Part I - General Conditions

~~**102.12 Equal Benefits Requirement (Sec. 39.07, MGO).**~~

~~This provision applies to contracts executed by the City on July 1, 2012 or later, unless exempt by Sec. 39.07 of the Madison General Ordinances (MGO).~~

~~For the duration of this Contract, the Contractor agrees to offer and provide benefits to employees with domestic partners that are equal to the benefits offered and provided to married employees with spouses, and to comply with all provisions of Sec. 39.07, MGO. If a benefit would be available to the spouse of a married employee, or to the employee based on his or her status as a spouse, the benefit shall also be made available to a domestic partner of an employee, or to the employee based on his or her status as a domestic partner. "Benefits" include any plan, program or policy provided or offered to employees as part of the employer's total compensation package, including but not limited to, bereavement leave, family medical leave, sick leave, health insurance or other health benefits, dental insurance or other dental benefits, disability insurance, life insurance, membership or membership discounts, moving expenses, pension and retirement benefits, and travel benefits.~~

~~Cash Equivalent. If after making a reasonable effort to provide an equal benefit for a domestic partner of an employee, the Contractor is unable to provide the benefit, the Contractor shall provide the employee with the cash equivalent of the benefit.~~

~~Proof of Domestic Partner Status. The Contractor may require an employee to provide proof of domestic partnership status as a prerequisite to providing the equal benefits. Any such requirement of proof shall comply with Sec. 39.07(4), MGO.~~

~~Notice Posting, Compliance. The Contractor shall post a notice informing all employees of the equal benefit requirements of this Contract, the complaint procedure, and agrees to produce records upon request of the City, as required by Sec. 39.07, MGO.~~

~~Subcontractors. Contractor shall require all subcontractors, the value of whose work exceeds the single trade minimum set forth in Sec 33.07(7)(b)5., MGO, to provide equal benefits in compliance with Sec. 39.07, MGO.~~

~~See Section 39.07 MGO for exemptions from this requirement. Exemptions from this requirement include a Contractor whose employees are under a collective bargaining agreement that was in effect prior to July 1, 2012, however, the Contractor must agree to propose to the applicable collective bargaining unit(s) that an equal benefit requirement consistent with this ordinance be incorporated into the next collective bargaining agreement or in the existing agreement upon amendment, extension or other modification that occurs after July 1, 2012.~~

102.~~13~~ 12 Ban the Box – Arrest and Criminal Background Checks (Sec. 39.08, MGO).

103.3 Execution of Contract and Bond.

The Contractor shall within ten (10) days after the date of the notice of award of the contract, properly execute, on the forms provided, the Agreement and the Payment and Performance Bond, and submit an approved Affirmative Action Plan or Certificate of Compliance. All contracts shall be fully executed in ~~duplicate~~ triplicate except that the Engineer may require additional copies when deemed necessary. All numbers, words, and signatures in the Agreement and Bond shall be written with ink.

109.9 Liquidated Damages.

Should the Contractor fail to complete the work within the time specified in the contract, or within such extra time as may have been allowed by extensions, there shall be deducted from any monies due or that may become due the Contractor, or in the event no monies are due, the Contractor shall pay to the City, the sum set forth in the following schedule for each and every day that the work shall remain uncompleted. This sum shall be considered and treated not as a penalty but as fixed, agreed and liquidated damages due the City from the Contractor by reason of inconvenience to the public, added cost of engineering and supervision, maintenance of detours and other items which have caused an expenditure of public funds resulting from the Contractor's failure to complete the work within the time specified in the contract.

Liquidated damages shall be assessed at 40% of rates below, if the project has been surface paved and the only remaining work is restoration. The contractor shall maintain an acceptable rate of progress as determined by the Engineer. If the rate of progress is not acceptable, liquidated damages shall be assessed at the full rate as listed below.

Per Section 107.1 the maximum cumulative total time in which any residential property is completely without driveway access is twenty (20) calendar days. The City of Madison shall assess the contractor $100 per calendar day per driveway when exceeding the maximum allowable closure.

Per Section 107.7 or as modified in the contract special provisions, the contractor shall not restrict traffic during peak hours on streets with a functional classification of collector or arterial. The City of Madison shall assess the contractor $1000 per occurrence for working during peak hours.

Per Section 109.2 work hours shall be limited to 7:00 a.m. to 7 p.m. The City of Madison shall assess the contractor $1000 per occurrence for working before 7 a.m. or after 7 p.m.

The fixed, agreed and liquidated damages shall be assessed, unless otherwise specified, in accordance with the following schedule, which represents the City's estimate of damages at the time of contracting:

Contract Amount			
Contract Amount		**Daily Charge**	
From More Than	**To and Including**	**Calendar Day**	**Working Day**
$0	$50,000	$225.00 ~~200.00~~	$400.00 ~~350.00~~
50,000	100,000	425.00 ~~375.00~~	870.00 ~~750.00~~
100,000	300,000	550.00 ~~480.00~~	1115.00~~960.00~~
300,000	500,000	800.00 ~~670.00~~	1600.00~~1340.00~~
500,000	1,000,000	1200.00~~1055.00~~	2250.00 ~~1910.00~~
1,000,000	2,000,000	1450.00 ~~1355.00~~	2750.00 ~~2510.00~~
2,000,000	-----	1750.00~~1510.00~~	3500.00~~3320.00~~

110.2 Partial Payments.

Partial payments based on the value of the work satisfactorily performed or satisfactory materials furnished, at contract or agreed unit or lump sum prices, will be made to the Contractor as the work progresses, except that partial payments will not be made if the Contractor is in noncompliance with any order given to the Contractor by the Engineer pursuant to the contract.

