

102.1 Prequalification of Bidders.

All bidders shall file with the Engineer, during regular working hours, not less than seven (7) days prior to the day set for opening bids, proof of responsibility on forms furnished by the City.

The Engineer shall, determine if the bidder is qualified for the type of work for which the bidder requests prequalification. The decision of the Engineer shall be final and conclusive, unless within fifteen (15) days after such decision the bidder applies in writing to the City Engineer requesting that an appeal be considered by the Board of Public Works.

The Engineer may require a special prequalification for particular projects and/or may require additional information regarding a prequalified bidder's prequalifications to do certain aspects of the work.

Prequalification is required for the life of the contract. If prequalification as required above expires while this Contract is in effect, Contractor shall provide renewal to the City for approval. Sub-contractors shall also comply with this requirement for the duration of their specific work on this contract.

In accordance with Section 39.02 of the Madison General Ordinances, all bidders shall submit in writing to the Affirmative Action Division of the City of Madison, a Certificate of Compliance or an Affirmative Action Plan at the same time or prior to the submission of the proof of responsibility forms.

107.15 Use of Pesticides

Pesticide use is PROHIBITED on City property and for City of Madison Public Works Contracts, unless the use is specifically approved by the Construction Engineer. Refer to the City of Madison Pesticide Policy at: www.cityofmadison.com/engineering/PesticidePolicy.cfm. **If pesticide/s are used without approval, the Contractor/Subcontractor shall be paid 25% percent less than the contract bid for the item** and quantity associated with the pesticide use. For example, if pesticide is used without approval to prepare an area for seeding or removing vegetation for installation of crack sealant on a road, the Contractor shall be paid 75% of the bid price for all bid items where the pesticide was used.

If pesticide use is approved by the Construction Engineer, the Contractor shall submit a pesticide application form:

www.cityofmadison.com/engineering/documents/PesticideApplicationRecordForm_cw.pdf, within one (1) week of application to cwegner@cityofmadison.com.

107.16 MAINTAIN DRIVEWAY ACCESS

Bid Item 10770 Maintain Driveway Access

Description

Maintain Driveway Access shall consist of all work, materials and incidentals necessary to maintain access to the driveways of properties identified on the plans, as identified in the special provisions, or as directed by the Engineer. The Contractor shall maintain access at the identified locations at all times and for the duration of the project. This work may involve constructing temporary accesses using materials

approved by the Engineer, using steel plates, limiting the size of the work areas around and within the driveways, or using high early strength concrete. Maintaining access may also involve performing work outside of scheduled work hours or outside of the Contractor's planned phasing of the project, if approved or directed by the Engineer.

If constructing a temporary access, the Contractor shall ensure that proper drainage is maintained while the temporary access is in use, which includes grading of the temporary access and installation of temporary culverts or piping, as necessary. This item also includes removal of any temporary materials along with any necessary restoration of the area disturbed by the temporary access.

Method of Measurement

Maintain Driveway Access will be measured by Each location acceptably completed.

Basis of Payment

This item, measured as provided above, shall be paid for at the contract unit price for all work, materials, equipment, and incidentals necessary to complete the work as set forth in the description.

202.2(f) Topsoil.

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 **pulverized and/or** shredded.

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

Planting Mix Topsoil, shall be a mix of 2:1:1 pulverized and/or shredded general use topsoil (as described above), sand and compost respectively. **Planting Mix Topsoil** shall be thoroughly mixed off-site before spreading. **Planting Mix Topsoil** shall be used for **non-turf non-infiltration projects**, e.g. landscaped areas, terraces that are to be planted with native seed mix or edible plantings, or special projects defined by the engineer.

202.2(g) Riprap Filter Fabric.

Riprap Filter Fabric shall consist of furnishing and installing geotextile fabric, Type HR in accordance with the latest edition of the Standard Specifications for Highway and Structure Construction of the State of Wisconsin, Department of Transportation and these special provisions.

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 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.~~

2. Detention Basin and Infiltration Basin Bottom Seed Mix:

The seed mix shall consist of any of the following or approved equal:

1. “Detention Basin Seed Mix” as manufactured by Prairie Nursery, Westfield, WI. Seed shall be placed at a rate of 10 lbs per acre.
2. “Detention Basin Seed Mix” as manufactured by Prairie Moon Nursery, Winona, MN. Seed shall be placed at a rate of 9.44 lbs per acre.
3. “Rainwater Renewal Mix” as manufactured by Agrecol LLC, Evansville, WI. Seed shall be placed at a rate of 8 lbs per acre.
4. “Detention Basin & Raingarden Mix” as manufactured by Shooting Star Native Seed, Spring Grove, MN. Seed shall be placed at a rate of 8 lbs per acre.

