

SECTION C - CONSTRUCTION SPECIFICATIONS

GENERAL DESCRIPTION OF WORK

The work to be performed under the provisions of these contract documents consists of furnishing all materials, equipment, tools and plant; and the performance of all necessary labor and services to construct as shown in the Plans.

CONTRACT LENGTH

The contract length, FORTY FIVE (45) consecutive calendar days as stated on the bid.

LIQUIDATED DAMAGES

Liquidated damages shall be assessed at the rate of five hundred dollars (\$500.00) per consecutive calendar day effective midnight on the last day of the contract as stated on the Notice to Proceed.

JOB SITE MAINTENANCE, SEDIMENT CONTROL, EROSION PREVENTION, AND OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS

The Contractor shall provide and maintain sediment controls in accordance with state requirements as directed by the engineer and as indicated on the plans to prevent sediment from leaving the work area. Sediment controls shall be maintained at all times to the satisfaction of the engineer for the duration of the project. The costs for sediment controls shall not be paid separately but shall be included in the price bid for other items of work and shall include labor and materials necessary to accomplish installation and maintenance of the devices for the duration of the project.

For all projects that disturb 1 or more acres, either directly through actual construction and/or indirectly through construction related activities, such as construction of material storage areas and/or other temporary facilities incidental to construction, the Contractor shall file the required Oklahoma Department of Environmental Quality (ODEQ) notice of intent (NOI) prior to construction and the notice of termination (NOT) upon completion of restoration of the areas disturbed. Areas disturbed for right-of-way or easement clearing; excavations; material deliveries, stockpiling or storage; construction trailers with appurtenant parking areas and driveways; and other construction related activities shall be included in the estimate of disturbed area for the project. **Issuance of the notice to proceed for this project is contingent upon receipt of a copy of the N.O.I. filed with the state.**

ODEQ acceptance of the N.O.T. must be on file with the owner before the expiration of the maintenance bond period.

The direct and indirect costs associated with the necessary permitting shall not be paid for as such, but shall be included in the price bid for other items of work. Any and all corrective orders issued and/or fines assessed by the ODEQ and/or United States Environmental Protection Agency (EPA) in response to violation of the NOI shall be solely at the Contractor's expense and at no expense to the owner.

CONSTRUCTION ZONE SIGNING AND TRAFFIC CONTROL

If needed in this project, all Construction zone signing and traffic control shall consist of furnishing and erecting signs, lights, barricades and devices as shown on the plans or as directed by the engineer or as proposed by the Contractor and approved by the engineer. Construction zone signing includes, but is not limited to, furnishing and erecting all signs, barricades, advance warning devices and related appurtenances required to safely delineate the work zone and adequately warn the public traveling near and in the construction area. Construction signing and

traffic control shall not be paid for separately but shall be included in the price bid for other items of work.

Materials shall meet the following requirements:

Signs and Barricades: The supports and sign blanks may be metal, wood or plastic, the only requirements being satisfactory performance. All signs and barricades shall be reflectorized whether for day or night use. Reflectorization of signs and barricades shall be by means of wide-angle flat top reflective sheeting, meeting the minimum specifications of 3M Engineer Grade sheeting.

Barricade Warning Lights: Barricade warning lights shall meet the requirements of Section 6E-5, Manual of Uniform Traffic Control Devices.

Advance Warning Devices: Advance warning devices shall consist of the following components:

- a. A sign panel with amber colored sealed beam lamps attached, meeting the requirements of Section 6E-7 of the Manual of Uniform Traffic Control Devices.
- b. A circuitry control unit.
- c. A mounting frame.

The face of the panels that are exposed to oncoming traffic shall have a non-reflective black finish. The level of intensity of light displayed by the sealed beam units shall be changed through means of the control unit for either high intensity for day or reduced intensity for night operation. All sealed beam units shall display essentially the same intensity of light for a given intensity setting. Larger panels may be substituted for smaller panels at the discretion of the Contractor, but smaller panels may not be substituted for larger panels.