Twice each month (provided that a payment of $1,000 or more becomes due, which amount may at the Engineer's discretion be reduced for contracts of $25,000 or less) the Contractor will prepare an estimate of the quantities of work performed and the value thereof at contract or agreed unit or lump sum prices. The estimate will be prepared on forms provided by the Engineer. After review and acceptance of the estimate by the Engineer, the City shall issue a partial payment.

The first demographic records are due when twenty five (25) percent of the contract total has been paid or by the second pay request, whichever comes first. Payment ~~shall~~ may be held until these records are submitted.

202.2(f)

Turf/ General Use Topsoil shall be a humus bearing soil composed of <70% silt, <70% sand, and <30% clay. Topsoil shall be adapted to the sustenance of plant life and commonly known as black dirt. Topsoil shall be free of noxious/ invasive weeds, stones, debris, and vegetable material, and free of excess peat, sand, or clay. Topsoil used in street terraces and on the property side of sidewalk shall be shredded.

Engineered Soil, found in section 211.2(a), shall be used for **non-turf projects** e.g. rain gardens, bioretention basins, terraces to be planted with natives and/or natural lawn, or special projects defined by the engineer.

203.2(c) Abandoning Structures and Pipes.

If the contract calls for abandoning sewer access structures, catchbasins, or inlets, they shall be thoroughly cleaned and the existing pipe connections shall be plugged. Any pipe plugs required to abandon the sewer access structure shall be incidental to abandoning sewer access structures. The roofs of the structure shall be removed. The walls of the structures shall be removed to a depth of two feet or more below the finished grade. The floor of the structure shall have a minimum of five (5) three (3) inch holes punched or drilled through. The void area left from the structure that was abandoned shall be backfilled as specified in 203.2(e).

Abandoning pipe with slurry shall require the entire pipe be filled with slurry. Vent holes may be required by the Engineer to verify there are no voids left in the pipe. Sawcutting and removal of the existing pipe at the limits of abandonment shall be included in this item. The slurry shall conform to Type B Slurry Mix as specified in Section 301.9 of these specifications.

Pipe shall be abandoned by plugging the end(s) of the pipe and shall be compensated for as pipe plug(s) if over 10" in diameter.

Abandoned pipes or pipes to be abandoned that are encountered in a trench while installing or removing pipes shall be plugged per this section. If the abandoned pipe is less than ten (10) inches, plugging the pipe shall be considered incidental to installing or removing or abandoning sewer pipes.

Service shall be maintained in existing sewers until the replacement sewers or appropriate bypasses approved by the Engineer have been installed, at such time bulkheads or plugs may be placed.

Contractor shall contact and coordinate with other utilities so that they may plug their own facilities.

ARTICLE 207 - SEEDING

207.1 Description.

This work shall consist of preparing seed beds, furnishing and sowing the required seed, furnishing and applying the required stabilizers, fertilizer, and mulching material on shoulders, slopes, pipe trenches, appurtenances and other areas, as shown on the plans or designated in the contract, or as ordered to be seeded by the Engineer, all in accordance with the requirements of these Specifications.

Trench restoration shall include segregation of topsoil during the pipe installation for re-use as a seed bed, the creation of the seed bed and seed, fertilize and mulch of the pipe trench area. Salvaged topsoil shall be placed in the pipe trench area for restoration to a thickness of 4 inches.

207.2 Materials.

207.2(a) Seed.

All seed shall conform to the requirements of the Wisconsin Statutes regarding noxious weed seed content. No seed shall be used on the work later than one year after the germination test date which appears on the label.

Seed shall be tested when required in accordance with the methods and procedures used in making purity analyses and germination tests as adopted by the U.S. Department of Agriculture in the Administration of the Federal Seed Act.

Seed Mixtures:

1. **Terrace Seed Mixes (Sun and Shade).** Seed for terrace seed mixes shall be clean, latest crop seed of the varieties required, labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect at the time of delivery of seed. Seed shall be properly mixed. The seed shall be delivered in sealed containers to which is affixed a statement of guaranteed analysis for each seed variety furnished. Seed shall meet the following requirements and shall be subject to test at the expense of the owner by the State Seed Laboratory of the Wisconsin State Department of Agriculture.

SUN TERRACE MIX			
Formulation	**Variety**	**% Purity**	**% Germination**
30%	Dawson Red Fescue	95	85
30%	Puccinella Distans	99	85
30%	Geronimo Kentucky Bluegrass	95	85
10%	SR 4000 Perennial Rye Grass	98	90

SHADE TERRACE MIX			
Formulation	**Variety**	**% Purity**	**% Germination**
60%	Creeping Red Fescue	95	85

30%	Glade Kentucky Bluegrass	99	85
10%	SR 4000 Perennial Rye Grass	98	90

2. **Infiltration/Detention Seed Mix.** Seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeast Minnesota, Eastern Iowa, Southern Wisconsin, or Northern Illinois.

This seed mix shall consist of "Tallgrass Prairie for Wet-Mesic Soils" as manufactured by Agrecol LLC. Seed shall be placed at a rate of 11 LBS/Acre and shall be accompanied by companion seed included in the price quoted in the proposal page.

Approved equals shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, companion seed will still be required and the rate of seed may be altered as a condition of approval.

3. **Woodland Seed Mix.** Seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeast Minnesota, Eastern Iowa, Southern Wisconsin, or Northern Illinois.

This seed mix shall consist of "Tallgrass Woods Edge Seed Mix" as manufactured by Prairie Moon Nursery. Seed shall be placed at a rate of 9 LBS/Acre and shall be accompanied by companion seed included in the price quoted in the proposal page.