Substitution requests shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, the rate of seed may be altered as a condition of approval, and seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeastern Minnesota, Eastern Iowa, Southern Wisconsin or Northern Illinois.

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.~~

3. Infiltration Basin Side Slopes and Tallgrass Prairie Seed Mix:

The seed mix shall consist of any of the following or approved equal:

1. “Tall Prairie for Medium to Clay Soils” as manufactured by Prairie Nursery, Westfield, WI. Seed shall be placed at a rate of 10 lbs per acre.
2. “Pollinator-Palooza Seed Mix” as manufactured by Prairie Moon Nursery, Winona, MN. Seed shall be placed at a rate of 6.59 lbs per acre.

3. "Tallgrass Prairie for Medium Soils" as manufactured by Agrecol LLC, Evansville, WI. Seed shall be placed at a rate of 13.25 lbs per acre.
4. "Basic Prairie Mix" as manufactured by Shooting Star Native Seed, Spring Grove, MN. Seed shall be placed at a rate of 10 lbs per acre.

Substitution requests shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, the rate of seed may be altered as a condition of approval, and seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeastern Minnesota, Eastern Iowa, Southern Wisconsin or Northern Illinois.

~~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.~~

4. Aggressive Native Seed Mix: May be used to encourage native plant growth in weedy areas such as right-of-ways, drainage ditches and old field sites. The seed mix shall consist of any of the following or approved equal:

1. For low-lying or wet sites, custom seed mix "City of Madison Mix Wet – Mesic 45102" as manufactured by Agrecol LLC., Evansville, WI. Seed shall be placed at a rate of 11.82 lbs per acre.
2. For medium to dry sites, custom seed mix "City of Madison Mix Wet-mesic – Dry-mesic 45092" as manufactured by Agrecol LLC., Evansville, WI. Seed shall be placed at a rate of 11.82 lbs per acre.
3. "Jungle Prairie Seed Mix" as manufactured by Prairie Moon Nursery, Winona, MN. Seed shall be placed at a rate of 10.83 lbs per acre.

Substitution requests shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, the rate of seed may be altered as a condition of approval, and

seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeastern Minnesota, Eastern Iowa, Southern Wisconsin or Northern Illinois.

5. Woodland Seed Mix:

The seed mix shall consist of any of the following or approved equal:

1. "Shady Woodland Seed Mix" as manufactured by Prairie Moon Nursery, Winona, MN. Seed shall be placed at a rate of 13.4 lbs per acre.
2. "Woodland Seed Mix" as manufactured by Agrecol LLC., Evansville, WI. Seed shall be placed at a rate of 9 lbs per acre.

Substitution requests shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, the rate of seed may be altered as a condition of approval, and seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeastern Minnesota, Eastern Iowa, Southern Wisconsin or Northern Illinois.

6. Shortgrass Prairie Seed Mix: May be used for areas where conditions are dry, native species are desired and/or height is a concern, e.g. traffic medians, roundabouts, terraces (except within 2' from back of curb). Most species in this mix range from 2-3' in height. The seed mix shall consist of any of the following or approved equal:

1. "Short Prairie for Medium Soils" as manufactured by Prairie Nursery, Westfield, WI. Seed shall be placed at a rate of 10 lbs per acre.
2. "Shortgrass Prairie Seed Mix for Medium-Dry Soils" as manufactured by Prairie Moon Nursery, Winona, MN. Seed shall be placed at a rate of 12.97 lbs per acre.
3. "Shortgrass Prairie for Medium Soils" as manufactured by Agrecol LLC., Evansville, WI. Seed shall be placed at a rate of 13.5 lbs per acre.
4. "Mesic Short Prairie Mix" as manufactured by Shooting Star Native Seed, Spring Grove, MN. Seed shall be placed at a rate of 10 lbs per acre.

