

BIOSWALE SPECIFICATIONS

1. EROSION BLANKET:

A. EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN S 75 BN, OR EQUAL. REVIEW INSTALLATION LOCATIONS W/ OWNER'S REPRESENTATIVE. THE BLANKET SHALL BE A MACHINE-PRODUCED 100% BIODEGRADABLE MAT WITH A 100% STRAW FIBER MATRIX WITH A FUNCTIONAL LONGEVITY OF APPROXIMATELY 12 MONTHS. (NOTE: FUNCTIONAL LONGEVITY MAY VARY DEPENDING UPON CLIMATIC CONDITIONS, SOIL, GEOGRAPHIC LOCATION, AND ELEVATION). THE BLANKET SHALL BE OF CONSISTENT THICKNESS WITH THE STRAW EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP SIDE WITH A 100% BIODEGRADABLE WOVEN NATURAL ORGANIC FIBER NETTING. THE NETTING SHALL CONSIST OF MACHINE DIRECTIONAL STRANDS FORMED FROM TWO INTERTWINED YARNS WITH CROSS DIRECTIONAL STRANDS INTERWOVEN THROUGH THE TWISTED MACHINE STRANDS (COMMONLY REFERRED TO AS A LENO WEAVE) TO FORM AN APPROXIMATE 0.50 X 1.00 INCH (1.27 X 2.54 CM) MESH. THE BLANKET SHALL BE SEWN TOGETHER WITH BIODEGRADABLE THREAD ON 1.50 INCH (3.81 CM) CENTERS.

MATERIAL CONTENT

MATRIX 100% STRAW FIBER (0.50 LBS/YD2)
 NETTING ONE SIDE ONLY, LENO WOVEN 100% BIODEGRADABLE NATURAL ORGANIC FIBER (9.30 LBS/1,000 FT2 APPROXIMATE WEIGHT) THREAD BIODEGRADABLE

PHYSICAL SPECIFICATIONS (PER ROLL)

WIDTH 6.67 FT ± 5%
 LENGTH 108.00 FT ± 5%
 WEIGHT 46.40 LBS ± 10%
 AREA 80 YD2 66.89 M2
 STITCH SPACING 1.50 INCHES

B. INSTALL BLANKET IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

2. TOLERANCE FOR FINISHED ELEVATIONS

A. THE ENGINEER RESERVES THE RIGHT TO REVIEW CONTRACTOR'S RESULTS OF CONTRACTOR'S SURVEY INCLUDING VERIFICATION OF COMPLETION OF THE FOLLOWING

STAGES: SUBGRADE COMPLETION, INSTALLATION OF FILTER FABRIC WRAP AROUND COARSE AGGREGATE, AMENDED TOPSOIL GRADE COMPLETION, SPOT ELEVATIONS, OR OTHER ITEMS UPON THE REQUEST OF THE OWNER. CONTRACTOR VERIFICATION OF GRADES SHALL AT A MINIMUM OCCUR AFTER COMPLETION OF MASS GRADING AND AFTER INSTALLATION OF TOPSOIL.

B. ALL SPOT ELEVATIONS FOR BIOSWALES SHALL BE CONSTRUCTED TO WITHIN +/- 0.07 FT OF THE ELEVATION INDICATED ON THE PLANS

3. TOLERANCE FOR RUTS AND DIRT CLUMPS

A. BIOSWALES SHALL BE CONSTRUCTED TO BE FREE FROM RUTS THAT ARE 0.1 FT OR LARGER, AND SHALL CONTAIN LESS THAN 10% DIRT CLUMPS THAT ARE 2-INCH OR LARGER.

4. BIOSWALE NATIVE PLANT PLUGS

A. DESCRIPTION:

NATIVE PLANT PLUGS SHALL BE USED TO ESTABLISH GROUND COVER VEGETATION IN THE RESTORATION AREAS. NATIVE PLANT PLUGS SHALL CONSIST OF 2-INCH POTTED PLANTS, UNLESS STATED OTHERWISE.

B. MATERIALS:

1. CONTAINER MATERIALS SHALL BE HEALTHY (SPECIES SPECIFIED BELOW) WITH AN IDOT APPROVED ORIGIN AS CLOSE AS POSSIBLE TO PROJECT SITE. PLANT MATERIALS FROM BEYOND A 150-MILE RADIUS OF THE PROJECT SITE SHALL BE APPROVED IN WRITING PRIOR TO USE BY THE OWNER.
2. SUBSTITUTIONS SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF OWNER.

