PROGRESS CLAUSE: Submit a complete, detailed and signed Michigan Department of Transportation Form 1130, Progress Schedule, to the Engineer within seven (7) calendar days of confirmation of low bid by the department. The Engineer for this project is as follows:

Andrew VanWormer, P.E.
OHM Advisors
929 Bridgeview South
Saginaw, MI 48604
Andrew.VanWormer@ohm-advisors.com

The progress schedule submittal must include, as a minimum, the controlling work items for the completion of the project and the planned dates (or work days for a work day project) that the work items will be the controlling operations. All contract dates including open to traffic, project completion, interim completion and any other controlling dates in the contract must be included in the project schedule.

After receiving Notice of Award, start work on the date agreed upon with the Engineer, which date shall be no earlier than **June 4, 2018**. In no case, shall any work be commenced prior to receipt of formal notice of award by the department.

All contract work, except for Turf Establishment, Performance, must be complete and the road fully open to traffic no later than the interim completion date of **August 25, 2018**.

The entire project must be completed on/before the final project completion date of **October 20, 2018**.

No Work will be allowed from 3:00 pm on Friday, May 25, 2018 through 7:00 am on Tuesday, May 29, 2018 (Memorial Day), from 3:00 pm Tuesday, July 3, 2018 through 7:00 am on Thursday, July 5, and from 3:00 pm on Friday, August 31, 2018 through 7:00am on Tuesday, September 4, 2018 (Labor Day).

Failure by the Contractor to meet interim, final and/or any stage completion dates will result in the assessment of liquidated damages in accordance with subsection 108.10 of the Standard Specifications for Construction. Liquidated damages will be assessed separately and simultaneously for failure to meet interim, final, and any stage completion dates. Liquidated damages will continue to be assessed for each calendar day that the work associated with the interim, final and/or any stage completion dates remains incomplete, even if these days extend beyond the normal seasonal shut down date specified in the Standard Specifications for Construction, unless approved otherwise by the Engineer.

After award and prior to the start of work, the Contractor must attend a preconstruction meeting with the Engineer. The Engineer will determine the day, time and place for the preconstruction meeting. The meeting will be conducted after project award and may be rescheduled if there are delays in the award of the project.

The named subcontractor(s) for, Designated and/or Specialty Items, as shown in the proposal is recommended to be at the preconstruction meeting if such items materially affect the work schedule.

The Contractor may be required to meet with city representatives for a post-construction review meeting, as directed by the Engineer. The Engineer will schedule the meeting.

Failure on the part of the Contractor to carry out the provisions of this Progress Clause may be considered sufficient cause to prevent bidding future projects until a satisfactory rate of progress is again established.

CITY OF OWOSSO

NOTICE TO BIDDERS
UTILITY COORDINATION

The contractor shall cooperate and coordinate activities with the owners of utilities as stated in Section 104 of the 2012 Michigan Department of Transportation Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in Section 107.12 of the 2012 MDOT Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 108 of the 2012 MDOT Standard Specifications for Construction.

PUBLIC UTILITIES

The following Public Utilities have facilities located within the Project CIA:

UTILITY	OWNER	CONTACT
Telephone / Fiber Optic	Frontier Communications 1943 W. M-21 Owosso, Michigan 48867	Mark Stevens 989.723.0373 Mark.Stevens@ftr.com
Fiber Optic	Daystarr Communications 307 N. Ball Street Owosso, Michigan, 48867	Casey Rose 989.720.6060 Casey.Rose@corp.daystarr.net
Cable TV	Charter Communications 1480 S. Valley Center Drive Bay City, Michigan 48706	Mark Kelly 989.233.9404 Mark.Kelly@charter.com
Electric	Consumers Energy 530 W. Willow Street Lansing, Michigan 48906	Jacob Chalut 517.580.2049 Jacob.Chalut@cmsenergy.com
Gas	Consumers Energy 530 W. Willow Street Lansing, Michigan 48906	Adam Bertram 517.614.8570 Adam.Bertram@cmsenergy.com
Storm/County Drain	Shiawassee County Drain Comm. 149 E. Corunna Avenue L-1 Corunna, Michigan 48817	Tony Newman 989.743.2398 drains@shiawassee.net
Water and Sewer	City of Owosso 301 W. Main Street Owosso, Michigan 48867	Glenn Chinavare 989.725.0555 Glenn.Chinavare@ci.owosso.mi.us
Road	City of Owosso 301 W. Main Street Owosso, Michigan 48867	Randy Chesney, P.E. 989.725.0550 Randy.Chesney@ci.owosso.mi.us
Railroad	Huron and Eastern Railroad 101 Enterprise Drive Vassar, Michigan 48768	Luke Ziesemer, Roadmaster 989.797.5129

Soil Erosion Control	Shiawassee County Health Dept. Environmental Health Division 201 N. Shiawassee Street Corunna, Michigan 48817	Casey Elliot, R.E.H.S. 989.743.2289 Celliott@shiawasseechd.net

For the protection of underground utilities and in conformance with Public Act 174 of 2013, the Contractor shall contract the Miss Dig system, Inc. by phone at 811 or 800-482-7171 or via the web at either elocate.missdig.org for single address or rte.missdig.org, a minimum of 3 business days prior to excavation, excluding weekends and holidays.

Owners of Public Utilities will not be required by the municipality to move poles or structures in order to facilitate the operation of construction equipment unless it is determined by the Project Engineer that such poles or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operations. Contractor shall coordinate with Public Utility companies to relocate any facilities required to accommodate the proposed scope of work.

CITY OF OWOSSO

NOTICE TO BIDDERS
RAILROAD COORDINATION AND GENERAL LIABILITY INSURANCE

The contractor shall cooperate and coordinate activities with the owners of Huron and Eastern Railroad as covered in subsection 104.08 of the Standard Specifications for Construction. The contractor shall protect the railroad lines and coordinate work within the railroad right of way with the Railroad. A flag person may be required at times and this work shall be coordinated by Contractor. Payment for the Railroad Flag Person will be completed per the pay item provided in the contract for number of hours. Contractor shall determine the number of Railroad Flag Person hours needed and include in their bid.

The Contractor initiate contact via e-mail or hard copy letter with the Railroad identified in the Notice to Bidders – Utility Coordination, 30 calendar days, excluding Saturdays, Sundays and Holidays, prior to starting work in the vicinity of their tracks. Copy the Engineer in all correspondence to the Railroad.

Do not work or place equipment within 10 feet of the nearest rail.