Substitution requests shall be submitted to City Engineering for review and approval. Contractor is notified that if an alternative is allowed, the rate of seed may be altered as a condition of approval, and seed shall be native ecotypes. No improved varieties are allowed. Seed source shall be native ecotypes from Southeastern Minnesota, Eastern Iowa, Southern Wisconsin or Northern Illinois.

7. 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

8. 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 non-combustible 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~~ May occur in any of the following windows:

Fall Seeding (preferred): October 15 – ground freeze

Frost Seeding (preferred): After October 15 and before ground thaw on bare ground or in mid-winter during snow-free periods

Snow Seeding: On top of snow: may only be done at such times when the air is sufficiently quiet to prevent seeds from blowing away

Spring Seeding: May 1 – June 15

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 **turf** 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. **Method C. ~~Scattering seed by hand shall be done~~ Turf seed shall be spread only with satisfactory hand-held sowers. Native seed may be spread without the use of hand-held sowers. Hand seeding shall be done ~~and~~ only at such times when the air is sufficiently quiet to prevent seeds from blowing away. All efforts shall be made to spread seed evenly across the site. Native seed shall be mixed with a medium such as sawdust or sand before being scattered.**

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.

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, hay, or wood fiber shall be treated with an approved tackifier material and blown from a machine, 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. Within the above designated limits, the Engineer will determine, on the job, the rate of application of the mulch and the tackifier. 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 tackifier to partially coat and hold together the deposited straw, hay, or wood fiber together.

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.

207.3(e) Watering.

All seeded areas shall be watered as necessary to meet germination and seed growth as defined in 207.4(a) Acceptance and 207.4(b) Guarantee.

The Contractor shall be permitted to delay seeding only when the City of Madison is classified by the U.S. Drought Monitor as D-3 Drought Extreme Status. In these circumstances, the Contractor must seed within 10 days of the end of the D-3 Drought Extreme classification. During this time, the Contractor is required to maintain erosion control until seeded areas are accepted as defined in 207.4(a) Acceptance.

Weekly updates provided by the U.S. Drought Monitor are available at:

http://droughtmonitor.unl.edu/DM_state.htm?WI,MW

207.3(f) Soil Stabilizers.

Soil stabilizers shall be used on all areas seeded.

Application is intended to be done with conventional hydraulic seeding equipment. Polyacrylamide Soil Stabilizer may also be placed through dry spreading. Application rates shall be as recommended by the manufacturer and shall meet the approval of the engineer. In general, rate of application shall be 20 lbs per acre (0.46 lbs per 1000 s.f.).

Where soil stabilizers are used in the terrace or near any other pedestrian walk areas the sidewalk and/or pedestrian walk areas shall be protected to keep the soil stabilizers from being deposited on them. After getting wet, any soil stabilizers on these surfaces can result in a slipping hazard. If soil stabilizers are deposited on a sidewalk the contractor shall clean the sidewalk sufficiently to remove the soil stabilizers. The Contractor shall be aware that conventional methods (sweeping) will not be sufficient to remove the polymer due to the nature of the polymer and other methods (vacuum) will be required to meet this requirement.

207.3(g) Maintaining Native Plantings after Seeding

For sites where Vegetation Management Plans are required, the following guidelines may be useful to create optimal growing conditions for native plants and to set back weeds, which may lead to faster acceptance of sites.

1. In the growing season following seeding, mow the planting once a month from May 15 – September 15. For Spring Seeding this mowing may begin a month to six weeks after planting.
2. Set mower deck at 5.5 – 6” if possible. If not possible, set at highest possible setting.
3. If present on site, spot spray Canada thistle, bird’s foot trefoil and/or crown vetch with aminopyralid at labeled rates. Spot spray reed canary grass with glyphosate at labeled rates.
4. After the first growing season, continue to spot spray Canada thistle, bird’s foot trefoil and/or crown vetch. Biennial weeds such as common and cutleaf teasel, wild parsnip, burdock and bull and musk thistle may be removed by digging the taproot. If plants are dug before seed set, they may be left on site. If dug after seed set they should be removed entirely from site. Biennial and other noxious weeds may also be removed using spot herbicide treatment before or during flowering stage.

305.2 Remove & Replace 5 Inch Concrete Sidewalk-Sidewalk Replacement Program;

Remove & Replace 7 Inch Concrete Sidewalk & Drive-Sidewalk Replacement Program.

305.2(a) Description.