Approved equals shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, companion seed will still be required and the rate of seed may be altered as a condition of approval.

4. **Tall Grass Prairie Mix.** Seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeast Minnesota, Eastern Iowa, Southern Wisconsin, or Northern Illinois

This seed mix shall consist of any of the following:

1) "Rainwater Renewal Mix" as manufactured by Agrecol LLC. Seed shall be placed at a rate of 9 LBS/Acre and shall be accompanied by companion seed included in the price quoted in the proposal page.
2) "Tallgrass Prairie Seed Mix for Medium Soils" as manufactured by Prairie Moon Nursery. Seed shall be placed at a rate of 10 LBS/Acre and shall be accompanied by companion seed included in the price quoted in the proposal page.
3) "Butterfly Prairie for Medium Soils" as manufactured by Prairie Nursery. Seed shall be placed at a rate of 10 LBS/Acre and shall be accompanied by companion seed included in the price quoted in the proposal page.

Approved equals shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, companion seed will still be required and the rate of seed may be altered as a condition of approval.

5. **No Mow Turf.** Unless specified otherwise, Contractor shall supply the No Mow with annual rye variety. The following formulation is as manufactured by the Prairie Nursery of Westfield, Wisconsin. Any substitution must have prior approval of the Engineer.

NO MOW	**ORIGIN/GERM**
SR5130 Chewings Fescue-Festuca commutata-24.74%	OR-85%
Sheep Fescue-Festuca Ovina-24.42%	Canada-85%
Chariot Hard Fescue-Festuca longifolia-12.44%	OR-85%
Heron Hard Fescue-Festuca rubra-12.35%	OR-85%
Sea Link Creeping Red Fescue-Festuca rubra-12.31%	OR-85%
SR5250 Creeping Red Fescue-Festuca rubra-12.17%	OR-85%

1.55% Inert matter
.01% other crop seed
0.1% Weed Seed
Noxious Weed Seed-None

NO MOW WITH ANNUAL RYE	**ORIGIN/GERM**
SR5130 Chewings Fescue-Festuca commutata-23.75%	OR-85%
Sheep Fescue-Festuca Ovina-23.44%	Canada-85%
Chariot Hard Fescue-Festuca longifolia-11.94%	OR-85%
Heron Hard Fescue-Festuca rubra-11.85%	OR-85%
Sea Link Creeping Red Fescue-Festuca rubra-11.82%	OR-85%
SR5250 Creeping Red Fescue-Festuca rubra-11.68%	OR-85%
Annual Ryegrass-Lolium multiflorum-3.95%	OR-90%

1.53% Inert matter
.02% other crop seed .02%
Weed Seed
Noxious Weed Seed-None

6. **Storage of Seed.** Any seed delivered prior to use shall be stored in such manner that it will be protected from damage by heat, moisture, rodents or other causes. Any previously tested and accepted seed that has become damaged shall be discarded and replaced by the Contractor.

207.2(b) Fertilizers.

Fertilizers, intended for use in connection with seeding, sodding, or other planting, shall be standard commercial products conforming to the requirements of the Wisconsin Statutes. Native plant seedings or temporary seeding to be followed by native seedings should not be fertilized. Each package of

fertilizer shall be plainly marked with the analysis of the phosphoric acid and soluble potash. Fertilizers shall meet the following minimum requirements:

Nitrogen, not less than 10%
Phosphoric Acid, not less than 10%
Potash, not less than 10%

207.2(c) Mulching Material.

Mulching material shall consist of any straw, hay, wood excelsior fiber or other suitable material of a similar nature which is substantially free of noxious weed seeds and objectionable foreign matter.

207.2(d) Soil Stabilizers.

Soil stabilizers are intended as soil bonding agents to prevent or minimize erosion. They must be environmentally benign; harmless to fish, wildlife, and plants; along with being non-toxic and noncombustible at the rate of application specified by the manufacturer. Asphalt based products will not be approved for use. Only products approved for field testing, and field tested by Wisconsin Department of Transportation will be approved for use. Soil stabilizers are considered a short term duration (6 months) erosion control device for use on slopes 3:1 or flatter. In addition to the above requirements soil stabilizers must meet the same vegetative density and sediment loss standards as required for erosion mats.

Soil Stabilizer, shall be a polyacrylamide (PAM) and calcium solution intended to reduce the erodability of bare soils during construction activities or to enhance the performance of mulching on permanent slopes. Polyacrylamide Soil Stabilizer shall have proven abilities to bond soil particles, effectively increasing the soil particle size to 1.0 millimeter or larger. It shall reduce the movement of soil through chemical bonding, increase the particle size thus making silt fence more effective, and increase the water absorption of the soil.

Polyacrylamide Soil Stabilizers shall conform to the Wisconsin Department of Transportation's Product Acceptability List (PAL) for Soil Stabilizers, Type B. Presently, the only acceptable product is Natural Earth PolyStable Plus manufactured by Earth & Road.

207.3 Construction Methods.

207.3(a) Seeding – Turf/Native.

The seed mixes shall be applied at the following rates:

Seed Mix	Rate
Terrace (Sun & Shade)	3.5 lbs per 1000 s.f.
Infiltration	7.64 lbs per acre
No Mow Turf	5 lbs per 1000 s.f.
Detention	9.53 lbs per acre
Tall Grass Prairie	8.00 lbs per acre

Native seeding for mixes not listed in Section 207.3(a) shall be in accord with the rates in 207.2(a) and the cover crop requirements in 207.3(b).

The Contractor shall repair all damaged or eroded areas as necessary and reseed during the required maintenance period.

Unless otherwise specified the Engineer shall specify in the field the use of Sun or Shade Terrace mix based on the project location.