The Contractor shall obtain Commercial General Liability Insurance naming the Huron and Eastern Railroad as additional insured in limits no less than $2 million dollars per occurrence and $4 million dollars in aggregate. The policy or policies where applicable and available, shall contain Insurance Services Office Standard Endorsement CG 2417 or its equivalent. A waiver or subrogation in favor of the railroad must also be shown as an endorsement to the policy. This coverage may be purchased through the Railroad and an application can be found at their website:
https://www.gwrr.com/railroads/north_america/huron_eastern_railway#m_tab-one-panel

The Contractor shall include this insurance with their contract and include the insurance purchase cost within the contract pay items. No additional compensation will be given from the Owner for obtaining the Railroad insurance policy.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
DRIVEWAY, REM
PAVT, REM, MODIFIED

DESCRIPTION

The work shall consist of removing driveway and pavement as shown on the plans or as directed by the Engineer.

CONSTRUCTION

Driveway removal shall be performed in accordance with Section 204 of the 2012 Michigan Department of Transportation Standard Specifications for Construction, except as specified herein.

The Contractor shall remove driveways and pavement of whatever material or thickness or multiple layers of pavement that may be encountered. Driveway and pavement removal shall be to an existing joint or to a sawed joint as shown on plans or as directed by the Engineer.

MEASUREMENT AND PAYMENT

Driveway and pavement removal will be paid for at the contract unit prices for the following pay items and shall include all labor, equipment and materials to complete the work.

Pay Item	Pay Unit
Driveway, Rem	Square Yard
Pavt, Rem, Modified	Square Yard

Payment for sawcutting, if required, will be included in the related removal pay item and will not be paid for separately.

Materials or debris resulting from driveway and pavement removal shall become the property of the Contractor and disposed of in accordance with Subsection 204.03.B of the 2012 MDOT Standard Specifications for Construction.

The contract unit price will be compensation for removing driveways and material of whatever material and thicknesses are encountered.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
SUBGRADE UNDERCUTTING, TYPE II, MODIFIED

DS:OHM 3/20/18

DESCRIPTION

The work shall be done in accordance with the requirements of the Michigan Department of Transportation 2012 Standard Specifications for Construction Section 205 except as specified herein.

MATERIALS

The material to be used for Subgrade Undercutting, Type II, Modified shall be:

Dense-graded MDOT 21AA crushed limestone aggregate

CONSTRUCTION

If areas of peat are exposed and directed to be undercut by the Engineer, the undercut shall follow the requirements of the Michigan Department of Transportation 2012 Standard Specifications Section 205, with the exception that the material undercut shall include peat.

MEASUREMENT AND PAYMENT

The complete work as measured for subgrade undercutting will be paid for at the contract unit price for the following contract pay items and includes all material, equipment, labor, aggregate, compaction and material disposal to complete the items.

Pay Item	Pay Unit
Subgrade Undercutting, Type II, Modified	Cubic Yard

Only the volume under the proposed aggregate base and proposed embankment limits will be measured and paid for as Subgrade Undercutting Type II, Modified.

Areas of subgrade undercutting shall be verified and approved by Engineer prior to work being completed. Any undercut operations performed without approval from Engineer shall not be paid for.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
AGGREGATE BASE, _ INCH, MODIFIED

DESCRIPTION

Aggregate base for HMA surface shall meet the requirements of Section 302 and 902 of the 2012 Michigan Department of Transportation Standard Specifications for Construction except as herein specified.

MATERIALS

The material to be used for Aggregate Base, _ inch, Modified shall be:
Dense-graded MDOT 21AA crushed limestone aggregate

MEASUREMENT AND PAYMENT

The completed work as measured for aggregate base will be paid for at the contract unit prices for the following contract item (pay item):

Pay Item	Pay Unit
Aggregate Base, 4 inch, Modified	Square Yard
Aggregate Base, 6 inch, Modified	Square Yard
Aggregate Base, 8 inch, Modified	Square Yard
Aggregate Base, 9 inch, Modified	Square Yard
Aggregate Base, 10 inch, Modified	Square Yard

Pay items will be measured by area in square yards and will be paid for at the contract unit price per square yard which price shall payment in full for material, labor, and equipment needed to accomplish the work as shown on the plans.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
GEOTEXTILE, SEPARATOR, MODIFIED

DS:OHM 1 of 1 3/20/18

DESCRIPTION

The work of Geotextile, Separator, Modified shall consist of furnishing and placing geotextile in accordance with Section 910 of the Michigan Department of Transportation 2012 Standard Specifications for Construction except as noted herein.

MATERIALS

Geotextile Separator shall be woven fabric, meeting or exceeding Table 910-1 of Section 910, and approved by Engineer.

CONSTRUCTION

Spread geotextiles smoothly on prepared grades and anchor firmly prior to placing backfill or cover materials. Do not operate equipment required to place backfill or cover materials directly on the geotextile. Smooth wrinkles or waves which develop in the geotextile. Either shingle-lap (minimum 24") or seam all longitudinal and transverse joints in the geotextile. Field or factory seams, sewn or sealed, must meet specified grab tensile strength. Install seams facing upward.

MEASUREMENT AND PAYMENT

The completed work as measured for Geotextile, Separator, Modified will be paid for at the contract unit price for the following contract item (Pay Item).

Pay Item	Pay Unit
Geotextile, Separator, Modified	Square Yard

Geotextile, Separator, Modified will be measured in place by area in square yards and will be paid for at the contract unit price per square yard which price shall be payment in full for all labor, material and equipment needed to accomplish this work. No payment for overlaps will be made.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
SEWER REPAIR, CURED-IN-PLACE PIPE

DESCRIPTION

This work shall be for the complete installation of a resin-impregnated flexible tube inverted into a prepared sewer as directed by the Engineer where defects have been identified as needing immediate attention based on recent televising and inspection information. Work shall include cleaning, dewatering or diverting of flow in sewers to the degree necessary, and inspection by closed circuit television as shown on the contract drawings or as directed by the Engineer to prepare for cured in place lining. This work also includes post-televising to provide documentation on the work completed of the installed cured in place liners. All material and execution shall at a minimum meet the requirements of ASTM F1216, except as specified herein.

MATERIALS

The Contractor will be required to supply the Engineer with shop drawings and a certificate of compliance or actual test results stating that the material to be used is in conformance with the specifications prior to using the material for construction.