Concrete walk and drive apron shall consist of removing and replacing existing concrete walk and drive apron where designated by the Engineer in accordance with section 303.3 of The City of Madison Standard Specifications except as modified herein.

Removal and replacement of sidewalk and drive aprons shall include all costs for excavating, replacement of **disturbed** sub-base material with four (4") of 3/4" crushed stone or crushed concrete, grade preparation, tree root removal, expansion joints and disposal. Tree root removal shall be completed in accordance with section 107.13 Tree Protection Specification.

305.3 Remove & Replace Concrete Steps-Sidewalk Replacement Program.

305.3(a) Description.

This work shall consist of removing and constructing concrete steps as directed by the Engineer.

Disturbed areas of the subbase shall be graded and prepared with 3/4" crushed stone or crushed concrete. Removal of steps shall include excavation of existing material including Asphalt material, up to one (1) foot on each side. All material shall be hauled from the site. At no time shall any material be deposited on private property or terrace areas.

305.5 Remove & Replace Concrete Curb & Gutter-Sidewalk Replacement Program.

305.5(a) Description.

Concrete curb and gutter shall consist of removing and replacing existing concrete curb and gutter where designated by the Engineer in accordance with The City of Madison Standard Specifications Section 302 except as modified herein.

When a portion of curb and gutter to be replaced contains an inlet, the cost of adjusting the inlet, if for the convenience of the Contractor, in its same location shall be included in the unit price bid of remove and replace concrete curb and gutter.

Removal and replacement of concrete curb and gutter shall include excavating, replacement of **disturbed** sub-base material with four (4") of 3/4" crushed stone or crushed concrete, grade preparation, tree root removal, expansion joints and disposal. If directed by the Engineer, "Type X" curb will be required at various locations at no additional cost. Tree root removal shall be completed in accordance with section 107.13 Tree Protection Specification.

402.4 Asphalt Tack Coat.

Unless otherwise specified in the contract, or directed by the Engineer, the types and grades of asphalt materials and rates of applications in gallons per square yard shall conform to the following requirements:

1. The tack coat material shall be ~~type MS-2, SS-1, SS-1h, CSS-1, or an approved modified emulsified asphalt~~ type SS-1h, CSS-1h, QS-1h, CQS-1h, or modified emulsified Asphalt.

ARTICLE 404 - CONCRETE PAVEMENT

404.1 General.

404.1(a) General.

The installation of concrete pavement, including materials, equipment, foundation, construction methods, method of measurement, and basis of payment shall be in accordance with Part 415, 416 and 501 of the latest edition of the Standard Specifications for Highway and Structure Construction of the State of Wisconsin, Department of Transportation, except as modified herein The City of Madison Standard Specifications or the Special Provisions of the contract.

1. Aggregate shall be from a Wisconsin Department of Transportation approved source as specified under 106.3.4.2.
2. The percent wear shall not exceed 40, the weighted soundness loss shall not exceed 9 percent, and the weighted freeze-thaw average loss shall not exceed 12 percent.
3. Use clean, hard, durable, crushed gravel or crushed limestone free of an excess of thin or elongated pieces, frozen lumps, vegetation, deleterious substances, or adherent coatings considered injurious.
4. Use virgin aggregates only.
5. The maximum limit of light chert* (specific gravity of 2.40 or less) allowed in coarse aggregate shall be two (2) percent by weight.

*Material classified lithologically as chert and having a bulk specific gravity (saturated surface-dry basis) of less than 2.45. Determine the percentage of chert by dividing the weight of chert in the sample retained on a 3/8-inch sieve by the weight of the total sample.

404.2 9-inch, 10-inch, 11, inch, 12-inch Concrete Pavement

~~404.2 Forms.~~

404.2(a) Flexible Forms.

When concrete pavement is constructed on a curve, flexible forms shall be used for all curves having a radius of two hundred (200) feet or less, unless otherwise directed by the Engineer.

404.2(b) Wood Forms.

Wood forms shall only be allowed when approved by the Engineer.

404.2(c) Placement of Concrete Pavement.