The sign panel shall be supported on a mounting frame such that when displayed to oncoming traffic, the bottom edge of the panel shall not be less than 7 feet above the roadway surface. The frame shall support the sign panel with sufficient strength to resist an 80 mile per hour sustained wind, with 104 mile per hour intermittent gusts from any direction. The advance warning device shall be mounted in such a manner that the panel can be rotated on a horizontal axis so as to be hidden from the view of oncoming traffic when not in use. All mobile advance-warning devices shall be mounted on pneumatic-tired vehicles.

The flashing lights on the advance-warning device shall be operated from a dependable power source and shall have a separate auxiliary source of power immediately available. At least one power source on a mobile advance warning device shall be a self-contained source, either battery or electric generator operated.

The advance warning device shall contain a special circuitry control unit. The circuitry control unit shall be a solid state electronic unit with 4 modes that shall contain switching controls for operator selection as follows:

1. Pass right-sequential chevrons or flashing arrow.
2. Pass left-sequential chevrons or flashing arrow.
3. Pass either side-the outermost chevrons, one at either end of the panel with the apex of each chevron pointing toward the nearest panel edge.
4. Caution- 4 or more lamps, arranged in a pattern which will not indicate a direction.

Signs, lights and barricades may be placed on either portable or fixed supports as project requirements dictate. All traffic control devices shall meet the requirements of the current edition

of the Manual on Uniform Traffic Control Devices, published by the United States Department of Transportation, pertaining to shape, size, color, mounting height and placement.

When, in the opinion of the engineer, any sign or other device has been damaged, needs cleaning or has deteriorated to the extent it is no longer effective, it shall be cleaned or replaced immediately as required.

BASIS OF PAYMENT

The "Unit Prices" described herein shall be full compensation for all labor, materials, tools, equipment and incidentals necessary to complete the work in accordance with the plans, these specifications and the referenced Oklahoma Department of Environmental Quality (ODEQ) OAC Title 252 Chapter 655 "Water Pollution Control Construction Standards" and Chapter 625 "Public Water Supply Construction Standards", Midwest City's Sewer Main Installation Specifications and Water Main Installation Specifications, and 2009 Oklahoma Department of Transportation (ODOT) Standard Specifications. This specification book and the referenced Midwest City specifications govern over the minimum ODEQ and ODOT specifications. The ODOT standard specifications apply only with respect to materials, construction methods and testing. All work not classified as a contract pay item shall be considered incidental construction and the cost for such shall be included in the price bid for other items of work.

MEASUREMENT AND PAYMENT

The method of measurement and basis of payment for each item listed in the bid shall be as stipulated in the following:

Under each item, the Contractor shall furnish, construct, and install in place all items as shown on the plans or as directed by the engineer or city inspector.

ITEM
NO. **DESCRIPTION**

1. EARTHWORK

Under this item, the Contractor will excavate and grade material as required to install the street and drainage to the cross-section specified in the plans. Compaction of any borrow will be required to a 95% standard proctor density. Suitable material will be free of organic materials such as tree debris, mulch, etc. Verification of density will be done at Contractor's expense by an independent testing firm when requested by the City. All construction will be in accordance with Section 202, Earthwork, of the 2009 Oklahoma Department of Transportation Standard Specifications. Any borrow or excess material will be hauled as incidental of this item and is the sole responsibility of the Contractor.

Measurement – None

Payment - The contract lump sum for all necessary earthwork included in this project.

2. TEMPORARY SILT FENCE

Under this item, the Contractor will furnish all material, equipment, labor, etc. to construct erosion control measures specified in the plans and as specified on site by the Storm Water Quality Division of Midwest City and these plans.

Measurement – Linear foot of temporary silt fence actually installed, accepted, and removed.

Payment - The contract unit price for each foot temporary silt fence included in this project.

3. SOLID SLAB SODDING

Under this item, the Contractor will furnish and install Bermuda Grass Solid Slab Sod in accordance with the plans, these specifications, and as directed by the Engineer. All water will be furnished by the City for the Contractor to transport and apply to newly sodded areas.

Sod will be certified U-3 Bermuda (Cynodon dactylan) freshly cut and rolled prior to delivery. Sod will be virtually weed free, consistently uniform and full with clean-cut ends and edges, and have no gaps or voids. Sod which has been allowed to completely dry out or cut with less than 1/2" of soil adhering to the roots will be rejected. Sod will be slightly moistened upon arrival at the site and will be laid within 24 hours of delivery.