All materials used in the lining and in the insertion process shall be of their best respective kinds and to the satisfaction of the Engineer. Any materials not approved by the Engineer shall be rejected prior to the insertion of the liner into the sewer. These rejected materials shall then be replaced with approved materials at the Contractor's expense.

The liner shall be fabricated to a size that, when installed, will neatly fit the internal circumference of the conduit to be lined as specified by the Engineer. Allowance for longitudinal and circumferential stretching of the liner during insertion shall be made by the Contractor.

Resin - The resin shall be a resin for general chemical applications. A sample of each batch, suitably labeled, shall be tested or certified as meeting the specification requirements as specified and approved by the Engineer prior to its use.

Fillers and Pigments - The resins used shall not contain fillers, except those required for viscosity control or fire retardance. Up to 5% of mass thixotropic agent which will not interfere with visual inspection may be added for viscosity control. Resins may contain pigments, dyes or colorants which will not interfere with visual inspection of the cured liner.

Epoxy Resin - The use of epoxy resins compatible with the system to impregnate the liner bag may be permitted in some circumstances. The use of up to 40 percent by mass of suitable fillers may be permitted. The use of epoxy resin in any liner bag may be requested by the Contractor, if conditions are deemed to warrant their use, but approval in writing must be given by the Engineer before installations.

Tube Material - The tube material of the felt liner bag shall be of a needle-interlocked terylene felt or other equivalent woven or nonwoven material as approved by the Engineer. Tubes may be made of single-layer or multiple-layer construction, where any layer must not be less than 6 mm thick. A suitable mechanical strengthener membrane or strips may be sandwiched in between layers where required to control longitudinal stretching. A polyurethane membrane used during insertion as the inflation bag may be left on the internal surface of the liner after curing. The minimum thickness of a bonded polyurethane membrane and inner liner, if used, shall be 0.25 mm + 5 percent and shall not affect the structural dimension requirements of the cured liner.

Liner Thickness - The thickness of the cured liner shall be accurately measured and shall not be more than 5 percent less than the thickness submitted for design approval.

Tube and Resin Content of Liner - The samples shall be visually inspected to ensure the number of layers of felt to conform to the approved number of layers and thickness. Resin impregnation of the sewer shall be sufficient to fill air voids and provide for polymerization shrinkage of the liner and to fill cracks and irregularities in the original pipe wall. The tube material shall be saturated by the vacuum method and distributed by rollers.

Mechanical Properties - The cured liner shall meet the following minimum strength requirements:

- Ultimate elongation at yield	2%
- Flexural Strength per ASTM D790	4,500 psi
- Minimum Flexural Modulus per ASTM D790	250,000 psi
- Tensile Strength per ASTM D638	2,500 psi

Finish - The finished lining shall be continuous over the entire length of an insertion run between two manholes and shall be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, air bubbles, pinholes and delamination. The lining shall be impervious and free of any leakage from the pipe to the surrounding ground or from the ground to the inside of the lined pipe.

The inner surface shall be free of cracks and crazing with a smooth finish and with an average of not over two pits per 300 mm square, providing the pits are less than 3 mm diameter and not over 1 mm deep and are covered with sufficient resin to avoid exposure of the inner fabric. Some minor waviness that, in the Engineer's opinion, will not appreciably decrease the flow cross section or affect the flow characteristics or be the cause of a possible chokage shall be permissible.

The tube line shall be attached to the felt tube. This tube is not to be considered as part of the liner or to contribute to any of the specified properties required of the liner. Any defects which will affect, in the foreseeable future, the integrity or strength of the liner, shall be repaired or the liner replaced at the Contractor's expense.

Design - The Contractor shall submit with the Proposal the recommended liner thickness for each manhole-to-manhole section. The Contractor shall supply design calculations indicating how liner dimensions were obtained. The liner shall be very close fit in the existing conduit, which shall not contribute to the structural capabilities of the CIPP tube. The required structural CIPP wall thickness shall be based as a minimum, on the physical properties in Section 5.5 and in accordance with the Design Equations in the appendix of ASTM F1216. The following parameters shall be considered a minimum.

Design Safety Factor	=	2.0
Retention Factor for Long-Term Flexural Modulus to be used in Design (as determined by Long-Term tests)	=	1%-50%*
Ovality	=	from existing video inspection
Groundwater Depth (above invert)	=	½ soil depth (ft.)
Soil Depth (above crown)	=	see contract plans
Soil Modulus	=	1000 psi
Soil Density	=	120 lbs/cf
Live Load	=	H20 Highway
Design Condition	=	fully deteriorated

*50% retention shall be the maximum retention utilized regardless of independent testing results.

CONSTRUCTION REQUIREMENTS

General

The Contractor shall deliver the uncured resin-impregnated liner tube to the site and provide all equipment required to place and invert the liner into the sewer and cure it once in place. The Contractor shall provide for the control and bypassing of sewage and for the cleaning and preparation of the existing pipe, including repair of protruding service laterals. Contractor shall remove all obstruction in the sewer prior to installation of the liner. Obstructions such as protruding services, roots, and other debris are to be removed by mechanical means. Excavating to remove obstructions shall only be done as a last resort.

Transportation to Site

The liner tube shall be impregnated with resin not more than 24 hours before the proposed time of installation and stored out of direct sunlight at a temperature of less than 40 degrees F (4 degrees C). This impregnated liner shall be transported to the site just prior to inversion in a suitable lightproof container with the temperature maintained below 40 degrees F (4 degrees C).

Liner Inversion

The liner shall be inverted into the sewer from a suitable platform located above the manhole or any other point of inversion. The free open end of the folded liner bag shall be passed down a suitably reinforced column to an inversion shoe or bend. The protruding end of the bag should then be folded back over the shoe and each layer, if a multiple layer bag, firmly secured to the inversion shoe by means of a stainless steel strap. After the liner bag is secured to the shoe, the shoe should be positioned in the inversion location so that the reporting portion of the bag is secured to the shoe; the shoe should be positioned in the inversion location so that the reporting portion of the bag is properly aligned with the open end of the sewer to be lined. Clean water at ambient mains temperature shall be available from the Owner at the nearest fire hydrant to the inversion location.

Liner inversion rate shall not exceed 32 feet/min. (10 meters/min.), and the liner bag or the tag rope will be suitably restrained to prevent inversion rates in excess of that stipulated above. The inversion head shall be such that, allowing for minor impact, at no time shall the hook tension in the felt liner exceed, or the hoop stress in the polyurethane membrane exceed, 8,000 psi.