~~Joints in the replaced section of concrete shall be doweled in accordance with the details on Standard Plate 3.11. Per detail 3.10 Epoxy coated tie bars shall be installed to a tight driven fit and secured with an approved epoxy grout. The free end of the Epoxy coated dowel bars shall be coated with an approved bond breaker.~~

~~Concrete patches shall be installed per Standard Detail Drawing 5.2.4~~

~~When only one lane is to be patched, a bond breaker consisting of 1/8" thick felt shall be installed along the longitudinal joint of the patch between adjacent lanes of concrete in lieu of the #4 tie bars.~~

~~The concrete design mix shall be such that the concrete achieves a strength of at least 3,000 psi in forty-eight (48) hours. The concrete design mix shall be submitted to the Engineer for approval prior to pouring of concrete.~~

~~The opening of patches to traffic shall be controlled by cylinder tests, and shall be no earlier than forty-eight (48) hours.~~

~~The strike-off and consolidation shall conform to Section 415 of the latest edition of the Standard Specifications for Highway and Structure Construction of the State of Wisconsin, Department of Transportation. The concrete shall be consolidated in place by use of an immersion type vibrator or vibratory screed. The screed or template used for the surface strike-off shall be of an approved design constructed of metal, or with a metal edge, and sufficiently rigid to retain its shape.~~

~~The transverse edges of the finished patch shall be flush with the edges of the existing concrete pavement. The longitudinal surface shall form a straight line from edge to edge within a tolerance of +1/8 inch. Pavement patches not meeting the 1/8" tolerance allowance shall be removed and replaced immediately.~~

~~The final surface of the pavement shall have a burlap drag or broom finish.~~

~~Whenever possible, the concrete shall be placed on the same day that the old pavement is removed.~~

~~The Contractor shall re-seed any terraces or medians damaged or disturbed during construction. This item shall be considered incidental to the items of work involved.~~

~~In the event that it is necessary to leave an open pavement section at the end of the day's work, one Class III barricade shall be placed in front of the open hole.~~

~~Construction equipment and materials are not to be stored within the street right-of-way during non-working hours.~~

404.2(d) Method of Measurement.

Concrete Pavement (9-inch, 10-inch, 11, inch, 12-inch) shall be measured by the square yard in place.

404.2(e) Basis of Payment.

Concrete Pavement shall be paid for at the contract unit price per square yard for the specified thickness which price shall be payment in full for full-depth sawcutting, removal and disposal of the existing pavement, placing, finishing and curing the concrete for furnishing and installing the #10 epoxy coated dowel bars and epoxy coated deformed #6 bars and the #4 epoxy coated tie bars in the longitudinal joints and curb & gutter, or 1/8" felt bond breaker, for furnishing all barricading, labor, materials, equipment, tools, and incidentals necessary to complete the work.

All costs for maintaining traffic and traffic control shall be at the expense of the Contractor.

404.5(b) Placement of Concrete Pavement.

Joints in the replaced section of concrete shall be doweled in accordance with the details on Standard Plate 3.11. Epoxy coated tie bars shall be installed to a tight driven fit and secured with an approved epoxy grout. The ~~fee-free~~ end of the Epoxy coated dowel bars shall be coated with an approved bond breaker.

502.1(f) Utility Trench Patches.

Whenever shown on the plans, or directed by the Engineer, the Contractor shall restore existing pavements through which new utility installations pass in accordance with the Standard Detail Drawing 5.2.4, Typical Pavement Patch Sections, for the type of pavement patch specified and installed. The asphalt pavement material in utility trench patches greater than six (6) feet in either direction shall be compacted with a self-propelled vibratory roller capable of meeting the yields specified in Section 402.3 - Asphalt Pavement of these Specifications. Utility trench patches shall be classified and identified as follows:

TYPE I: ~~Twelve (12) inches of crushed stone base below~~ Nine (9) inch reinforced concrete pavement, to be installed in existing concrete pavements. The pavement along the patch shall be sawcut, full depth, and incidental to the trench patch.

TYPE II: Seven (7) inch plain or reinforced concrete base or asphaltic base, where specified or directed by the Engineer, overlaid with asphalt pavement, to be installed in pavements with concrete bases surfaced with asphalt pavements.

TYPE III: ~~Ten (10)~~ Twelve (12) inch crushed stone base overlaid with asphalt pavement equal in thickness to the existing asphalt pavement, 3" minimum thickness and maximum 5 1/4" thickness, to be installed in pavements with crushed stone bases surfaced with asphalt pavements. The pavement along the patch shall be sawcut, full depth, and incidental to the trench patch. The edges of the existing asphaltic pavement shall be free of loose stones or pavement material.