Application of Sod:

Loosen subgrade to a minimum depth of 4 inches and remove all debris including stones, rocks, sticks, roots, rubbish, etc. Incorporate, thoroughly, 10-20-10 fertilizer (200 lbs/1000 S.Y.) into the top 4 inches of soil. Hand rake smooth and clean, having no noticeable humps, depressions, stones, or debris. Lay sod in alternating staggered rows across slopes with no gaps between pieces. Thoroughly soak newly sodded areas to achieve saturation of the sod and subgrade. After several thorough waterings, but prior to the start of new top-growth, all sod areas will be rolled and/or top dressed with good sandy loam topsoil to eliminate all humps, gaps, and depressions.

Measurement - Square yards for area of sod actually installed and accepted.

Payment - The contract unit price bid for each square yard of sod included in this project.

**ITEM
NO.**

DESCRIPTION

4. AGGREGATE BASE, TYPE "A"

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install of Type "A" aggregate base as specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 303 of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Cubic yard actually installed and accepted.

Payment - The contract unit price for each cubic yard included in this project.

5. CONCRETE TESTING

General requirements:

Concrete will be tested in accordance with AASHTO T22 and AASHTO T23. Samples and their subsequent tests will be segregated by mix design. The Contractor will be responsible for the appropriate storage and documentation for each sample. Each sample will be tested for 7 & 28-day compression strength.

Cylinder collection:

Concrete cylinders will be made in accordance with AASHTO T23, except, after initial curing, specimens for acceptance testing will be cured in a medium maintained at 40° F to 85° F until tested. Cylinders will not be made from the first cubic yard or the last cubic yard of any truck load. Cylinders will be made reasonably conforming to the following intervals or as directed by the city inspector:

Two cylinders will be made at different intervals during the first truck load delivered each day (for each mix design).

-then-

One cylinder will be made at regular intervals not to exceed every thirty (30) cubic yards throughout the same day (for each mix design).

Record of specimens:

Each cylinder made for acceptance testing will be assigned a sequential number for each mix design used on the job. All records of collection and testing will refer to this cylinder number. The time and date that each cylinder is made and the ticket number of the truck load the cylinder is made from will be recorded for each cylinder.

The contractor will be required to record the number of trucks, yardage laid, and times for each day of concrete placement.

Measurement and payment:

The Contractor will be paid **lump sum** in accordance with this and referenced specifications.

Efforts are being made to simplify the testing billing. The Contractor is liable for scheduling the testing agency. This pay item will be paid at the completion of the concrete work and when all tests have been received. For each test missed according to the above schedule, a deduction of 10% of the as-bid price of this item will be assessed on the final pay application. If five or more tests are missed; the concrete placed on those days will be reduced 10%. Blatant missing of tests will result in City not allowing more concrete placement until Contractor takes appropriate actions to remedy.

**ITEM
NO.**

DESCRIPTION

6. COMBINED CURB & GUTTER (6" BARRIER)

Under this item, the Contractor will install 6" curb and gutter in accordance to those shown on the plans. This item includes all materials and labor needed in the installation of the curb and gutter. All construction will be in accordance with Section 609, Integral Curb, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Linear foot of material actually installed and accepted.

Payment - The contract unit price for each linear foot of curb & gutter included in this project.

7. 4" CONCRETE SIDEWALK W FIBER

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install 4" Concrete Sidewalk specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 610, Concrete or Asphalt Sidewalks, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Fiber reinforcement shall be Fibermesh 300, as manufactured by Propex Operating Company, LLC or approved equal. Apply at a minimum rate of 1.5 lbs. per CY of concrete. Install per manufacturer's written instructions.

Measurement – Square yard of 4" Concrete Sidewalk actually installed and accepted.

Payment - The contract unit price for each square yard 4" Concrete Sidewalk included in this project.

8. 6" CONCRETE DRIVEWAY

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install 6" Concrete Driveway specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 610, Concrete or Asphalt Sidewalks, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Square yard of 6" Concrete Driveway actually installed and accepted.

Payment - The contract unit price for each square yard 6" Concrete Driveway included in this project.