Liner Curing

The Contractor shall supply a suitable heat source and water recirculation equipment capable of delivering hot water to the far end of the liner to quickly and uniformly raise the water

temperature in the entire liner, once inverted in the sewer, above the temperature required to commence the exothermic reaction of the resin as determined by the catalyst system employed.

The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water supply to determine when uniform temperature is achieved throughout the length of the liner. Water temperature in the liner during the initial and post cure period shall not be less than 160 degrees F (71 degrees C) in or more than 194 degrees F (90 degrees C). Live stream shall not be permitted to enter the curing liner. In addition to the gauges on the incoming and outgoing water supply, there shall be thermocouples placed between the liner and the sewer pipe at the point of inversion and the end of the liner being cured to accurately measure the bag temperature.

A record of the reading of these thermocouples shall be kept and given to the Engineer for each section lined.

Temperature readings shall be taken at 15-minute intervals, beginning when heat is applied and continuing through curing and post curing, until the temperature is reduced to 149 degrees F (65 degrees C). In lieu of 15-minute temperature readings, the Contractor may use a suitable temperature recording device. The recording device must be approved by the Engineer as to type and accuracy.

Initial cure shall be deemed to be completed when a uniform temperature, as determined by the thermocouple monitors on the liner wall, is achieved throughout the length of the liner, and visual inspection of the exposed portions of the liner shows it to be hard and sound. The post cure period shall commence with the heat source shut down but continued recirculation of the water to maintain the temperature in the liner at or just below a maximum temperature of 194 degrees F (90 degrees C) but above 160 degrees F (71 degrees C) during the initial exothermic reaction period. Hot water may be bled out of the system and replaced by clean water at ambient mains temperature to control post cure water temperature. A minimum period of 3 hours post cure under an inversion head to maintain a minimum loop tension in the liner felt shall complete the curing period. Ends of liner shall not be fully opened until intake and discharge temperatures of boiler are less than 100 degrees F (43 degrees C).

After the liner has been cured, all existing active services shall be reconnected. All existing inactive services serving vacant or undeveloped properties shall be reconnected. The decision not to reconnect an existing service shall be approved by the City in writing through its Engineer.

Installer Experience

Sewer products are intended to be commercially proven and have a 50 year design life. For a Product to be considered commercially proven, a minimum of 500,000 linear feet or 4,000 line sections of successful wastewater collection system installations in the U.S. must have been completed. Documentation of such work must be provided to the Owner if requested.

Pipe Lining operations shall be performed by a Contractor who has constructed at least five (5) similar installations, which were constructed within (2) years of each other and have been in continuous successful operation for not less than five (5) years.

Any required sewer rehabilitation products submitted for approval must provide Third Party test results supporting the long term performance and structural strength of the product and such data shall be satisfactory to the Owner. Test samples shall be prepared so as to simulate installation methods and trauma of the product.

MEASUREMENT AND PAYMENT

Payment for Sewer Repair, Cured-In-Place Pipe shall be on the basis of a unit price per linear foot for liner actually placed. Payment for this work shall include all labor, materials and equipment necessary for the cleaning of the existing sewer; the control and bypassing of the sewage flow; the installation and curing of the liner; reopening of service connections and the televising and placement of the liner in service for post-construction survey documentation.

The following pay item number will apply to this section; as listed in the contract documents unit price pay item list:

Pay Item	Pay Unit
Sewer Repair, Cured-In-Place Pipe	Foot

CITY OF OWOSSO

SPECIAL PROVISION
FOR
SEWER REPAIR, OPEN-CUT

DESCRIPTION

This work shall consist of making repairs to the existing sanitary sewer system via open-cut excavation as directed by the Engineer where defects have been identified as needing immediate attention based on recent televising and inspection information. Work shall include excavating, furnishing, and backfill in accordance with Section 402, 403 and 404 of the 2012 MDOT Standard Specifications for Construction and special details as shown on the plans except as specified herein.

MATERIALS

The Contractor shall furnish all pipe and appurtenances and include all excavation, pipe removal, bedding, pipe installation, backfilling, connection sleeves, tee, bends, bulkheads, and all other work and materials required to repair existing sanitary sewers as noted in the plans. All material shall be certified by the manufacturer and meet requirements of MDOT, City of Owosso, and other standards herein identified.

Plastic sewer pipe shall meet or exceed ASTM D-3034 SDR-26 or ASTM D-2241 SDR-26 specifications for PVC integral gasket sewer pipe, for applicable pipe diameters.

Connections shall be made using a Fernco Connection, or approved equal, from existing pipe material to new PVC. Connections to existing manholes shall consist of neoprene rubber meeting ASTM C-443, with a minimum rubber thickness of 3/8 inch. Pipe bands/clamps shall be stainless steel.

The Contractor will be required to supply the Engineer with shop drawings and a certificate of compliance or actual test results stating that the material to be used is in conformance with the specifications prior to using the material for construction.

CONSTRUCTION METHODS

The construction methods used shall be as defined in Section 402, 403 and 404 of the 2012 MDOT Standard Specifications for Construction.

The Special Trench Detail shall be followed as shown on the plans and as directed by the Engineer with 6A stone from a minimum of 4 inches below the pipe extending to the top.

The Contractor shall match the existing grade of the pipe using laser equipment with each pipe laid on an even, firm bed so no uneven strain will come to any part of the pipe. The interior of

the sewer shall be cleaned of all dirt, jointing material and superfluous materials of every description. The Contractor will be held responsible for proper flow in the completed sewer repair.

No sewers shall be backfilled above the top of the pipe until the sewer elevations, gradient, alignment, and the pipe joints have been checked, inspected and approved by the construction observer.

MEASUREMENT AND PAYMENT

The completed work for open-cut sanitary sewer repair will be paid for at the contract unit prices for the following contract pay items.

Pay Item	Pay Unit
Sewer Repair, Open-Cut	Foot

Sewer Repair, Open-Cut will be measured by length in feet and will be paid for at the contract unit price per foot, which price shall be payment in full for all labor, material and equipment needed to accomplish this work.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
STORM SEWER SYSTEM

DESCRIPTION

This work consists of excavation, furnishing and placing storm sewer pipe, drainage structures, their appurtenances and trench backfill; in accordance with sections 402 and 403 of the Michigan Department of Transportation 2012 Standard Specifications for Construction; MDOT Standard Plan R1 and R83 as amended; special details as shown on the plans; except as herein modified.

