

GENERAL EROSION NOTES:

- ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE OF MISSOURI NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.
- CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST OF OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
- BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.
- SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS.
- CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
- GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOADING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
- ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
- SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOATATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
- DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
- RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
- THE LOCAL AGENCY(IES) MUST BE NOTIFIED AT LEAST FORTY-EIGHT HOURS PRIOR TO THE COMMENCEMENT OF ANY GRADING OPERATIONS.
- NO GRADED AREA IS TO REMAIN WITHOUT VEGETATIVE GROUND COVER FOR MORE THAN THIRTY (30) DAYS WITHOUT BEING SEEDDED AND MULCHED OR SODDED.
- DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 14 DAYS, SHALL BE TEMPORARILY SEEDDED. THESE AREAS SHALL BE SEEDDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.
- IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
- ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
- CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
- SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
- DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES) TO PREVENT EROSION.
- ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY. THIS INCLUDES BACK FILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING.
- THE CONTRACTOR SHALL FIELD INVESTIGATE THE ENTIRE SITE PRIOR TO HIS BID SUBMITTAL NOTING THE EXISTING VEGETATION AND TREES AND INCLUDING THE REMOVAL AND DISPOSAL IN HIS BID.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. LOCATION, RELOCATION AND CONNECTION OF THE UTILITIES SHALL BE COORDINATED WITH THE UTILITY COMPANIES.
- UNDERGROUND STRUCTURES, FACILITIES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS AND RECORDS. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN.
- THIS SITE FALLS WITHIN UNSHADOWED "ZONE X", AREAS TO BE DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL FLOOD PLAIN, PER FIRM, FLOOD INSURANCE RATE MAP, FOR CITY OF ST. CHARLES COUNTY, AND INCORPORATED AREAS, MAP NUMBER 291830220206, EFFECTIVE DATE OF JANUARY 20, 2016. FLOOD ZONES ARE DETERMINED BY SCALING.
- THE BOUNDARY INFORMATION AND CONTOURS AS SHOWN IS FROM A TOPOGRAPHIC SURVEY PERFORMED BY COCHRAN.
- TEMPORARY SILTATION CONTROL STRUCTURES SHALL BE MAINTAINED UNTIL A VEGETATIVE COVER OF AREA DISTURBED IS ESTABLISHED AT A SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON THE SITE, AS DETERMINED BY THE CITY ENGINEER.
- WHERE NATURAL VEGETATION IS REMOVED DURING GRADING, VEGETATION SHALL BE REESTABLISHED VEGETATIVE COVER OF AREA DISTURBED AS TO PREVENT EROSION. PERMANENT TYPE GRASSES SHALL BE ESTABLISHED AS SOON AS POSSIBLE OR DURING THE NEXT SEEDING PERIOD AFTER GRADING HAS BEEN COMPLETED.
- WHEN GRADING OPERATIONS ARE COMPLETED OR SUSPENDED FOR MORE THAN THIRTY (30) DAYS, PERMANENT GRASS MUST BE ESTABLISHED TO VEGETATIVE COVER TO PROVIDE EROSION CONTROL ON THE SITE. BETWEEN PERMANENT GRASS SEEDING PERIODS, TEMPORARY COVER SHALL BE PROVIDED ACCORDING TO THE CITY ENGINEER'S RECOMMENDATIONS. ALL FINISHED GRADES (AREAS NOT TO BE DISTURBED BY FUTURE IMPROVEMENTS) IN TWENTY (20) PERCENT SLOPES (5 HORIZONTAL TO 1 VERTICAL) SHALL BE MULCHED.
- ALL EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE INSPECTED FOLLOWING EACH RAINSTORM CAUSING SIGNIFICANT RUNOFF, OR BEING OF SUFFICIENT INTENSITY OR DURATION AS TO STOP CONSTRUCTION OR GRADING PROGRESS. THE SEDIMENT CONTROL FACILITIES SHALL BE CLEANED OF SEDIMENT, REPAIRED IF DAMAGED AND RESTORED TO SERVICEABLE CONDITIONS IF:
 - EROSION SEDIMENT HAS ACCUMULATED IN SILT DEVICES.
 - SEDIMENT EROSION CONTROL DEVICES HAVE BEEN DAMAGED.
 - OBVIOUS GULLIES OR SEDIMENT DEPOSITS HAVE BEEN FORMED ON THE DOWNSTREAM SIDE OF CONTROL DEVICES, OR
 - SEDIMENT HAS BEEN CARRIED BEYOND THE WORKING SITE.
- THE DEVELOPER MUST SUPPLY CITY CONSTRUCTION INSPECTORS WITH ALL COPIES OF INTERIM SOIL TESTING REPORTS.