Seeding shall be limited to the following period only:

Standard Turf - April 15 to September 15th and after October 15th to snow cover. Native Seeding - May 1 to June 30th and after October 15th to snow cover.

Seeding of turf beyond October 15th shall be at the discretion of the Engineer and shall include an addition to the seed mix of a companion crop as specified below under Cover Crops and Temporary Seeding 207.3(b). Seeding of all native varieties requires the use of Cover Crops and Temporary Seeding see 207.3(b).

Any seeding outside the dates listed above shall be at the risk of the Contractor and reseeding after October 15th or in the spring shall be completed at no additional cost to the City of Madison with the same seed mix that was specified in the contract.

Grading, shouldering, topsoiling, and fertilizing shall be completed before seeding, except that when equipment designed for the purpose is used, the fertilizer and seed mixture may be placed in one operation. The areas to be seeded shall be worked with discs, harrows or other appropriate equipment until it becomes a reasonably even and loose seed bed immediately in advance of the seeding.

Unless otherwise specified, seed may be sown at the option of the Contractor, by either Method A or Method B described below.

1. Method A. The seed mixture shall be sown by means of equipment adapted to the purpose, or it may be scattered uniformly over the areas to be seeded, and lightly raked or dragged to cover the seed with approximately one-fourth inch of soil. After seeding, the areas shall be lightly rolled or compacted by means of suitable equipment, preferably of the cultipacker type when such equipment can be operated, or by means of light hand tampers.

2. Method B. Upon the prepared seed bed, the seed shall be sown or spread by means of a stream of spray of water under pressure operated from an approved type of machine designed for that purpose. The selected seed mixture and water shall be placed into a tank, provided within the machine, in sufficient quantities that when the contents of the tank are sprayed on a given area the seed will be uniformly spread at the required rate of application. During the process the contents of the tank shall be kept stirred or agitated to provide uniform distribution of the seed.

3. Scattering seed by hand shall be done only with satisfactory hand seeders and only at such times when the air is sufficiently quiet to prevent seeds from blowing away.

207.3(b) Cover Crops and Temporary Seeding.

Temporary seeding stabilizes disturbed areas with fast growing annual grasses, small grains, or legumes until permanent vegetation can be established.

In situations where establishment is more difficult or when specified, cover crops shall be used in addition to the permanent seed mix.

Type of Cover	Min. Seed Rate for Temp. Seeding	Min. Seed Rate for Cover Crop
Seed Oats	3 lbs per 1000 s.f.	2 lbs per 1000 s.f.
Regreen		
Winter Wheat	3 lbs per 1000 s.f.	2 lbs per 1000 s.f.

207.3(c) Fertilizing.

Fertilizer shall be applied at the rate of seventeen (17) pounds per 1,000 square feet of area for areas seeded with terrace seed mix, unless otherwise specified in the contract. Those areas which are specified for temporary seeding shall have fertilizer applied at the rate of ten (10) pounds per 1,000 square feet of area unless otherwise specified in the contract. No fertilizer shall be applied with native plant seedings.

The fertilizer for the seeding areas shall be uniformly spread thereon and incorporated into the soil by light discing and harrowing. The fertilizer shall be pulverized and free from lumps when applied.

In the event fertilizer is incorporated with topsoiled areas, the fertilizer may be applied just prior to and in conjunction with the final discing or harrowing operations of the topsoil, or in the event the topsoil is manipulated by hand, just prior to the final raking and leveling.

In the event fertilizer is to be placed on surfaces on which no topsoil is placed, the soil shall be prepared by discing or harrowing to a depth of three (3) to four (4) inches and the fertilizer then incorporated as set forth above.

In the event fertilizer is to be placed on seeding areas where the seed is to be sown by means of a spray or stream of water under pressure, the required amount of fertilizer may be placed in the tank, mixed together with the water and the seed, applied in the seeding operation. Fertilizer applied by this method will not require discing and harrowing after being placed.

207.3(d) Mulching (showing edits- new text is in red).

Mulch shall be placed on those areas which are specified for permanent seeding within three (3) days after the seeding has been completed unless the area is specified to receive erosion matting. Mulch is not required in areas to receive erosion matting provided matting is placed within three (3) days of seeding.

Mulching operations shall not be performed during periods of excessively high winds which would preclude the proper placing of the mulch.

The placed mulch shall be loose enough to allow some sunlight to penetrate and air to slowly circulate but thick enough to shade the ground, conserve soil moisture and prevent or reduce erosion.

The Contractor shall maintain the mulched areas and shall repair any areas damaged by wind, erosion, traffic, fire, or other causes prior to final or partial acceptance of work under the contract.

The Contractor shall perform the work with either Method A or Method B, at the direction of the Engineer.

1. Method A. The mulching material shall be uniformly spread over the designated areas to a loose depth of one (1) to two (2) inches, using seventy (70) to ninety (90) pounds of mulch per 1,000 square feet. The mulch material from compacted bales shall be well loosened or made fluffy before being spread in place. Unless otherwise directed, mulching operations shall begin at the top of the slopes and proceed downward.

   The mulch cover, except when composed of wood excelsior fiber, shall be securely anchored in place by means of heavy twine fastened by pegs or staples to form a grid of from six (6) to ten (10) feet spacing.

2. Method B. Straw, ~~or~~ hay, or wood fiber shall be treated with ~~asphalt~~ an approved tackifier material and blown from a machine, ~~and~~ uniformly deposited over designated areas in one operation or the tackifier can be applied immediately after the mulch has been placed per the manufacturer's instructions. Approved tackifier shall be either latex based adhesive, guar gum, water-soluble natural vegetable gums blended with gelling and hardening agents, or a water-soluble blend of hydrophilic polymers, viscosifiers, sticking aids, and other gums. The use of emulsified asphalt tackifier is prohibited.