C. QUALITY CONTROL:

1. WATERING SHALL OCCUR AS NECESSARY TO MAINTAIN VIGOR DURING ON-SITE STORAGE, DURING INSTALLATION, AND AFTER INSTALLATION. MATERIALS SHALL BE STORED IN A SHADED AREA IF AMBIENT TEMPERATURES EXCEED 80 DEGREES F.
2. DELIVERY: ACCEPT DELIVERY AFTER PREPARATIONS FOR PLANTINGS HAVE BEEN COMPLETED AND PLANT IMMEDIATELY.
3. TEMPORARY STORAGE: IF PLANTING IS DELAYED MORE THAN 4 HOURS AFTER DELIVERY, MAKE PROVISIONS FOR PROTECTING PLANTS FROM WEATHER, AND WATERING AS NEEDED.
4. ALL PLANT MATERIAL, INCLUDING COLLECTED STOCK, MUST SHOW

WITH THE STATE AND FEDERAL LAWS WITH RESPECT TO INSPECTION FOR PLANT DISEASES AND INSECT INFESTATIONS.

5. EACH SPECIES SHALL BE HANDLED AND PACKED IN THE MANNER APPROVED FOR THAT PLANT, HAVING REGARD FOR THE SOIL AND CLIMATE CONDITIONS AT THE TIME AND PLACE OF DIGGING OR CUTTING AND DELIVERY, AND TO THE TIME THAT WILL BE CONSUMED WHILE IN TRANSIT OR DELIVERY. ALL PRECAUTIONS THAT ARE CUSTOMARY IN GOOD TRADE PRACTICES SHALL BE TAKEN TO INSURE THE ARRIVAL OF PLANTS IN GOOD CONDITION. INSPECTION SHALL OCCUR FOR PLANT DISEASES AND INSECT INFESTATIONS.

5. INSTALLATIONS

- A. BIOSWALE - BOTTOM NATIVE PLANT PLUGS** SHALL BE INSTALLED FROM THE BOTTOM OF THE BIOSWALE (0.00 FT) TO MAX. 0.20 FT VERTICAL ABOVE THE BOTTOM ELEVATION
- B. BIOSWALE - SIDE SLOPE NATIVE PLANT PLUGS** SHALL BE INSTALLED BETWEEN 0.10 FT VERTICAL ABOVE THE BOTTOM OF THE BIOSWALE EXTENDING TO THE TOP OF THE BIOSWALE SIDE SLOPE APPROX. 0.5 FT VERTICAL).
- C. BIOSWALE - UPPER BANK NATIVE PLANT PLUGS** SHALL BE INSTALLED BETWEEN THE TOP OF THE BIOSWALE (APPROX. 0.5 FT VERTICAL ABOVE THE BOTTOM) AND THE OUTSIDE (UPGRADIENT) EDGE OF THE BIOSWALE PLANTING AREA.
- D. PLANTING DATES** FOR NATIVE PLANT PLUGS: MAY 1 THROUGH JULY 15, UNLESS APPROVED OTHERWISE BY OWNER. NOTE: IN YEAR 1, WATERING WILL BE REQUIRED BY THE CONTRACTOR TO ENSURE SURVIVAL AND VIABILITY OF THE NATIVE PLANT PLUGS.
- E. INSTALLATION:** INSTALL NATIVE PLANT PLUGS IN LOCATIONS SPECIFIED BY ENGINEER AND PER DETAILS THROUGH EROSION BLANKET BY INSERTING PLANTING BAR (2 IN. DIA.) INTO SLOPES. THE HOLES WILL BE OF SUFFICIENT SIZE TO PERMIT PLACING THE PLANT WITHOUT BENDING THE SHOOTS. PLACE THE PLANTS IN THE HOLE FLUSH WITH THE GROUND SURFACE. HOLES SHALL BE FILLED WITH SOIL AND PRESSED FIRM UP TO THE GROUND SURFACE. ALL SPACES WITHIN ONE FOOT RADIUS OF THE PLANTING WILL BE FILLED WITH SOIL AND COMPACTED.