TYPE IV: ~~Nine (9)~~ Twelve (12) inch crushed stone pavement to be installed in unpaved or un-surfaced streets.

TEMPORARY: Seven (7) inch concrete pavement, to be installed when the existing ground or pavement in the area of the patch is frozen or contains frost. Temporary patches shall not be constructed of crushed stone and/or asphaltic materials unless specifically authorized by the Engineer.

During the construction of the patch, the area shall be plated, barricaded, or otherwise protected as directed by the Engineer, until the patch is complete and can be opened to traffic. **Plates shall be recessed flush with the pavement unless otherwise approved by the Engineer.**

Patches shall be restored on the same day the pavement is removed on streets classified as arterial or collector. Patches shall be restored within three (3) calendar days from when the pavement was removed on streets classified as local.

504.3(f) Precast Box Culvert.

~~The Contractor shall be responsible for all work and coordination necessary to provide, coordinate deliver, unloading and other incidentals associated with the box culvert installation, in accordance with Section 505 of these standard specifications.~~

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

~~2. One (1) foot of three (3) inch clear stone shall then be placed on the geotextile fabric as bedding stone. Three (3) inch clear stone for box culvert bedding is included in the price of box culvert installation.~~

~~3. Pipe backfill above the bedding stone shall be in accord with SDD 5.2.2~~

~~The joints of the box culvert shall be sealed with seal tight across the inside bottom and up the entire length of the inside vertical walls. Sealwrap or an approved equal self adhesive mastic, shall be placed across the outside top of the box and completely down the outside vertical sides of the box. Provision and installation of all joint material is included in the price of the box culvert. If internal gaskets are provided and installed at the factory external Sealwrap shall also be required in addition to the internal gaskets. No interior mastic would be needed. If internal gaskets are not provided at the factory then a mastic or internal seal will be required on the interior of the box. If multiple cells of boxes are placed, the annular space must be filled with a slurry backfill.~~

505.1 Description.

~~The Contractor shall be responsible for all work and coordination necessary to provide, coordinate deliver, unloading and other incidentals associated with the box culvert installation.~~

Unless otherwise shown on the plans or specified in the contract, the materials furnished and installed in the work shall conform to the requirements specified herein for the type and class of material named.

Unless otherwise directed by the Engineer, all box culverts and accessories shall be unloaded at the point of delivery, and hauled to and distributed at the site of the work by the Contractor. The materials shall at all times be handled with care to avoid damage. The material shall not be dropped or bumped against the ground, other materials and accessories already on the ground, or any other object on the ground.

Unless otherwise specified, references to various standard specifications and test methods shall be understood to mean the City of Madison Standard Specifications for Public Works Construction or test method which is current on the date of advertisement for bids.

505.2(a) Box Culverts.

Box culverts shall be precast reinforced concrete box sections, labeled as "RCBC" on the plans, and shall conform to the requirements of the Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD, ASTM C1577 - 19. A box culvert structural design is required for this bid item **and shall be the responsibility of the contractor to provide upon approval of any materials by the City Engineer or their designee. All material submittals must be approved and stamped by a professional engineer licensed in the State of Wisconsin.** City Engineering shall complete this design and it shall be included in the plans and specifications for any project utilizing this bid item. The box culvert shall be manufactured, provided, and installed with the appropriate amount of reinforcing steel, as specified in the structural design. A special provision is also required for this bid item to specify the box culvert dimensions and structural design requirement.

505.2(b) Joint Material.

The joints of the box culverts shall be sealed with a combination of cold plastic sewer joint compound and external sealing bands **that shall be constructed in accordance with section 505.3(a).** ~~Cold plastic sewer joint compound shall be SealTight Cold Plastic Sewer Joint Compound as manufactured by W.R. Meadows, Inc., or approved equal. External sealing bands shall be Seal Wrap External Joint Collars as manufactured by Mar-Mac Manufacturing Company, Inc., or approved equal.~~