WDNR Application rates:
The tackifiers shall be applied at the following minimum application rates per acre:
a. Latex-Base: mix 15 gallons of adhesive (or the manufacturer's recommended rate whichever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as a tracer with 375 gallons of water.
b. Guar Gum: mix 50 pounds of dry adhesive (or the manufacturer's recommended rate whichever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as tracer with 1,300 gallons of water.
c. Other Tackifiers: (Hydrophilic Polymers) mix 100 pounds of dry adhesive (or the manufacturer's recommended rate whichever is greater) and a minimum of 250 pounds of recycled newsprint (pulp) as a tracer with 1,300 gallons of water.

The mulch shall be placed uniformly over the area to a loose depth of one (1) to two (2) inches, using one and one-half to two tons of mulch per acre and the appropriate amount of tackifier per the manufacturer's instructions ~~and 75 to 100 gallons of emulsified asphalt per ton of straw or hay~~. Within the above designated limits, the Engineer will determine, on the job, the rate of application of the mulch and the ~~asphalt~~ tackifier~~,~~. ~~and~~ The right is reserved for the Engineer to vary the rates during mulching operations to produce the desired results.

The machine for placing the mulch shall be of an approved type, which will blow or eject by constant air stream a controlled amount of mulch and which will introduce into the air stream a spray of ~~asphalt~~ tackifier to partially coat and hold together the deposited straw, ~~or~~ hay, or wood fiber together. ~~producing a spotty tack sufficient to hold together and retain in place the deposited straw or hay.~~

~~Wood fiber shall be applied in the same manner as straw or hay except that the wood excelsior fiber shall not be treated with asphalt material.~~

Throughout the process, the mulch material shall be fed into the blowing machine to produce a constant and uniform ejection from the discharge spout, operated in a position to produce a mulch of uniform depth and coverage.

The mulch material shall not contain moisture in excess of that which will permit uniform feeding through the machine.

210.2(c) Erosion Matting.

Erosion Matting provided shall be of the Class and Type specified. The Class and Type requirements listed below match those of the Wisconsin Department of Transportation nomenclature. Products currently listed in the Wisconsin Department of Transportation's Product Acceptability List (PAL) for the Class and Type specified shall be considered to meet the City of Madison's Specifications. However, only products listed in the PAL that are constructed with 100 percent biodegradable material will be permitted on City of Madison projects, with the exception of Class III materials.

~~**For clarification purposes**~~ Class I Type A, Class I Type B, Class II Type A, and Class II Type C mats shall be designated ORGANIC to ensure provision of a product with 100 percent biodegradable matting, netting, and stitching. Photodegradable is NOT equivalent to biodegradable. Products listed in the PAL as Class I Urban Type A and Class I Urban Type B are all 100 percent biodegradable, and therefore do not need to be designated ORGANIC. Class III ECRM is not required to be constructed of biodegradable material.

When a specific Class and Type of matting is called for on the proposal page, the Contractor shall not be allowed to substitute out other matt Class and Types for the one called for.

CLASS I

All Class I erosion mats shall be a light-duty, organic erosion control revegetation mat (ECRM). Class I mat shall have an expected working duration of a minimum of six (6) months. All Class I products used on City of Madison projects shall be constructed of 100 percent biodegradable materials, including stitching. There are four Types of Class I erosion mat.

URBAN TYPE A shall have a minimum permissible shear stress of 1.0 lbs/ft^2 for non-netted materials. No specified minimum permissible shear stress for netted products. Recommended for use on slopes 4:1 or flatter, and recommended for use in environmentally sensitive areas. Not recommended for use in channels. **URBAN TYPE B** shall have a minimum permissible shear stress of 1.0 lbs/ft^2. Recommended for use on slopes of 2.5:1 or flatter, and recommended for use in environmentally sensitive areas. Not recommended for use in channels.

Note: All products listed in the PAL as Class I Urban Type A and Class I Urban Type B are 100 percent organic.

TYPE A ORGANIC shall have a minimum permissible shear stress of 1.0 lbs/ft^2. Recommended for use on slopes of 2.5:1 or flatter. Not recommended for use in channels. Only products that are constructed of 100 percent biodegradable matting, netting, and stitching will be permitted.

TYPE B ORGANIC shall have a minimum Permissible Shear Stress of 1.5 lbs/ft^2 (70) Pa. Recommended for use on slopes of 2:1 for flatter. Only products that are constructed of 100 percent biodegradable matting, netting, and stitching will be permitted.

CLASS II

Class II erosion mats shall be long lasting, organic ECRM mats. Class II mat shall have an expected working duration of a minimum of three (3) years. All Class II products used on City of Madison projects shall be constructed of 100 percent biodegradable materials, including stitching. There are two acceptable Types of Class II erosion mats.

TYPE A ORGANIC shall be a jute fiber mat. This type of matting shall only be used to reinforce sod and shall conform with Section 628.2.2 of the Wisconsin Department of Transportation Standard Specifications.

TYPE B shall not be permitted on City of Madison projects.

TYPE C ORGANIC shall have a Minimum Permissible Shear Stress of 2.0 lbs/ft^2 (95 Pa). Type C shall be 100% biodegradable including all netting used in its construction. Recommended for used on slopes of 2:1 or flatter, or in channels. Recommended for use in environmentally sensitive areas.

CLASS III

Class III erosion mat shall be a 100% synthetic mat which shall be UV stabilized. There are four Types of Class III erosion mat.