9. TACTILE WARNING DEVICE – NEW

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install new tactile warning as specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 610, Concrete or Asphalt Sidewalks, of the 2009 Oklahoma Department of Transportation Standard Specifications. Color shall be RED.

Measurement – Square foot of Tactile Warning Device actually installed and accepted.

Payment - The contract unit price for each square foot of Tactile Warning Device included in this project.

10. VALVE BOXES AJUST TO GRADE

Under this item, the Contractor will furnish all material, equipment, labor, etc. necessary to adjust the existing meter boxes to the new grade established as part of this project. All work shall be done in accordance with Oklahoma Department of Transportation 2009 Standard Specification, Section 612.

Measurement – Each valve box actually adjusted and accepted.

Payment - The contract unit price for each valve box adjusted in this project.

**ITEM
NO.**

DESCRIPTION

11. METER BOXES AJUST TO GRADE

Under this item, the Contractor will furnish all material, equipment, labor, etc. necessary to adjust the existing meter boxes to the new grade established as part of this project. All work shall be done in accordance with Oklahoma Department of Transportation 2009 Standard Specification, Section 612.

Measurement – Each meter box actually adjusted and accepted.

Payment - The contract unit price for each meter box adjusted in this project.

12. REMOVAL OF CURB AND GUTTER

Under this item, the Contractor will remove all conflicting existing curb and gutter as shown in the plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Linear foot of material actually removed and accepted.

Payment - The contract unit price for each linear foot for all necessary removal required for this project.

13. REMOVAL OF CONCRETE DRIVEWAY

Under this item, the Contractor will remove all conflicting existing driveway as shown in the plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Square yard of material actually removed and accepted.

Payment - The contract unit price for each square yard for all necessary removal required for this project.

14. REMOVAL OF SIDEWALK

Under this item, the Contractor will remove all conflicting existing sidewalk as shown in plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. Sawing is incidental to this pay item. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Square yard of material actually removed and accepted.

Payment - The contract unit price for each square yard for all necessary removal required for this project.

15. SAWING PAVEMENT

Under this item, the Contractor will saw existing asphalt pavement prior to removal so as to leave a smooth joint. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Linear foot of material actually sawed and accepted.

Payment - The contract unit price for each linear foot for all sawing required for this project.

**ITEM
NO.**

DESCRIPTION

16. CONSTRUCTION TRAFFIC CONTROL

Under this item, the Contractor will provide a 24 hour notice to Engineering prior to any work that will need traffic control. Signage will be required along Reno Avenue to notify drivers of Woodman Drive closure.

All traffic control devices shall meet the requirements of the current edition of the Manual on Uniform Traffic Control Devices, published by the United States Department of Transportation, pertaining to shape, size, color, mounting height and placement.

Measurement - None

Payment - The contract lump sum for all necessary traffic control materials required for this project.

17. MOBILIZATION

This work consists of the Contractor's preparatory operations, including moving personnel and equipment to the project site.

Measurement - None

Payment - The contract lump sum for all necessary traffic control materials required for this project.

18. CONSTRUCTION STAKING LEVEL II

Under this item, the Contractor will stake the project site to ensure accurate construction according to the plans. This pay item will be in accordance with Section 642 sub B, Construction Staking-Level II, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement - None

Payment - The contract lump sum for all necessary traffic control materials required for this project.

Alt 1-1. AGGREGATE BASE, TYPE "A"

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install of Type "A" aggregate base as specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 303 of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement - Cubic yard actually installed and accepted.

Payment - The contract unit price for each cubic yard included in this project.

Alt 1-2. COMBINED CURB AND GUTTER (6" BARRIER)

Under this item, the Contractor will install 6" curb and gutter in accordance to those shown on the plans. This item includes all materials and labor needed in the installation of the curb and gutter. All construction will be in accordance with Section 609, Integral Curb, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement - Linear foot of material actually installed and accepted.

Payment - The contract unit price for each linear foot of Curb & Gutter included in this project.

Alt 1-3. 6" CONCRETE DRIVEWAY (HIGH EARLY)

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install 6" Concrete Driveway specified in the plans, these specifications, and as directed by the

**ITEM
NO.**

DESCRIPTION

Engineer. All construction will be in accordance with Section 610, Concrete or Asphalt Sidewalks, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Ensure mix design reaches 3,000 psi at ~~6 hours~~ 24 hours.

