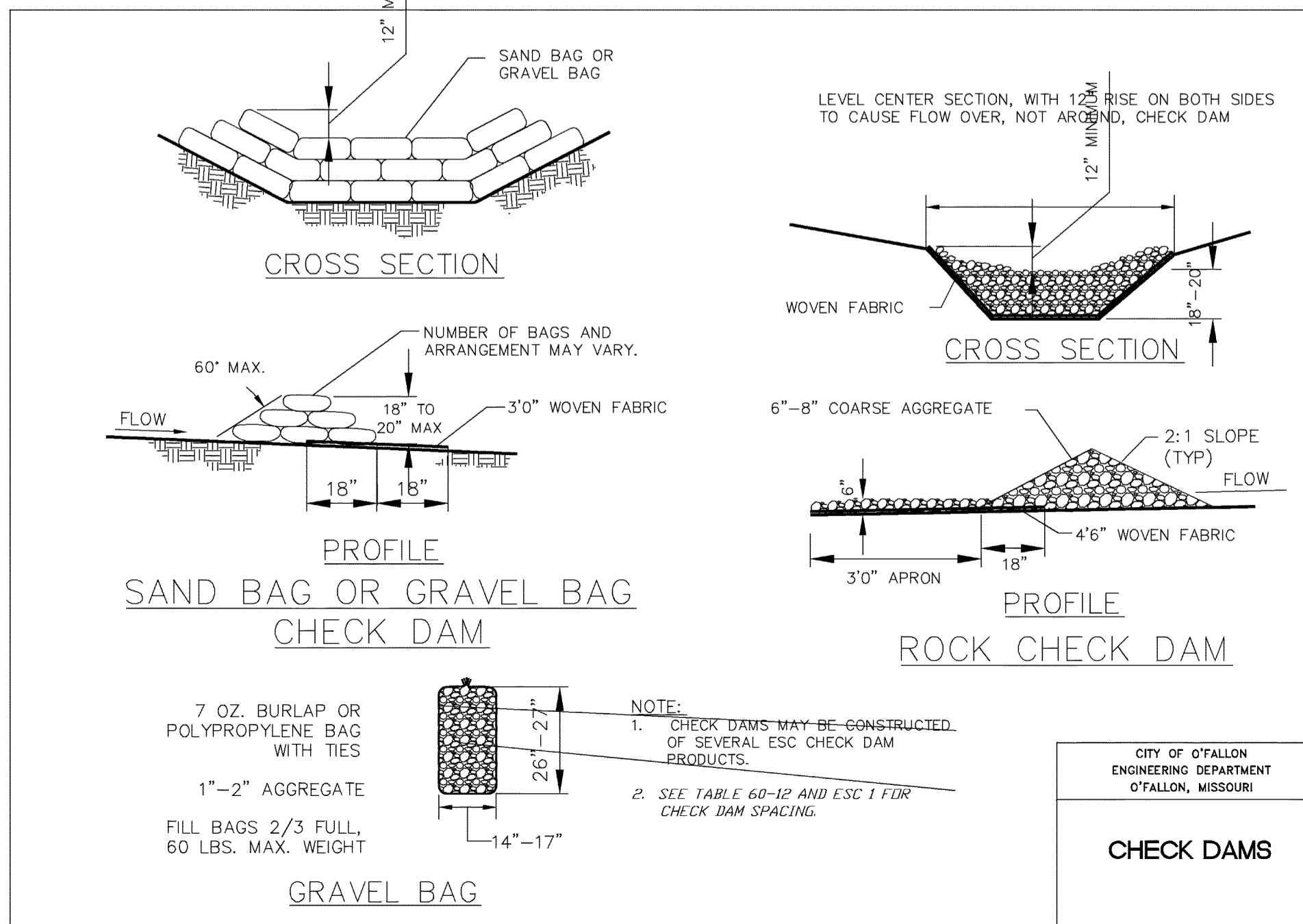
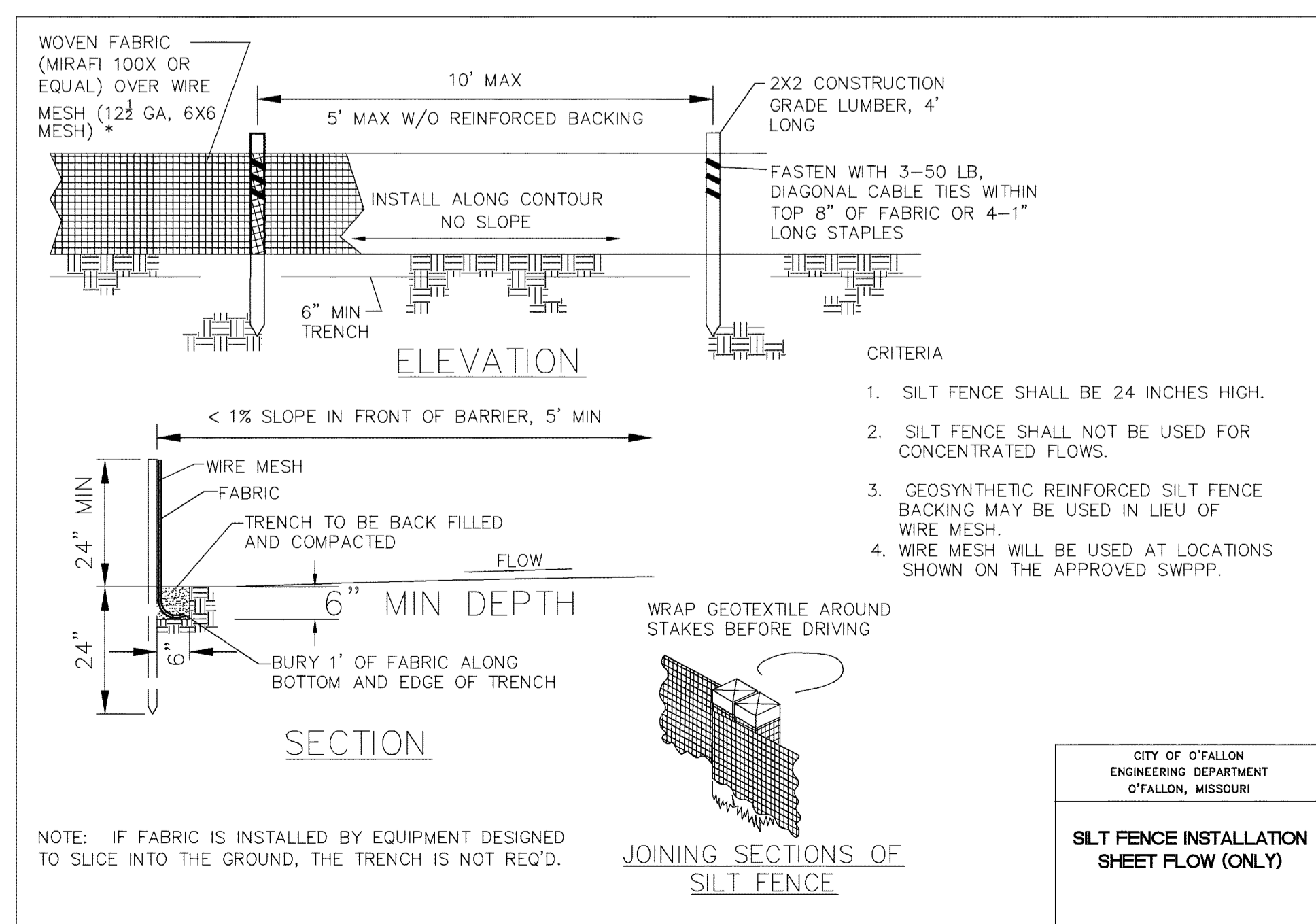
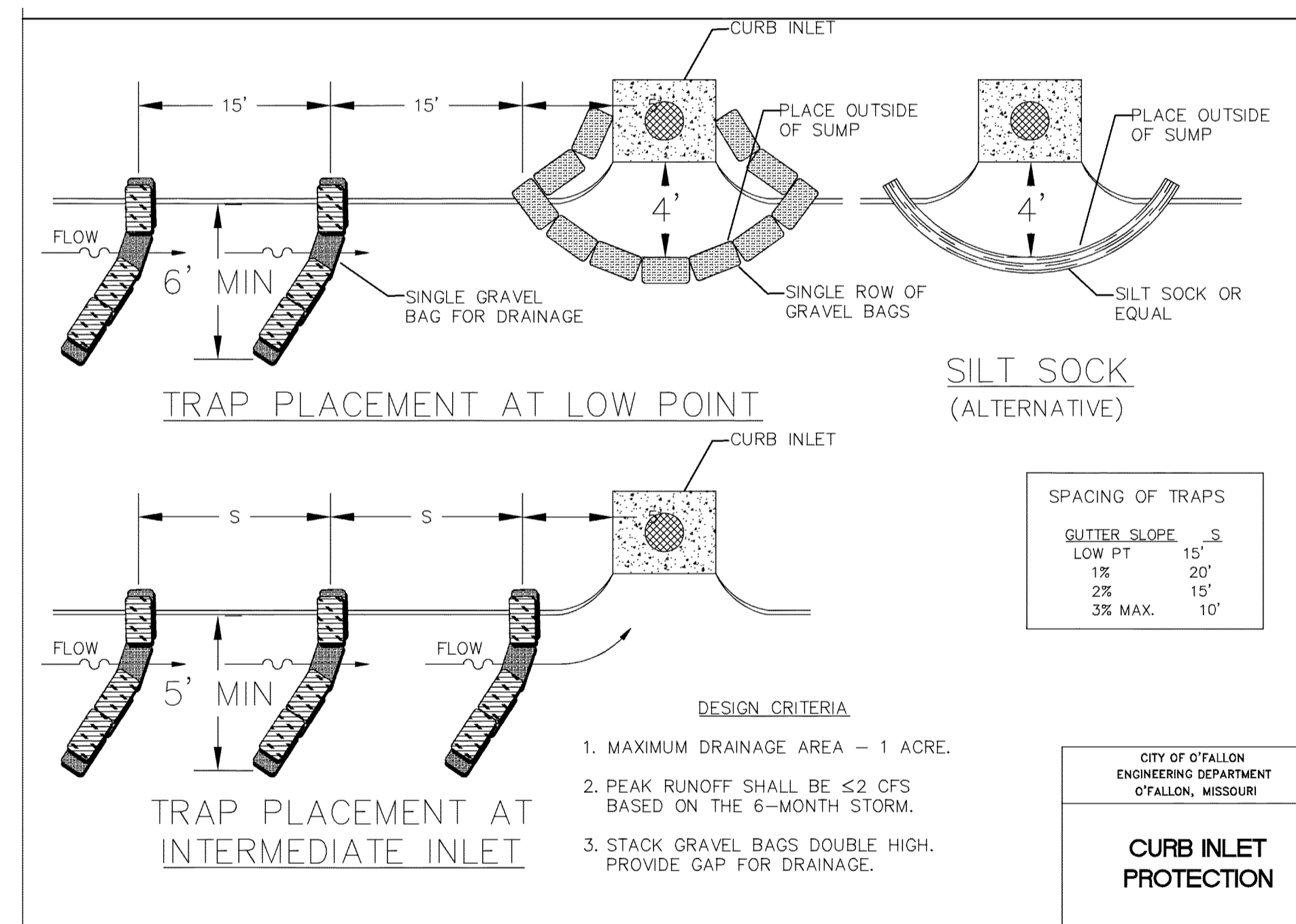
**Spacing of Support Posts** - 10 feet maximum for fence supported by wire; 6 feet maximum for high strength fabric without supportive wire backing. Support posts should be driven into the ground a minimum of 10 inches deep.