TYPE A is an ECRM mat and shall have a Minimum Permissible Shear Stress of 2.0 lbs/ft^2 (95 Pa). Recommended for used on slopes of 2:1 or flatter, or in channels.

TYPE B is a Turf Reinforcement Mat (TRM) and shall have a Minimum Permissible Shear Stress of 2.0 lbs/ft^2 (95 Pa). Recommended for used on slopes of 2:1 or flatter, or in channels.

TYPE C is a TRM and shall have a Minimum Permissible Shear Stress of 3.5 lbs/ft^2 (170 Pa). Recommended for used on slopes of 2:1 or flatter, or in channels.

TYPE D is a TRM and shall have a Minimum Permissible Shear Stress of 5.0 lbs/ft^2 (240 Pa). Recommended for used on slopes of 1:1 or flatter, or in channels.

Note: When Class III, Types B, C or D are used, the affected areas shall be seeded and fertilized but not mulched. The affected area shall then have Class I matting installed over the affected area. The seeding and Class I matting will be measured and paid for separately.

301.5 Placing and Finishing.

Retempering of mortar or concrete which has partially hardened, that is mixing with additional materials or water, shall not be permitted.

No concrete shall be deposited in water or mud. During the pouring of bottom slabs and walls, the Contractor shall furnish sufficient pumping equipment to keep the water below the bottom of the floor of the structure. After concrete has been poured the Contractor shall keep the pumping equipment in continuous operation for thirty-six (36) hours.

Concrete shall not be deposited on frozen subbase material, on or against ice or frost~~,~~. ~~or on reinforcing steel having a temperature at pouring time of less than 36°F~~.

Do not resume concreting operations until an ascending air temperature in the shade and away from artificial heat reaches 32°F.

403.16 Adjust Valve Casting, Method #1 - Resurfacing, Adjust Valve Casting, Method #2 - Resurfacing, Install Adjustable Water Box, Method #3 - Resurfacing

403.16(a) Description.

The Contractor shall adjust water or gas valve castings to final grade by the following three methods as directed by the Engineer:

The Contractor shall furnish and install new screw type adjusting valve castings ~~at~~ (top section risers with lids and, as needed, middle section extensions) at all existing water valve locations within the project limits. Refer to Articles 702, 703 and 704 for applicable material and construction requirements for valve castings. In the event any existing base section/bonnet castings are determined to be damaged or in need of replacement, Madison Water Utility will furnish the casting for that section only.

408.1 Materials For Pavement Chip Sealing.

The aggregate for the Chip Seal shall be Class A, Granite, and shall be grey in color or an approved equivalent. The gradation for the material shall conform to the following requirements:

SIEVE SIZE	PERCENT PASSING BY WEIGHT	TOLERANCE %
1/2 inch(12.5 mm)	100	----
3/8 inch(9.5 mm)	100	± 5
1/4 inch(6.3 mm)	100	± 7
No. 4(4.75 mm)	0-100	± 7
No. 8(2.36 mm)	0-40	± 4
No.16(1.18 mm)	0-10	± 4
No. 50(300 µm)	0-5	± 4
No. 100(150 µm)	----	± 4
No. 200(75 µm)	0.0-1.0	----

Chip Sealing and Seal Coat are considered to be one and the same for these special provisions. The Chip Seal shall conform to Section 475 “Seal Coat” of the “Standard Specifications for Highway and Structure Construction” prepared by the State of Wisconsin Department of Transportation and these special provisions herein set forth shall govern this construction.

The asphaltic material for the Chip Seal shall be CRS-2P; Polymer modified, and be applied at a rate of 0.30-0.32 gallons per square yard. This asphaltic material shall be rapid set emulsion that has elastic properties and shall comply with AASHTO M316.

The temperature of the Asphaltic Emulsion at the time of application shall not be less ~~that~~ than 150 degrees Fahrenheit or more than 180 degrees Fahrenheit.

~~DELETE~~

503.2(a) Solid-Wall Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

Solid-Wall Poly (Vinyl Chloride) (PVC) sewer pipe and fittings, labeled as "PVC" on the plans, shall conform to the requirements of the Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, ASTM D 3034, SDR-35 or SDSR-26. Joints shall be elastomeric or solvent cement and shall be made as recommended by the manufacturer.

503.2(c) Corrugated-Wall Polypropylene (CWPP) Sewer Pipe and Fittings.

Dual Wall Polypropylene Pipe (CWPP 12"diameter- 30" diameter)

The polypropylene compound shall be an impact modified copolymer and shall conform to the specifications in this subsection. Twelve (12) through thirty (30) inch diameters shall meet all the requirements of ASTM F2736 Standard Specifications for Polypropylene (PP) Dual Wall Pipe and Fittings. The pipe shall consist of smooth interior with annular exterior corrugations and have a minimum pipe stiffness of 46 pii. Pipe Joints shall be water-tight per ASTM F 2736 for twelve (12) through thirty (30) inch diameters. Water tight joints shall meet a 10.8 laboratory test per ASTM D3212 and utilize a bell and spigot design with a gasket meeting ASTM F 477. Fittings supplied by manufacturers other than the supplier of the pipe shall not be permitted without the approval of the Engineer.