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 filter fabric placed on all exposed subgrade areas prior to placement of the bedding stone for the boxes, **this includes areas excavated for undercut if required. Fabric as described above shall be considered incidental to this item.**
2. **Bedding stone shall consist of one (1) foot of three (3) inch clear stone shall be placed on the geotextile as bedding stone and shall extend a minimum of (1) foot past the outside edge of the box. (1) vertical foot of bedding stone shall be considered incidental to this item.**
3. Box backfill shall be completed with select fill as specified. Compaction shall be required in eight (8) inch maximum lifts. Providing and placing of the select fill follow the requirements of Article 502 – Trench Excavation, Bedding, and Backfill. **If additional undercut is required for base stabilization, undercut shall be paid for under the respective pay item. (3)inch clear stone shall be required to be used in areas of undercut and fabric shall be place as described above. Additional materials necessary for the backfill in the undercut area shall be placed in accordance with SDD 5.2.2. All additional clear stone necessary in areas of undercut will be paid for separately under the respective pay item. All backfill shall be paid for under the trench backfill pay item.**
4. The joints of the box culverts shall be sealed as follows:
 - a) The full interior of the joints of the box shall be sealed with cold plastic trowelable sewer joint compound or two (2) appropriately sized mastic "ropes" (commonly products include Pro-Stik &

EZ-Stik) around the entire joint of the box. Rubber gaskets may be allowed upon completion of a specification review and approval by the Engineer. Ge

b) The exterior joints of the box shall be sealed with a 12" wide butyl exterior joint wrap (common products include EZ-Wrap & ConSeal). The exterior joints shall be fully wrapped on the sides and roof of each box joint.

c) If multiple, parallel box installations, are called for the spacing between exterior walls of the boxes shall include a three (3) inch horizontal separation, at minimum, and this separation space shall be maintained between the boxes along the entire run. The void between the boxes shall be filled with TYPE A Slurry Mix as specified in Section 301.9 of these Specifications.

507.3(b) Precast Requirements.

Precast Sewer Access Structures (SAS) and inlets, generally referred to as precast structures, shall be of reinforced concrete and shall conform to the specifications of Precast Reinforced Concrete Manhole Sections, ASTM C 478. Joints shall meet the requirements for circular reinforced concrete pipe as specified in these Specifications.

Precast structures for storm and sanitary sewer structures shall not be furnished with steps and furthermore shall not be manufactured or brought to the job site with steps.

Precast structures of reinforced concrete may be substituted for cast-in-place structures provided they can meet all of the following criteria and the conditions of the contract and approval is granted from the Engineer. No precast structures shall be brought to the job site until approval is granted from the Engineer. Any precast structure not meeting these criteria shall be replaced by a cast-in-place structure or a precast structure satisfying these criteria at the Contractor's expense.

507.3(d) Sewer Connections.

The connections of new pipes at new structures are detailed in the respective sewer type Sections with the exception of sanitary sewer drop inlets which are defined in this Subsection.

When a structure is to be constructed at an existing pipe, the Contractor shall sawcut the existing pipe in the required location to accommodate the placement of the new structure. If the Contractor deems it more suitable to remove the existing pipe to a full joint, the additional pipe and connection required to reconnect the sewer shall be the Contractor's responsibility.

The following requirements are specific for sanitary sewer and storm sewer connections.

1. Sanitary Sewer.

Whenever shown on the plans, or directed by the Engineer, the Contractor shall install outside drop inlets in conjunction with the installation of sanitary sewer access structures as detailed in the Standard Detail Drawings. The pipe and fittings to be used in the construction of the outside drop inlets shall be of the same material as the sewer main. The pipe and fittings shall be securely anchored to the sewer access structure to prevent displacement during the placement of the concrete encasement. Where allowed, an inside drop may be constructed as detailed in Standard Detail

Drawing 5.7.30 - Inside Drop for Sanitary Lateral. The base section of the outside drop connection, shall include a factory cored opening. When a sewer access structure is being replaced and there is a proposed outside or inside drop connection, the upper core opening for the drop shall be a field core and paid for separately as a sanitary sewer tap.