**Trench** - Bottom 1 foot of fence must be buried minimum of 4 inches deep.

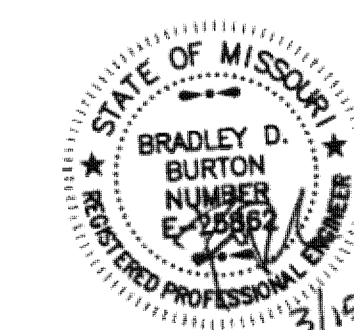
- Stockpiles** - The toe of stockpiles shall be placed a minimum of 10 feet from erosion control measures. If stockpiles are to remain for more than 14 days, they shall be temporarily stabilized with vegetative mulch and temporary seeding.

**Straw Wattles** - Straw Wattles shall be installed per the engineering details. If voids develop beneath the product, the Engineer may require the Contractor to fill in and compact the area of voids and restake the product back in place. No additional payment will be made for this work.

- Maintenance** - The contractor shall repair all erosion control measures or re-seed areas that are disturbed or damaged as a result of weather or other situations, within 2 days after the occurrence. This will include all areas bare of vegetation.



REV	DATE	DESCRIPTION



PROJECT NUMBER  
13326.00

DATE  
03/15/16

CONSTRUCTION DOCUMENTS

DESIGNED: HTR/JWM/JRH  
 DRAWN: HTR/JWM/JRH  
 REVIEWED: HTR/BDB

SHEET TITLE  
**EROSION CONTROL DETAILS & NOTES**

SHEET NUMBER

**C9.0**