~~Triple Wall Polypropylene Pipe (CWPP 30"diameter- 36" diameter)~~

~~The polypropylene compound shall be an impact modified copolymer and shall conform to the specifications in this subsection. Thirty six (36) through Sixty(60) inch diameters shall meet all the requirements of ASTM F2764 Standard Specifications for Polypropylene (PP) Triple Wall Pipe and Fittings. The pipe shall consist of smooth interior and exterior surfaces with annular inner corrugations and have a minimum pipe stiffness of 46 pii. Pipe Joints shall be water tight per ASTM F 2764 for thirty six (36) through sixty (60) inch diameters. Water tight joints shall meet a 10.8 laboratory test per ASTM D 3212 and utilize a bell and spigot design with a gasket meeting ASTM F 477. Fittings supplied by manufacturers other than the supplier of the pipe shall not be permitted without the approval of the Engineer.~~

~~Fittings for Polypropylene Pipe~~

~~Fitting for Polypropylene sanitary sewer shall be produced from the same material as the pipe by the same manufacturer. Nyloplast PVC fittings and adapters and Insert-A-Tee products specifically manufactured for use with Polypropylene Sanitary Sewer are also acceptable. All fittings shall be water-tight per ASTM D3212.~~

ADD

503.3(d) Sanitary Sewer Wyes.

Unless otherwise specified, the openings in the wyes for lateral connections and riser pipes shall be of the same size as the sanitary sewer lateral to be installed. In the event that a sanitary sewer lateral is not being installed coincident with the wye, the size of the wye shall meet the sizing requirements set forth for sanitary sewer laterals in Subsection 503.3(c) - Sanitary Sewer Laterals of these Specifications.

All wyes shall be of the same material as the sewer main unless pressure sewer main (AWWA C900 Class 150 DR 18) is being installed with less than 8 feet of horizontal separation from water main shall require Ductile Iron wye fittings per section 503.2(d) Poly (Vinyl Chloride) Pressure Pipe. When the sewer main is constructed of Poly (Vinyl Chloride) (PVC) sewer pipe, the wyes shall be injection molded Poly (Vinyl Chloride) (PVC) wyes installed along with the sewer main construction.

At the discretion of the Engineer, the use of saddle type wyes installed along with the sewer lateral construction may be permitted when the sewer main is constructed of Poly (Vinyl Chloride) (PVC) sewer pipe. All saddle type wyes for Poly (Vinyl Chloride) (PVC) sewer pipe installations shall be manufacturer's approved and shall be attached to the sewer main with a rubber gasket, solvent cement and two stainless steel clamps.

Under certain conditions, at the discretion of the Engineer the connection of a new PVC lateral to an existing vitrified pipe may be allowed. In that circumstance it is expected that the Contractor shall make the connection to the clay pipe with a sawed/cored connection. Under NO CIRCUMSTANCES shall a hammer tap be allowed on these connections.

Wye openings, except those that are to be used for riser connections, shall be closed watertight with covers of the same material as the wye, well cemented in. When wyes are set in concrete encased pipe lines, their locations shall be marked by iron rods set in the concrete so that the rods shall project at least six (6) inches above the top of the encasement.

Type II: Pavement Storm

Type I storm sewer shall be allowable for use as Type II storm sewer but no additional payment shall be made by the City for Type I usage.

Acceptable applications for usage of Type II storm sewer shall be in turf areas, in terraces or under curb and only allowed in new subdivision construction unless specified otherwise by the engineer. Installation shall allow for a minimum of two foot of cover from the top of the pipe to ground or from top of the pipe to the top of basecourse if in the street. The maximum allowable size is 36 inch. The engineer shall specify all instances for usage of Type II storm sewer pipe on the plans and specifications.

When a material type is specified or called out as “Type II” on plans and specifications, the pipe supplied shall be of a type of pipe as follows:

Joints shall have a reinforced bell with a polymer composite band installed by the manufacturer. Where

Type II storm sewer is joined to Type I storm sewer External sealing bands shall be used. Bands shall be Mac Wrap External Joint Collars as manufactured by Mar-Mac Manufacturi:tig Company, Inc., or approved equal. Joint collar shall be installed per manufacturer's recommendations.

~~Where sections of Type II storm sewer are joined to apron endwalls External sealing bands shall be used on the endwall joint. Bands shall be Mac Wrap External Joint Collars as manufactured by Mar Mac Manufacturing Company, Inc., or approved equal. Joint collar shall be installed per manufacturer's recommendations.~~

Fittings

Fittings shall conform to ASTM F2736, ASTM F2881 and AASHTO M330, for the respective diameters. Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Bell & spigot fittings joint shall meet the watertight joint performance requirements of ASTM D3212. Corrugated couplings shall be split collar, engaging at least 2 full corrugations.

Type Ill: Storm Sewer Pipe

When a material type is not specified and a pipe is called out as "Type III" or "Storm Sewer Pipe" on plans and specifications, the pipe supplied shall be of a type of pipe as follows excluding metal storm pipes.

All pipe and fittings not covered by this specification shall be approved by the Engineer seven (7) days prior to the bid letting.

At the request of the Engineer, pipe 12-inches and larger shall be tested for acceptance with an approved go/no-go mandrel not less than thirty (30) days after the pipe has been installed, the backfill compacted, and other underground utilities within close proximity (such as water main) have been installed and backfilled but before paving is constructed. For acceptance, the mandrel must pass through the entire section between sewer access structures in one pass when pulled by hand without the use of excessive force.

The Contractor shall supply a testing mandrel in conformance with the specifications of Standard Detail Drawing 5.1.1, Mandrel Detail, and the specifications of this section. The Contractor shall furnish the equipment and labor for making this acceptance test. The mandrel shall be of a shape similar to that of a true circle enabling the gauge to pass through a satisfactory pipeline with little or no resistance. The mandrel shall be of a design to prevent it from tipping from side to side and to prevent debris build-up from occurring between the channels of the adjacent fins or legs during operation. Each end of the core of the mandrel shall have fasteners to which the pulling cables can be attached. The mandrel shall have nine various sized fins or legs of appropriate dimensions for various diameter pipes. Each fm or leg shall have a permanent marking that states its designated pipe size and percent deflection allowable. The diameter of the mandrel shall be equal to ninety-two point five (92.5) percent of the base inside diameter of the pipe. The Contractor shall furnish the engineer a table showing the base inside diameter and the five (5) percent deflection mandrel dimension for each pipe diameter called for in the plans. The base inside diameter shall be the minimum pipe inside

504.2(h) Solid-Wall Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

Solid-Wall Poly (Vinyl Chloride) (PVC) sewer pipe and fittings, labeled as “PVC” on the plans, shall conform to the requirements of the Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings, ASTM D 3034 for SDSR-26. Joints shall be elastomeric or solvent cement and shall be made as recommended by the manufacturer.