MATERIALS

The Contractor shall furnish all pipe, manhole pieces and appurtenances. All material shall be certified by the manufacturer and meet requirements of MDOT, City of Owosso, and other standards herein identified:

1. Plastic Sewer Pipe:
   Plastic sewer pipe shall meet or exceed ASTM D-3034 SDR-26 or ASTM D-2241 SDR-26 specifications for PVC integral gasket sewer pipe, for applicable pipe diameters.

2. Concrete Sewer Pipe:
   Reinforced concrete pipe shall be ANSI/ASTM C-76 premium joint rubber O-ring gasket pipe. The class of reinforced concrete pipe shall be Roman numeral Class III, in accordance with AASHTO M 170, with depth of cover up to 16 feet. The class of reinforced concrete pipe shall be Roman Numeral Class IV, in accordance with AASHTO M 170, with depth of cover exceeding 16 feet.

3. Pipe Accessories:
   Fittings and branch connections shall be same material as pipe, molded or formed to meet pipe size and end design; in required tee, bends, elbows, reducers and other configurations as required to complete connections of pipe.

4. Drainage Structures:
   a) Structure material shall be reinforced, circular precast concrete pipe section, conforming to ASTM C-478. Cone section shall be eccentric type, tapered except for shallow conditions when the cone shall be ‘flat-top’ style with minimum depth of 12 inches.
   b) O-ring rubber gasket premium pipe joints shall be used at all connections.
   c) Connect branches to drainage structures with a flexible neoprene gasket with stainless steel band, as manufactured by either:
      1. Kor-N-Seal, by National Pollution Control Systems, Inc.
      2. Model PSX, by Press Seal Gasket Corp.
      3. Or equal, as approved by the engineer.

d) All drainage structure sections shall be constructed such that the top of the precast cone section shall have a minimum 3" high vertical sealing surface that is smooth and free of any form offsets or excessive honeycomb.
e) External chimney seals shall be installed on all drainage structures. External seals shall be the "X-85 Seal" as manufactured by Cretex Specialty Products. Internal seals, if required, shall be as recommended and manufactured by Cretex Specialty Products, or equal, as approved by the Engineer.
f) Manhole steps shall be plastic coated steel. The steps shall begin 1'-6" below top of casting, then spaced sixteen inches (16") apart, unless otherwise shown on the plans, and shall be pre-cast into the manhole wall. Plastic-coated steel steps shall consist of a 3/8-inch diameter deformed steel reinforcing rod covered with a co-polymer polypropylene plastic coating. The steel rod shall be grade 60 and conform to ASTM A-615. The plastic coating shall conform to ASTM 2146-68, Type II, Grade 49108. Steps shall also conform to the following standards:
    - Michigan Department of Labor Occupational Safety Standards, Part 3, Rule 341.
    - ASTM C-478.
    - OSHA 1910.27G.

5. Drainage Structure Chimney and Cover:
    a) The chimney (adjustment) portion of the drainage structure shall be constructed of brick, or block, and mortar in the area between top of cone and drainage structure cover. Brick shall be concrete conforming to requirements of ASTM C-55, Grade-N. Block shall be concrete conforming to requirements of ASTM C-139. All drainage structures shall be constructed to receive a chimney section, between three inches (3") and twelve inches (12") in vertical height. All masonry items shall be clean and thoroughly wetted by immersion, when practical to do so, prior to laying. If immersion is impractical, masonry items shall be thoroughly sprinkled before laying them. Each layer of brick shall be laid onto a full bed of mortar. Interior mortared joints shall be more than ¼-inch in depth. All brick, or block, shall be whole, except when cutting is necessary to complete closures.
    b) Adjusting rings may be used if approved prior to construction. Adjustment rings shall be pre-cast grade rings conforming to ASTM C-478 with an inner-diameter that is acceptable to the City of Owosso.
    c) After construction, the chimney shall be thoroughly coated inside and outside with non-shrinking mortar. After curing, the chimney shall then be externally sealed with "X-85 Seal" as manufactured by Cretex Specialty Products, or approved equal chimney seal product.
    d) The drainage structure cover, of type specified, shall be set upon a full bed of mortar. Nothing other than the chimney and mortar bed will be allowed to support the cover.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
STORM SEWER SYSTEM

CONSTRUCTION

Contractor shall furnish all labor and equipment necessary to install all pipe, drainage structures and appurtenances, and fill material, in accordance with sections 402 and 403 of the 2012 MDOT Standard Specifications for Construction; as shown on the plans and as specified herein:

1. Execution by Contractor:
    a) Existing pavements shall be cut back so that the opening is minimum 1 foot wider than the top edge of the trench, each side.
    b) Unless otherwise permitted by the Engineer, not more than 200 feet of trench shall be open at one time in advance of the sewer construction.
    c) Shall verify that the trench cut is ready to receive work; and that necessary excavation, dimensions, and elevations are as indicated on construction drawings.
    d) Shall hand-trim excavations to required elevations wherever necessary. Correct over excavation areas with specified bedding material.
    e) Remove large stones or other hard matter, as directed by the Engineer; that in his sole judgment could cause damage to pipe or impede consistent backfilling methods and compaction.
    f) Perform necessary excavation to receive pipe bells.
    g) Place bedding material at trench bottom in accordance with trench details in continuous layer fashion, not exceeding 6 inch compacted depth, and compacted to 95 percent of maximum unit weight.
    h) Maintain optimum moisture content of bedding material to attain required density.

2. General Installation of Pipe:
    a) Install pipe, fittings and accessories in accordance with ASTM C12 or ASTM C1479 for rigid pipe, or ASTM D2321 for plastic pipe, whichever specification applies for given material, in accordance to manufacturer's instructions. Joints are to be sealed and watertight.
    b) Use laser-beam alignment method by competent staff to lay pipe to proper line and grade

3. Pipe bedding and trench fill requirements for SDR-26 Plastic Pipe:
    a) Install bedding material, MDOT 6A stone, to a depth of ¼ outside pipe diameter, or 4 inches minimum, under the pipe.
    b) Place and compact first lift of same material, as used in bedding, to haunch of pipe.
    c) Place and compact second lift of same material, as used in bedding, to top of pipe.
    d) Place and compact third lift of same material as used in bedding, to a height 1 foot above pipe.
    e) Place geotextile blanket over full width of third lift. Geotextile blanket shall conform to material requirements of Section 910.03(A) of the MDOT Standard

Specifications for Construction. Approved material products for geotextile blanket for this work are:

1. Mirafi 180N
2. US Fabrics 205NW
3. Synthetic Industries 801 Non-Woven
4. Approved equal by Engineer

f) Place and compact Granular Material, Class-II, in lifts (12 inches maximum) to plan grade. Granular Material, Class-III may be used in areas outside the roadway.