GENERAL EROSION NOTES:

- ALL FILLED PLACES UNDER PROPOSED STORM AND SANITARY SEWER, PROPOSED ROADS, AND/OR PAVED OR FUTURE PAVED AREAS SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD COMPACTION TEST. ALL FILL PLACED IN PROPOSED ROADS SHALL BE COMPACTED FROM THE BOTTOM OF THE FILL UP. ALL TESTS SHALL BE VERIFIED BY A SOILS ENGINEER CONCURRENT WITH GRADING AND BACK FILLING OPERATIONS.
- AREA SHALL BE TEMPORARILY RESEDED AT A RATE OF 6-8 LBS. OF RYE GRASS PER 1000 SQ. FT. FERTILIZER SHALL BE APPLIED AT A RATE OF 50 LBS. PER 10,000 SQ. FT.

EROSION CONTROL NOTES:

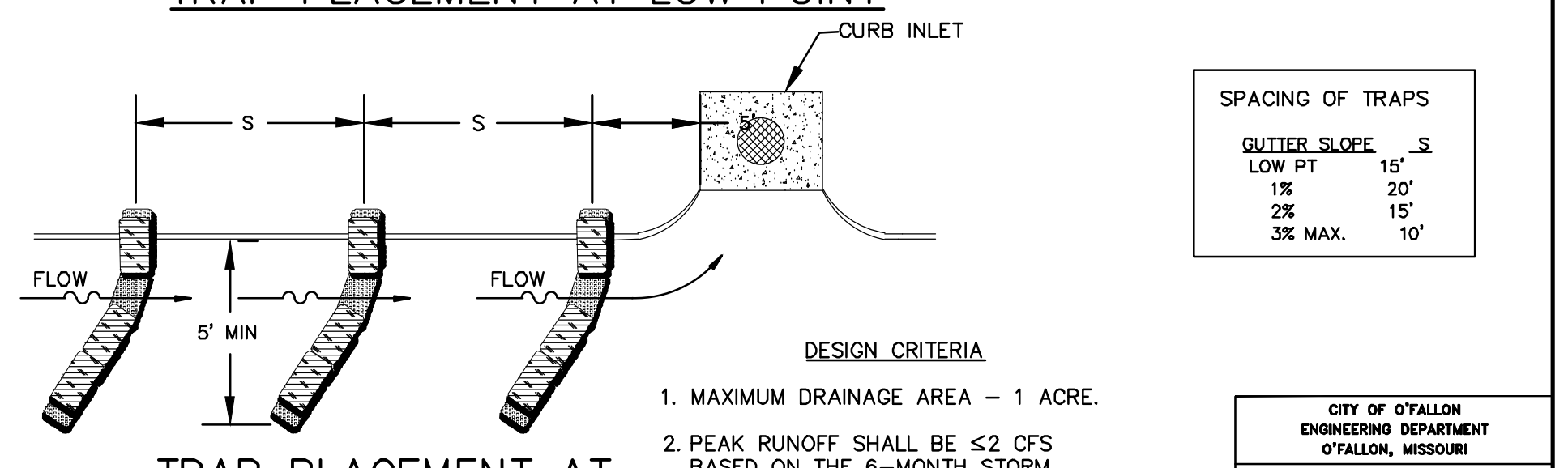
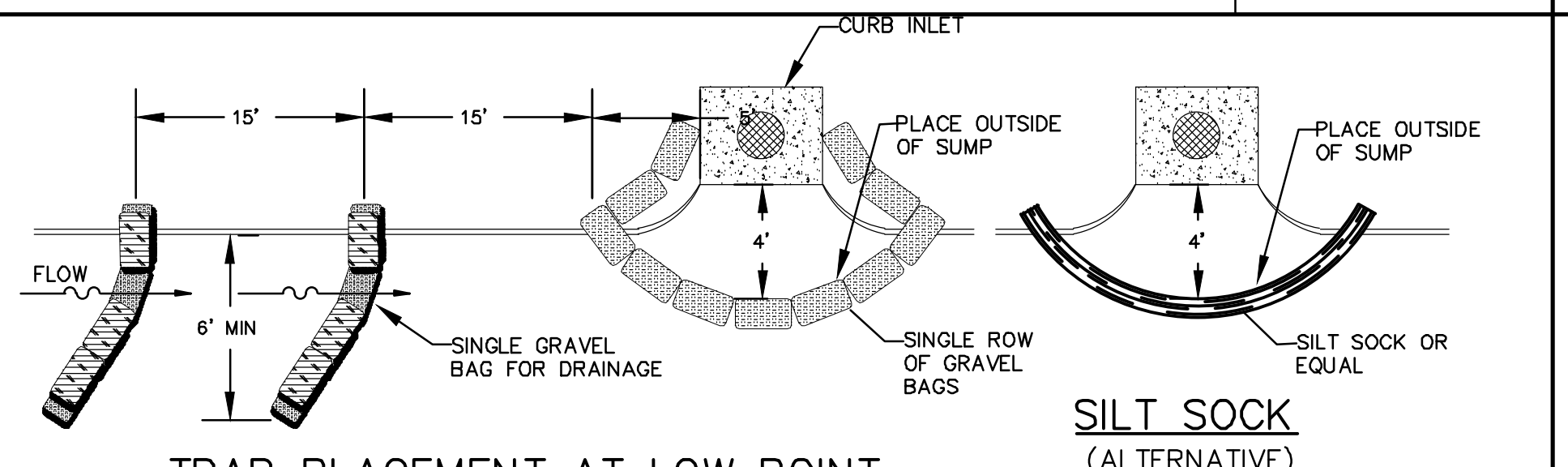
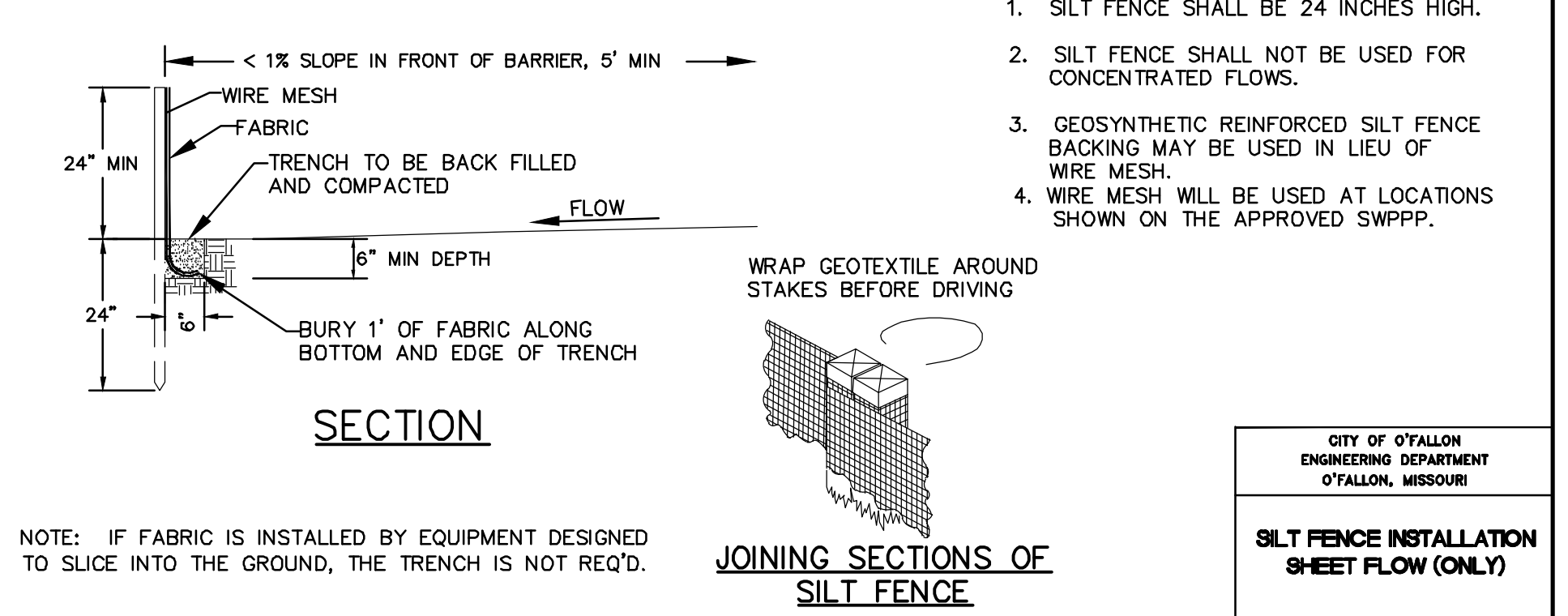
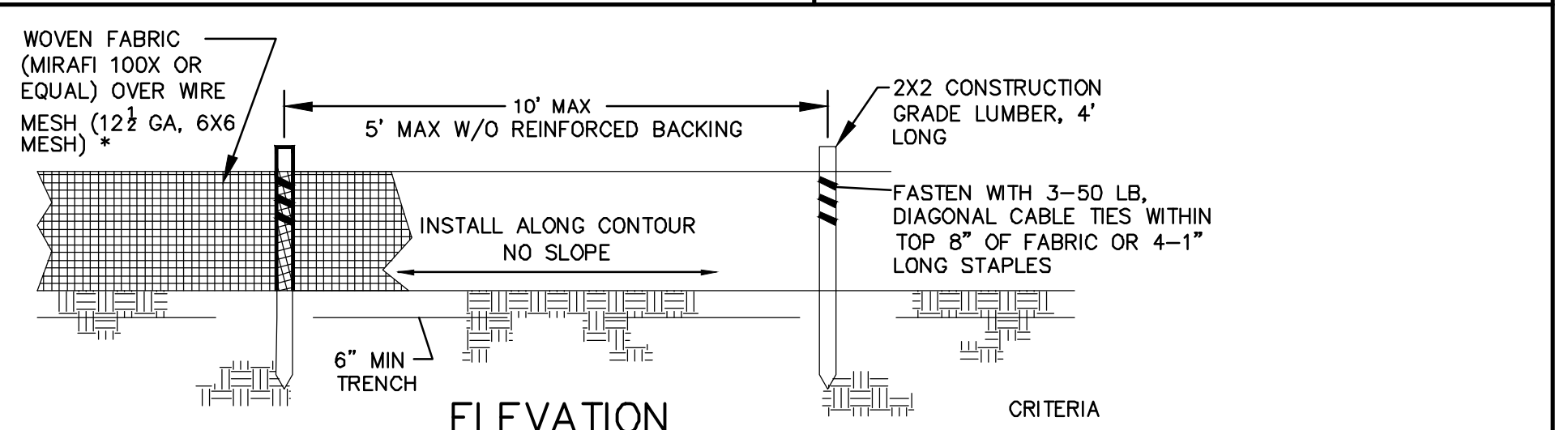
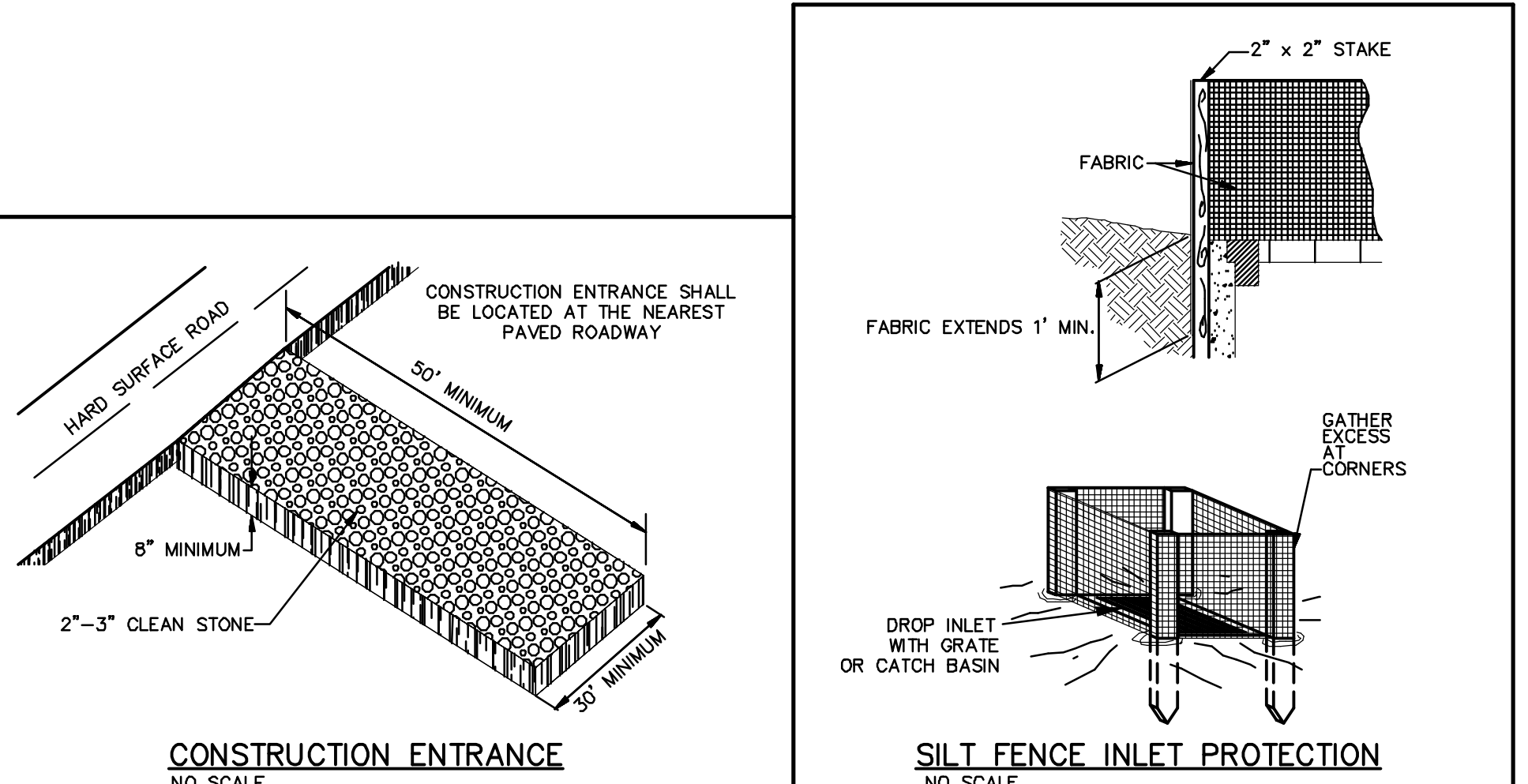
- CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE FROM BUILDINGS FOR ALL NATURAL & PAVED AREAS.
- ALL UNSURFACED AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL. CONTRACTOR TO SEED, MULCH, AND FERTILIZE ALL AREAS OUTSIDE OF PAVED AREAS THAT WERE DISTURBED DURING CONSTRUCTION UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED.
- NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
- SHOULD CONSTRUCTION STOP FOR LONGER THAN 15 DAYS, THE SITE SHALL BE SEEDDED AS SPECIFIED BY TEMPORARY SEEDING MIX.
- MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
- THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
- CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
- LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
- CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
- ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
- EFFORTS WILL BE MADE TO DIRECT DRAINAGE TO EXISTING DISCHARGE POINTS.
- ALL STORM WATER RUNOFF SHALL MEET LOCAL AGENCY(ES) STANDARDS.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO KEEP ALL MUD AND SILT ON SITE AND OFF OF STREETS.
- THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STORM WATER RUN-OFF AND SILTATION UNDER CONTROL DURING CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN THE SITE IN A WELL-DRAINED MANNER IN ORDER TO ASSUME THE SHORTEST POSSIBLE DRYING TIME AFTER EACH RAINFALL. THIS WILL MEAN THAT PUMPING OF STANDING WATER IN LOW AREAS ON THE SITE WILL MOST LIKELY BE REQUIRED DURING CONSTRUCTION.