Fittings supplied by manufacturers other than the supplier of the pipe shall not be permitted without the approval of the Engineer.

Company, Inc., or approved equal. Joint collar shall be installed per manufacturer's recommendations.

~~Where sections of Type II and Type III storm sewer are joined to apron endwalls External sealing bands shall be used on the endwall joint. Bands shall be Mac Wrap External Joint Collars as manufactured by Mar Mac Manufacturing Company, Inc., or approved equal. Joint collar shall be installed per manufacturer's recommendations.~~

Joints and pipe shall be watertight according to the requirements of ASTM D3212. Spigots shall have gaskets meeting the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.

Joints shall have a reinforced bell with a polymer composite band installed by the manufacturer.

Fittings shall conform to ASTM F2736, ASTM F2881 and AASHTO M330, for the respective diameters. Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477. Bell & spigot fittings joint shall meet the watertight joint performance requirements of ASTM D3212. Corrugated couplings shall be split collar, engaging at least 2 full corrugations.

The following outlines specifications for new pipe to new pipe and new pipe to existing pipe connections.

1. New Pipe to New Pipe.

Jointing materials shall conform to the requirements specified in Section 504.2 – Materials of these Specifications, for the type of pipe being installed.

Joints shall not be made until the pipe is in the trench and set to true line and grade. Lengths of pipe which are joined together outside of the trench shall be removed from the project immediately.

Prior to making joints, the jointing surfaces shall be inspected for chips, cracks, or other defects in the joints and jointing materials. The jointing surfaces shall be carefully cleaned and lubricated with a vegetable lubricant or a lubricating adhesive. Lubricant shall be applied to both the bell and spigot surfaces of the joint. The lubricant shall be that recommended by the gasket manufacturer for the particular type of gasket being installed.

Care shall be taken when shoving or pulling the pipes together in order not to damage the pipe or the joints and jointing materials. The pipes shall be in proper alignment and to the proper grade prior to applying the pressure necessary to make the joint.

Rubber gaskets for reinforced concrete storm sewer pipe shall be assembled as follows:

- When air temperature is below 32°F, gaskets shall be applied one and one-half (1-1/2) hours before installation of the pipe.

- When air temperature is above 32°F, gaskets shall be applied fifteen (15) minutes before installation of the pipe.

505.3 Construction Methods.

505.3(a) Box Culverts.

The Contractor shall abide by the following guidelines when installing box culverts:

1. The subgrade for the boxes shall have **WDOT TYPE HR** ~~riprap~~ filter fabric placed on all exposed subgrade areas prior to placement of the bedding stone for the boxes.

2. ~~Eight (8) inches~~ **One (1) foot** of three (3) inch clear stone shall be placed **on the geotextile** as bedding stone.

507.2(b) Sewer Access Structures.

The following lists of Neenah Foundry castings are acceptable for City construction and are further detailed in Standard Detail Drawing 5.7.16 & 5.7.16A, SAS Frame and Cover. Substitutions shall be approved by the Engineer prior to delivery to the job site.

1.	R-1550	Heavy-duty R-1050 frame, w/logo lid 1550-0054, nine (9) inch high, non-rocking sewer access structure frame and Type "B" non-rocking self-sealing sewer access structure lids with concealed pick holes. EJ Co. 1078Z frame, w/logo lid 1078ATGS shall be considered an approved equal.
2.	R-1689	Heavy-duty, w/logo lid 1550-0054, four (4) inch high, non-rocking sewer access structure frame and Type "B" non-rocking self-sealing sewer access structure lids with concealed pick holes. EJ Co. 1078Z1 frame, w/ logo lid 1078ATGS shall be considered an approved equal.
3.	R-1916C	Heavy-duty, sewer access structure frame and self-sealing lid with Type "F" locks and concealed pick holes and 41" anchor holes.
4.	R-1550 HydroVent	Heavy-duty, nine (9) inch high, non-rocking sewer access structure and LiftMate Hinge System with pick holes.

507.2(e) Special Castings

1.	R-3262-2	Stormwater Curb Opening for 6" curb heads – this casting is used to allow the discharge of roof drains, sump pumps or small parking areas to the curb line where no storm sewer is available for connection.
2.	R-3262-3	Stormwater Curb Opening for 4" curb heads – this casting is used to allow the discharge of roof drains, sump pumps or small parking areas to the curb line where no storm sewer is available for connection.
3.	R-3262-6	Stormwater Curb Opening for 9" curb heads – this casting can be installed as part of a terrace rain-garden/bioretention system to take water from the curb line to the garden. Where this casting is used the flow-line of the curb shall be depressed 3 inches to direct the runoff from small events directly to the garden system.
4.	R-3268	Stormwater Curb Opening for 8" curb heads – this casting can be installed as part of a terrace rain-garden/bioretention system to take water from the curb line to the garden. Where this casting is used the flow-line of the curb shall be depressed 2 inches to direct the runoff from small events directly to the garden system. This casting shall be used when rain-garden/bioretention systems are in areas with significant tree canopies.