4. Pipe bedding and trench fill requirements for Reinforced Concrete Pipe:
   a) Install Granular Material, Class-II, bedding material to a depth of ¼ outside pipe diameter, or 4 inches minimum, under the pipe.
   b) Place and compact first lift of same material, as used in bedding, to haunch of pipe.
   c) Place and compact second lift of same material, as used in bedding, to top of pipe.
   d) Place and compact third lift of same material as used in bedding, to a height 1 foot above pipe.
   e) Place and compact remaining lifts of Granular Material, Class II (12 inches maximum) to plan grade. Granular Material, Class-III may be used in areas outside the roadway.

5. Drainage Structures:
   a) Install according to manufacturer's instructions.
   b) Trim bottom of excavation clean and smooth to correct elevation for receiving bedding.
   c) Place 6 inches (minimum) MDOT 6A compacted crushed limestone bedding to grade for receiving precast bases. Should conditions warrant a field modification, a concrete footing shall be placed in lieu of the crushed limestone, as directed by the Engineer.
   d) Place reinforced concrete precast base to correct elevation.
   e) Connect all sewer connections in accordance with the construction plans. All stubs and sewer laterals shall be installed in accordance with respective bedding and trench fill requirements of these specifications.
   f) Install barrel section(s), cone section, chimney, frame and cover to required grade. Maximum chimney height is 12 inches. Frame to be set onto a full bed of mortar.
   g) Mortar chimney and area under frame with non-shrinking mortar mixture that meets or exceeds ASTM C 1107, R-3, and ASTM C 1107.

TESTING AND ACCEPTANCE

1. The specified pipe, manholes and appurtenances will be visually inspected. The Contractor shall furnish the city with reports of material certification from the manufacturer upon its delivery. Material certification shall include information that includes; date and location of manufacture, ASTM designation, including class and testing of lot number corresponding to certification report. The Contractor must receive visual acceptance of all materials before covering with backfill material. Failure to receive visual acceptance before backfilling will require exposing pipe and/or structures at contractor's expense.

2. All joints, connections, pipe, manholes and catch basins shall be water tight from infiltration as applicable to industry standards.

3. All joints in reinforced concrete pipe shall be driven home within a tolerance of ¼ inch. Any joints left open beyond this tolerance shall be properly sealed, as directed by the Engineer.

4. All joints in SDR-26 plastic pipe shall be properly seated.

5. Bedding and back filling operations will be tested for density in accordance with the MDOT 2012 Standard Specifications for Construction.

MEASUREMENT AND PAYMENT

The completed work as herein described will be measured and paid for at the contract unit price using the following contract items (pay items):

Pay Item	Pay Unit
Sewer, Storm, 12 inch, SDR-26, Special Trench Detail	Linear Foot
Sewer, Storm, 15 inch, SDR-26, Special Trench Detail	Linear Foot
Sewer, Storm, 24 inch, SDR-26, Special Trench Detail	Linear Foot
Dr Structure Cover, Type B	Each
Dr Structure Cover, Type G	Each
Dr Structure Cover, Type K	Each
Dr Structure, 24 inch dia, Catch Basin	Each
Dr Structure, 36 inch dia, Catch Basin	Each
Dr Structure, 48 inch dia, Catch Basin	Each
Dr Structure, 48 inch dia, Manhole	Each

Dr Structure, _ inch dia, Catch Basin applies to all storm sewer structures which include a standard sump depth of 24 inches.

Dr Structure, _ inch dia, Manhole applies to all storm sewer structures which do not include a standard sump of specified depth.

Storm sewer of various types, classes and diameters, shall be measured in place by length in linear feet and will be paid for at the contract unit price per foot which shall be payment in full for any excavation, sheeting or shoring trench walls as required, bedding, backfill, fittings, couplers, mechanical fasteners, filter fabric, support of existing utilities, bypass pumping, connecting to existing building leads, connecting to existing or proposed sewer; and all labor, material and equipment necessary to accomplish this work. Measures will be from center of structures, or terminating end, whichever applies.

Drainage structures of various types and diameters, shall be measured to bottom of foundation, in place to a maximum depth of eight feet; by the unit Each and will be paid for at the contract unit price per Each which shall be payment in full for any excavation, sheeting or shoring trench walls as required, bedding, backfill, concrete foundation and barrel sections, rubber seals, fittings, mechanical fasteners, filter fabric, support of existing utilities, bypass pumping, cone, connecting to existing building leads, connecting to existing or proposed sewer, adjusting blocks or rings, mortar, flexible neoprene gasket and stainless steel band; and all labor, material and equipment necessary to accomplish this work. The unit price for Drainage Structures of the various types and diameters includes the cost of concrete footing (if necessary) for depths no greater than 8 feet.

Dr Structure, ___ inch dia, Additional Depth:
This contract item shall be measured in place by depth of vertical feet from eight-foot depth (8’) to bottom of foundation and paid for at the contract unit price per vertical feet, in full, for any excavation, sheeting or shoring trench walls as required, bedding, backfill, concrete foundation and barrel sections, rubber seals, fittings, mechanical fasteners, filter fabric, support of existing utilities, bypass pumping, connecting to existing building leads, connecting to existing or proposed sewer, flexible neoprene gasket, stainless steel band; and all labor, material and equipment necessary to accomplish this work. The measure shall extend to bottom of concrete footing if constructed.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
DR STRUCTURE COLLAR, MODIFIED

DESCRIPTION

Around existing and proposed storm sewer, sanitary sewer, utility covers, and water main manholes within the paved surface, after the top course of HMA has been placed, the Contractor shall install concrete collar as described below. Work shall in accordance with Sections 403 & 601 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, or as modified herein.

MATERIALS

The materials shall be in accordance with Sections 403 and 601 of the MDOT 2012 Standard Specifications for Construction. Concrete shall be Grade P1 mixture. When approved by the Engineer, the concrete mix may be 7-9 sack mixture for quick cure.

CONSTRUCTION

The Contractor shall core the existing pavement full depth, centered on the drainage structure, remove loose material, remove drainage structure plate, install approved collar, trim collar to heights and slope, reinstall casting, and pour concrete to match road finished surface on new or existing drainage structures as described herein, and as shown in the plans.