6. 3-YEAR VEGETATIVE PERFORMANCE STANDARDS FOR NATIVE PLANT PLUGS

- WITHIN 24 HOURS AFTER GRADING IS COMPLETED, BIOSWALE SLOPES SHALL BE STABILIZED BY EROSION BLANKET AS INDICATED ON DETAILS AND SPECIFICATIONS.
- WITHIN AT LEAST THREE (3) MONTHS OF PLANTING (WITHIN THE GROWING SEASON OF APRIL THROUGH OCTOBER), AT LEAST 90% OF THE PLANTED AREA SOIL SURFACE WILL BE VEGETATED AND NO AREA WILL HAVE MORE THAN ONE (1) YARD SQUARE DEVOID OF VEGETATIVE COVER.
- INVASIVE PLANT SPECIES SHALL NOT EXCEED 10% OF THE VEGETATIVE COVERAGE AT ANY TIME [SPECIES INCLUDE BUT NOT LIMITED TO GARLIC MUSTARD (ALLIARIA OFFICINALIS), REED CANARYGRASS (PHALARIS ARUNDINACEA), PURPLE LOOSESTRIFE (LYTHRUM SALICARIA), CANADA THISTLE (CIRSIMUM ARVENSE), GIANT RAGWEED (AMBROSIA TRIFIDA), COMMON RAGWEED (AMBROSIA ARTEMISIIFOLIA), ANNUAL FLEABANE (ERIGERON ANNUUS), HONEYSUCKLE (LONICERA TATARICA), COMMON BUCKTHORN (RHAMNUS CATHARTICA), YELLOW CLOVER, PURPLE CLOVER, WHITE CLOVER, (MELILOTUS SPP.).
- PLANT PLUG (SURVIVORSHIP SHALL REMAIN AT 80% OR HIGHER THROUGHOUT THE PROJECT SITE THROUGH THE END OF THE VEGETATIVE PERFORMANCE TIME PERIOD. CONTRACTOR AND ENGINEER SHALL REVIEW PLANT SURVIVORSHIP BETWEEN MAY 15 AND SEPTEMBER 15. CONTRACTOR SHALL INSTALL ADDITIONAL PLANTS TO ENSURE A MINIMUM 80% SURVIVORSHIP AT NO ADDITIONAL COST. ANY IRRIGATION OR OTHER MAINTENANCE ACTIVITIES PERFORMED TO MEET SURVIVORSHIP SHALL BE PERFORMED AT A COST INCLUDED IN THE INSTALLATION OF NATIVE PLANT PLUGS.

7. NATIVE PLANT SPECIES MAINTENANCE

A. CONTRACTOR RETAIN QUALIFIED NATIVE PLANT IDENTIFICATION & MAINTENANCE PERSONNEL WITH STATE OF ILLINOIS DEPARTMENT OF AGRICULTURE PESTICIDE APPLICATOR OR OPERATOR LICENSURE TO PERFORM NATIVE PLANT MAINTENANCE FOR DURATION DESCRIBED IN CONTRACT FOLLOWING INSTALLATION OF ALL NATIVE PLANT MATERIALS. AREAS TO BE MAINTAINED INCLUDE BIOSWALES, OR OTHER AREAS CONTAINING NATIVE PLANTS OR INVASIVE SPECIES AT THE PROJECT SITE.

A MINIMUM SEVEN (7) ANNUAL WEED CONTROL APPLICATIONS SHALL OCCUR OVER ONE YEAR AFTER THE INSTALLATION OF NATIVE PLANT MATERIALS PER THE FOLLOWING GENERAL SCHEDULE:

- APPLICATION # 1 (MAY 20 TO MAY 27).
- APPLICATION # 2 (JUNE 7 TO JUNE 14)
- APPLICATION # 3 (JUNE 20 TO JUNE 25)
- APPLICATION # 4 (JULY 6 TO JULY 15)
- APPLICATION # 5 (JULY 28 TO AUG. 5)
- APPLICATION # 6 (AUG. 20 TO AUG. 30)
- APPLICATION # 7 (SEPT. 5 TO SEPT. 15)

ADDITIONAL MAINTENANCE MAY BE NEEDED TO MEET THE MINIMUM PERFORMANCE REQUIREMENTS AND SHALL OCCUR AT CONTRACTOR'S DISCRETION.

B. CONTRACTOR SHALL CONDUCT SITE INSPECTIONS WITH ENGINEER TO REVIEW WEED CONTROL LOCATIONS. SITE INSPECTIONS SHALL OCCUR BOTH BEFORE AND AFTER WEED CONTROL APPLICATIONS FOR SATISFACTORY PERFORMANCE.

C. EXAMPLE MAINTENANCE PRACTICES MAY INCLUDE WATERING, SPOT-HERBICIDING, HAND REMOVAL, MOWING, OR OTHER NATIVE PLANT MANAGEMENT TECHNIQUES. CONTRACTOR SHALL MAINTAIN NATIVE PLANT MATERIAL AS NECESSARY TO MEET THE MINIMUM PERFORMANCE REQUIREMENTS.

D. WATERING SHALL OCCUR WEEKLY TO MAINTAIN GROWTH AND VIGOR OF LIVE PLANT MATERIALS.

E. THE COST OF NATIVE PLANT MAINTENANCE SHALL BE ITEMIZED FOR 3-YEAR NATIVE PLANT MAINTENANCE.

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HANCOCK ENGINEERING
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 Municipal Consultants
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DESIGNED -	WOP, JG	REVISED -	
DRAWN -	MK, DMM	REVISED -	
CHECKED -	WOP, JG	REVISED -	
DATE -	10-24-11	REVISED -	

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**MONROE AVENUE
 BIOSWALE PLACEMENT PLAN**

SCALE: NONE SHEET NO. 3 OF 3 SHEETS STA. - TO STA. -

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAU 1684	07-00122-01-PV	COOK	86	70
FIELD BOOK NO. -AERIALS/LL		CONTRACT NO. 63651		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT M-9003(875)				