A Sanitary Sewer Tap shall include the connection of an existing lateral or main to a new structure. A coupling (SDD 5.3.3) shall be provided and used by the Contractor to connect the existing pipe to any new pipe that is required to make the connection to the structure as detailed in Standard Detail Drawing 5.7.31, Flexible Pipe to SAS connector. Any new pipe that is installed by the Contractor to reconnect the existing sewer main or lateral shall be considered incidental to this bid item. The newly installed pipe shall match the existing pipe's diameter or be of the next larger diameter. If the existing lateral is to be replaced, the new pipe shall be compensated under the corresponding sanitary sewer lateral bid item. The pouring and construction of concrete benches and flowlines in new sewer access structures for the inlet or outlet pipes shall not be considered a part of this work. The construction of concrete benches and flowlines shall be considered incidental to the installation of the sewer access structure. The downstream pipe connection to a Sewer Access Structure shall also be considered incidental to the Sewer Access Structure and not a tap connection regardless of whether the downstream sewer main is a proposed or an existing pipe connection. In the case of doghouse sewer access structure being approved to be constructed over an existing City sanitary sewer main, no sanitary taps will be granted for the host pipe being saddled over (upstream or downstream pipe connection).

The Contractor shall be responsible for maintaining the normal flow of wastewater during tapping of the sewer access structure.

Sewer access structures are required on the City's sanitary sewer main on every instance that a lateral diameter is 8" or larger or if the proposed lateral size is of equal or larger size than the City's sanitary sewer main.

2. Storm Sewer.

Storm Sewer Tap

Shall include all work, materials and incidentals required to connect a new pipe of the size and type specified in the contract to an existing structure or pipe. The pipe being used shall be paid separately under the appropriate item. The new connection shall be made in a workmanship like manner to assure the structural integrity of the tapped structure or pipe once the connection is made. A Storm Sewer Tap/Connection shall be completed in accord with the type of pipe material being connected and the type of material being connected to.

Private Storm Sewer Reconnects & Laterals

All private storm sewer reconnects shall include all work necessary to reconnect private storm sewer to newly constructed storm sewer inlets or other structures. This bid item shall include all materials necessary to make the private storm sewer connection, including pipe and couplings as necessary. All pipe used in the reconnection of private storm sewer drains shall be either PVC or RCP material, and

shall be similar in size to the existing private storm pipe, and shall be incidental to the work. Under no circumstances shall an existing, private storm sewer pipe be reduced in size. The Contractor shall not abandon any private storm sewer pipe without written approval of the property owner served by this pipe.

Existing private storm sewer that is connected to an existing structure shall be reconnected. All work to reconnect shall be included in the price of the new structure.

Reconnections shall be defined as:

Type 1 – Existing private storm sewer that already extends to the curb line that may require pipe horizontal/vertical realignment including but not limited to curb cuts, existing pipe, grates and scuppers.

Type 2 – Existing private storm sewer that does not extend to the curb line including but not limited to goosenecks and flumes. Work under this item may include extending the pipe and horizontal/vertical realignment.

Private Storm Sewer Lateral - shall include all work necessary to install a new storm lateral from newly constructed storm sewer inlets or other structures to the near property line. This bid item shall include all materials necessary to install the private storm sewer connection, including pipe and couplings as necessary to the new storm sewer and capped at the property line. An electronic marker ball shall be installed at the capped end location and paid as a separate bid item to the lateral installation.

New Pipe Connections

Where a new public TYPE II or III storm pipe is being connected into new precast **H inlet concrete** structure the contractor shall provide a Kor-N-Seal or approved prefabricated connection to connect the new pipe to new **H inlet** structure as detailed in Standard Detail Drawing 5.7.31, Flexible Pipe to SAS Connector.

602.3 Construction Methods.

602.3(e) Pull Wire.

Unless specified or directed by the Traffic Engineer, a pull wire shall be installed in each conduit run as part of the contract, including conduit connecting to existing conduit. The pull wire shall be a No. 10 AWG, or larger size, copper (insulated) TW wire approximately four (4) feet longer than the conduit run, and shall be **stripped and spliced wire to wire in each access point. ~~doubled back for at least two (2) feet at each terminal.~~**

The cost of pull wire shall be incidental to the cost of conduit unless specified otherwise on the plans and in the contract.

602.5 Electrical Trench.

602.5(c) Basis of Payment.

The quantity of trench, measured as provided above, will be paid for at the contract unit price per linear foot, or as part of conduit or cable-in-duct installation if a separate bid item for electrical trench is not provided, which price shall be payment in full for excavating, bedding, and backfilling, ~~in~~cluding any select fill as required in Article 202 of these Specifications, ~~but~~ including sand or other required materials; for surface restoration with topsoil and ~~seed where not otherwise provided in this contract~~; for disposal of surplus materials; for making inspections; and for furnishing all materials; labor, tools, equipment, and incidentals necessary to complete the work.