Prior to installation of aggregate base, the top of the concrete structure adjustment grade rings or blocks shall be removed to the required elevation to accept the thermoplastic concrete form. The structure shall be located by witness and/or GPS to the center of the proposed cover location. The structure opening shall be temporarily plated and the roadway base and surface shall be constructed adjacent to and over the structure in a contiguous and homogenous manner to the surrounding road base and surface material. Density requirements over the structure plate for the aggregate base and HMA surface shall be the same as the surrounding material, pursuant to the specifications.

MEASUREMENT AND PAYMENT

The completed work as measured for Dr Structure Collar, Modified will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Pay Unit
Dr Structure Collar, Modified	Each

CITY OF OWOSSO

SPECIAL PROVISION
FOR
DR STRUCTURE COLLAR, MODIFIED

The work of Dr Structure Collar, Modified will be measured by the unit each and will be paid for at the contract unit price per each, which price shall be payment in full for all labor, material, and equipment necessary to accomplish this work. Adjustment of existing storm sewer, sanitary sewer, and water main structures will be paid for as Dr Structure Cover, Adj, Case _ along with Dr Structure Collar, Modified. Manholes that are installed new with this contract will not be paid for Dr Structure Cover, Adj, Case _, but this concrete collar will be required and will be paid for as Dr Structure Collar, Modified.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
STRUCTURE COVER, ADJ, CASE _, MODIFIED

DS:OHM 3/20/18

DESCRIPTION

Structure Covers shall be adjusted and meet the requirements of Section 403 of the 2012 Michigan Department of Transportation Standard Specifications for Construction except as herein specified.

MATERIALS

Materials shall be in accordance with Section 403 of the 2012 MDOT Standard Specifications for Construction.

Structure Cover, Adj, Case _, Modified applies to all structures regardless if the structures are for drainage, sanitary sewer, water main, or private utility.

Structure Cover, Adj, Case _, Modified includes payment for the rotation of the cone in sanitary sewer manhole locations that may conflict with proposed curb and gutter.

If private utility is involved, the contractor must coordinate all adjustments with the utility owner.

MEASUREMENT AND PAYMENT

The completed work as measured by Structure Cover, Adj, Case _, Modified will be paid for at the contract unit price for the following contract pay item, and shall include all labor, materials, coordination with utility owners, and equipment necessary to complete the work.

Pay Item	Pay Unit
Structure Cover, Adj, Case 1, Modified	Each
Structure Cover, Adj, Case 2, Modified	Each

The work includes if sanitary sewer manhole location requires the cone to be rotated

CITY OF OWOSSO

SPECIAL PROVISION
FOR
HMA, REPAIR

DESCRIPTION

This work shall be done in accordance with Section 302 and 501 of the Michigan Department of Transportation 2012 Standard Specifications for Construction and as specified herein.

MATERIALS

The material to be used for HMA, Repair shall be:

HMA, 2C, placed in one lift for 4.5" thick. Aggregate Base, if needed shall be 21AA crushed limestone. Existing base material and any added aggregate base shall be compacted in place to 95% Maximum Density.

CONSTRUCTION

Work shall include the furnishing, placement, grading, and compaction of HMA and/or aggregate to achieve the proposed section at the locations shown in plan.

MEASUREMENT AND PAYMENT

The completed work as measured for HMA, Repair will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Pay Unit
HMA, Repair	Square Yard

HMA, Repair shall be payment in full for material, labor, and equipment needed to accomplish the work.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
DRIVEWAY, NONREINF CONC, _ INCH, MODIFIED

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DESCRIPTION

This work shall consist of placing concrete driveways where shown on the plans or as directed by the Engineer and shall be in accordance with Sections 801 of the Michigan Department of Transportation 2012 Standard Specifications for Construction and as specified herein.

MATERIALS

The material to be used for concrete driveways shall be:

Concrete – Uniform, Grade P1, 6 Full Sack Mix, 3500 PSI, Air Entrained. Minimum of 4" Cl II sand base. Sand base shall meet requirements of Granular Material Class II, Section 902 of the MDOT 2012 Standard Specifications for Construction.

CONSTRUCTION

Driveway pay items shall include furnishing, placement, and compaction of the sand base prior to placing proposed driveway material. Work includes all excavation, compaction, sawing if required, proper placement of driveway material, and expansion material as required.

Concrete driveways shall be part width constructed where possible to allow access at all times. Any aggregate used to maintain access at concrete driveways shall be included in the driveway pay items and will not be paid for separately.

MEASUREMENT AND PAYMENT

The completed work as measured for concrete driveways will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Pay Unit
Driveway, Nonreinf Conc, 6 inch, Modified	Square Yard
Driveway, Nonreinf Conc, 9 inch, Modified	Square Yard

Item will be measured by area in square yards and will be paid for at the contract unit price per square yard which shall be payment in full for material, labor and equipment needed to accomplish the work, including furnishing, placing and compacting the sand base. Any placement, grading, compaction, and removal of aggregate used to maintain access at concrete drives will be included in the driveway pay items and will not be paid for separately.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
SIDEWALK, CONC, _ INCH, MODIFIED
SIDEWALK RAMP, CONC, _ INCH, MODIFIED

DESCRIPTION

This work shall consist of placing concrete sidewalk and concrete ramps where shown on the plans or as directed by the Engineer and shall be in accordance with Section 803 of the Michigan Department of Transportation 2012 Standard Specifications for Construction and as specified herein.

CONSTRUCTION=

Sidewalk and ramp pay items shall include furnishing, placement and compaction of the sand base to a minimum depth of 4 inches compacted in place, prior to concrete placement. Work includes all excavation, compaction, reinforcing steel, sawing if required, proper placement of sidewalk and ramp material and expansion material as required.

The material to be used for Sidewalk and Ramps shall be:

Concrete – Uniform, Grade P1, 6 Full Sack Mix, 3500 PSI, Air Entrained.
Sand base shall meet requirements of Granular Material Class II, Section 902 of the MDOT 2012 Standard Specifications for Construction.