Measurement – Square yard of 6” Concrete Driveway actually installed and accepted.

Payment - The contract unit price for each square yard 6” Concrete Driveway included in this project.

Alt 1-4. REMOVAL OF CURB AND GUTTER

Under this item, the Contractor will remove all conflicting existing curb and gutter as shown in the plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Linear foot of material actually removed and accepted.

Payment - The contract unit price for each linear foot for all necessary removal required for this project.

Alt 1-5. REMOVAL OF CONCRETE DRIVEWAY

Under this item, the Contractor will remove all conflicting existing driveway as shown in the plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Square yard of material actually removed and accepted.

Payment - The contract unit price for each square yard for all necessary removal required for this project.

Alt 2-1. AGGREGATE BASE, TYPE “A”

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install of Type “A” aggregate base as specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 303 of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Cubic yard actually installed and accepted.

Payment - The contract unit price for each cubic yard included in this project.

Alt 2-2. COMBINED CURB AND GUTTER (6” BARRIER)

Under this item, the Contractor will install 6” curb and gutter in accordance to those shown on the plans. This item includes all materials and labor needed in the installation of the curb and gutter. All construction will be in accordance with Section 609, Integral Curb, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Linear foot of material actually installed and accepted.

Payment - The contract unit price for each linear foot of Curb & Gutter included in this project.

Alt 2-3. 4” CONCRETE SIDEWALK W FIBER

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install 4” Concrete Sidewalk specified in the plans, these specifications, and as directed by the

ITEM NO. **DESCRIPTION**

Engineer. All construction will be in accordance with Section 610, Concrete or Asphalt Sidewalks, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Fiber reinforcement shall be Fibermesh 300, as manufactured by Propex Operating Company, LLC or approved equal. Apply at a minimum rate of 1.5 lbs. per CY of concrete. Install per manufacturer's written instructions.

Measurement – Square yard of 4" Concrete Sidewalk actually installed and accepted.

Payment - The contract unit price for each square yard 4" Concrete Sidewalk included in this project.

Alt 2-4. 6" CONCRETE DRIVEWAY (HIGH EARLY)

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install 6" Concrete Driveway specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 610, Concrete or Asphalt Sidewalks, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Ensure mix design reaches 3,000 psi at **6 hours 24 hours**.

Measurement – Square yard of 6" Concrete Driveway actually installed and accepted.

Payment - The contract unit price for each square yard 6" Concrete Driveway included in this project.

Alt 2-5. TACTILE WARNING DEVICE – NEW

Under this item, the Contractor will furnish all material, equipment, labor, etc. to install new tactile warning as specified in the plans, these specifications, and as directed by the Engineer. All construction will be in accordance with Section 610, Concrete or Asphalt Sidewalks, of the 2009 Oklahoma Department of Transportation Standard Specifications. Color shall be RED.

Measurement – Square foot of Tactile Warning Device actually installed and accepted.

Payment - The contract unit price for each square foot of Tactile Warning Device included in this project.

Alt 2-6. REMOVAL OF CURB AND GUTTER

Under this item, the Contractor will remove all conflicting existing curb and gutter as shown in the plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Linear foot of material actually removed and accepted.

Payment - The contract unit price for each linear foot for all necessary removal required for this project.

Alt 2-7. REMOVAL OF CONCRETE DRIVEWAY

Under this item, the Contractor will remove all conflicting existing driveway as shown in the plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Square yard of material actually removed and accepted.

Payment - The contract unit price for each square yard for all necessary removal required for this project.

ITEM
NO. DESCRIPTION

Alt 2-8. REMOVAL OF SIDEWALK

Under this item, the Contractor will remove all conflicting existing sidewalk as shown in plans. Material from the excavation will be removed from the site and disposed at a location off-site selected by the Contractor. Sawing is incidental to this pay item. All construction will be in accordance with Section 619, Removal of Buildings, Structures, and Obstructions, of the 2009 Oklahoma Department of Transportation Standard Specifications.

Measurement – Square yard of material actually removed and accepted.

Payment - The contract unit price for each square yard for all necessary removal required for this project.