- MAINTENANCE:**
ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:
- INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
 - ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED.
 - SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
 - THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
 - OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
 - ALL CURB AND AREA INLETS SHALL HAVE INLET PROTECTION SUFFICIENT TO PREVENT TRANSPORTED SOIL FROM BEING DEPOSITED IN THE FORM OF SILT IN THE STORM DRAINAGE SYSTEMS ON-SITE OR OFF-SITE.
 - ALL FINISHED GRADES THAT EXCEED 20% (5 HORIZONTAL TO 1 VERTICAL) SHALL BE MULCHED.

SEQUENCE OF CONSTRUCTION

- INSTALL EROSION CONTROL ITEMS.**
1. INSTALL TEMPORARY CONTROL MEASURES
 2. BEGIN DEMOLITION OF EXISTING SITE IMPROVEMENTS.
 3. PERFORM GRADING ACTIVITIES.
 4. TEMPORARY SEED DENUDED AREAS.
 5. PAVE SITE.
 6. FINAL SEEDING.
 7. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES (ONLY IF SITE IS STABILIZED).

SWP.P.P. GENERAL NOTES AND DETAILS



DESIGN CRITERIA

1. MAXIMUM DRAINAGE AREA - 1 ACRE.
2. PEAK RUNOFF SHALL BE ≤2 CFS BASED ON THE 6-MONTH STORM.
3. STACK GRAVEL BAGS DOUBLE HIGH. PROVIDE GAP FOR DRAINAGE.

TABLE 60-5 SOIL STABILIZATION SCHEDULE

SOIL DISTURBANCE ACTIVITY OR CONDITION	REQUIRED STABILIZATION TIME
SOIL DISTURBANCE HAS CEASED IN AREAS GREATER THAN 2,000 SQUARE FEET	14 DAYS
AFTER CONSTRUCTION OF DIKES, BERMS, DIVERSIONS, AND OTHER CONCENTRATED FLOW AREAS	5 DAYS
WHEN SLOPES ARE STEEPER THEN 3 HORIZONTAL TO 1 VERTICAL	7 DAYS
WHEN SLOPES ARE GREATER THAN 3% AND LONGER THAN 150 FEET	14 DAYS
PERIMETER CONTROLS AROUND SOIL STOCKPILES	END OF WORKDAY
STABILIZATION OR COVERING OF INACTIVE STOCKPILES	30 DAYS
WHEN LAND DISTURBANCE IS COMPLETED, PERMANENT SOIL STABILIZATION MUST BE INSTALLED	30 DAYS

Table 60-7 Temporary Fall Seeding

Plant Species	Rate ¹ (lb/acre)	Seeding Times
Silk-Oats	65	8/16 - 9/30
Winter Rye	50	8/01 - 10/15
Winter Wheat	60	8/01 - 10/15
Orchard Grass	120	8/01 - 10/15
Perennial Ryegrass	80	8/01 - 10/15
Tall fescue, Smooth Bromes	80	8/01 - 10/15
K-31 Fescue	120	9/01 - 11/15
Ladino Clover	2 ²	8/15 - 9/15
Crimson Clover	6 ²	8/15 - 9/15
Orchard Grass and Oats or Rye	40 ²	8/15 - 9/15

Table 60-6 Soil Amendment Rates

Soil Amendment Material	Application Rate (Lb per Acre)
Nitrogen (N)	30
Fertilizer Phosphate (P ₂ O ₅)	50 ²
Phosphorus (K ₂ O)	50 ²
Lime	1,000 ²

¹Increase the rate by 25% for slopes steeper than 5:1.
²Rate is an effective neutralizing material (ENAM) units.

¹If using aerial seeding or other broadcast method to apply seed without rolling or curb-packing, increase seeding rates by 50 percent.
²Pure live seed (PLS)

Table 60-8 Temporary Spring Seeding

Plant Species	Rate ¹ (lb/acre)	Seeding Dates
Winter Rye	50	3/15 - 5/31
Spring Oats	65	3/15 - 5/31
Annular Ryegrass	14 ²	3/15 - 6/15
Subgrass	16 ²	4/15 - 6/15
K-31 Fescue	30 ²	3/15 - 5/31
Red Clover & Oats	2 ² 30 ²	3/15 - 5/31

¹If using aerial seeding or other broadcast method to apply seed without rolling or curb-packing, increase seeding rates by 50 percent.
²Pure live seed (PLS)

Table 60-9 Mulching Materials

Material	Rate	Requirements	Installation/Uses
Straw	1.5-2.5 tons/acre (3-4 tons, if roller punched)	Dry, unchopped, unweathered; free of weed seeds & rot	Spread by machine 1.5-2.5 inches deep; must be tacked or tied down.
Compost Blanket	1" thick	Double the application rate for embankments	Follow manufacturer's application method.
Wood fiber, wood cellulose, paper	1-2 tons/acre	Double the application rate in critical areas	Use with power mulcher or hydromulcher; may be used to tack straw on steep slopes. Cannot be used in hot dry weather.

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Missouri State Certificate of Authority Number: 2010000046
Cochran Project No. M22-8498



DATE
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Registered Professional Engineer
State of Missouri
for Cochran Engineering & Surveying

Developer Information
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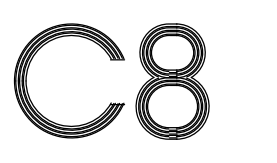
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SWPPP GENERAL NOTES AND DETAILS

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