MEASUREMENT AND PAYMENT

The completed work as measured for Sidewalk and Ramps will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Pay Unit
Sidewalk, Conc, 4 inch, Modified	Square Foot
Sidewalk, Conc, 6 inch, Modified	Square Foot
Sidewalk Ramp, Conc, 7 inch, Modified	Square Foot

Pay Items will be measured by area in square feet and will be paid for at the contract unit price per square foot which price shall be payment in full for material, labor, and equipment needed to accomplish the work including furnishing, placing, and compacting the sand base.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC

DESCRIPTION

Traffic shall be maintained by the Contractor throughout the project in accordance with Section 104.07, 104.11, 812 and 922 of the 2012 Michigan Department of Transportation Standard Specifications and in accordance with any Supplemental Specifications, the MDOT Maintaining Traffic Typicals and as specified herein. All traffic control devices shall conform to the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

The Contractor shall notify all emergency response, road commission, municipalities, school bus garages or other necessary agencies a minimum of three days prior to implementing the road closure.

The Contractor shall coordinate his operations with other Contractors or Utility owners performing work on other projects within or adjacent to the Construction Influence Area (CIA) or adjoining areas to avoid conflicts in maintenance of traffic, construction signing and to provide for the orderly progress of work.

The Contractor shall provide access at all times during construction for delivery trucks, garbage trucks, and any other service vehicles required to traverse and service businesses within the construction area.

The Michigan Department of Transportation (MDOT), the Shiawassee County Road Commission, and the City of Owosso maintenance crews and/or Contract Maintenance Agencies may perform maintenance work within or adjacent to the CIA. No additional payment will be made to the Contractor for the joint use of traffic control items.

CONSTRUCTION INFLUENCE AREA (CIA)

The CIA shall include the right of way of Gould Street, Monroe Street, and McMillan Road within the extents indicated on the plans, including all intersecting access, and as far as the advanced signing is required to accommodate all traffic control devices.

The Contractor shall notify the Engineer and property owners a minimum of 48 hours in advance of driveway work / closure. The Contractor shall maintain driveway access throughout the entire project during construction. Driveways that are to be removed and replaced shall be maintained and shall be constructed as part width.

The Contractor shall maintain pedestrian access throughout the entire project at all times during construction. Areas of sidewalk that are to be removed and replaced shall be maintained. Pedestrian access to all residences, churches, and businesses shall be allowed at all times.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC

The Contractor shall maintain access to all adjacent property locations at all times. Temporary ramps for sidewalk ramps and driveways shall be constructed as directed by the Engineer, and the cost shall be included in the Maintaining Traffic Pay Items.

Drums used shall be plastic drums only.
Barricades used to control traffic at night shall be lighted.
Signs shall be Type B temporary with a 7-foot bottom height, unless otherwise directed by the Engineer.
Gas powered arrow boards are prohibited.

Maintaining Traffic includes all additional work and materials necessary for traffic maintenance, utility maintenance and coordination, and maintenance during construction for all items of work.

TRAFFIC RESTRICTIONS

Changes or adjustments in the signing provided may be necessary as determined by the Engineer.

The Contractor shall schedule work between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday. No work is allowed outside these time periods. The Contractor shall coordinate work so that any necessary preliminary or closing operations are also done within these time periods.

No Work will be allowed from 3:00 pm on Friday, May 25, 2018 through 7:00 am on Tuesday, May 29, 2018 (Memorial Day), from 3:00 pm Tuesday, July 3, 2018 through 7:00 am on Thursday, July 5, and from 3:00 pm on Friday, August 31, 2018 through 7:00am on Tuesday, September 4, 2018 (Labor Day).

Traffic shall be maintained in accordance to the following MDOT Maintaining Traffic Typicals while impacting traffic within MDOT ROW:

- WZD-100-a
- WZD-125-e
- M0020a
- M0140a

All local noise and dust control ordinances shall apply to this project.

STAGE CONSTRUCTION

For all stages of construction on McMillan Road, Gould Street, and Monroe Street, the Contractor shall pave the new pavement surface up the leveling course. Mainline paving of the HMA, 5E3 wearing course shall occur after Stages 1, 2, 2A, and 2B are complete. The contractor shall coordinate maintenance of traffic in accordance with the 2012 Michigan Department of Transportation Standard Specification and as approved by the engineer for the paving of the wearing course.

Temporary traffic lanes shall be 10' minimum with a 2' shy distance between the construction limits and traffic. Payment for Maintenance Gravel is provided for the contractor to maintain a 10' temporary lane minimum at all times.

Stage 1

The traffic control required by this Special Provision for work on McMillan Road is based on a suggested full road closure with advanced signing and a detour route for roadway users as contained in the Maintenance of Traffic plans. An alternate traffic control plan may be used by the Contractor, subject to review and written approval by the Engineer.

During Stage 1, no traffic shall be allowed to enter McMillan Road from the north via Monroe Street. Local traffic on McMillan Road must enter from the south. A detour route as depicted on page 27 of the Industrial Park Connector plans suggests westbound traffic on Cornell Road to turn left on Aiken Road and then turn right on South Street where the detour ends. Eastbound traffic on Monroe Street shall not be allowed to turn right on McMillan and shall be detoured to Aiken Road and then right to South Street. Traffic on Farr Street is not allowed to access McMillan Road.

Stage 2

The traffic control required by this Special Provision for work on Gould Street is based on a suggested full road closure with advanced signing. The traffic control required by this Special Provision for work on Monroe Street is based on a suggested part-width road closure with advanced signing. A detour route for roadway users of both Gould Street and Monroe Street is shown on page 28 of the Industrial Park Connector Plans. An alternate traffic control plan may be used by the Contractor, subject to review and written approval by the Engineer.

During Stage 2, no traffic shall be allowed to enter Gould Street from the south. Local business traffic is allowed to access Gould Street from the north. Westbound traffic shall not be allowed

on Monroe Street from Aiken Road to Lincoln Avenue. Eastbound traffic shall be allowed on Monroe Street. More details on eastbound traffic shall be covered in Stage 2A and Stage 2B of this Special Provision.

Westbound Monroe Street traffic shall be detoured on Cornell Road to turn north on Legion Road, and then west on Corunna Avenue (M-71) to Washington Street. After turning left on Washington Street, the detour ends at the Washington Street and Monroe Street intersection.

Northbound Aiken Road traffic wishing to access westbound Monroe Street shall be detoured onto Cornell Road and shall follow the aforementioned detour route.

Southbound Gould Street traffic wishing to access Monroe Street shall be advised to turn either right or left to follow that portion of the detour route.

Eastbound and westbound Corunna Avenue (M-71) traffic wishing to access Gould Street from the north shall be advised to continue along the respective portions of the detour route. Eastbound Corunna Avenue (M-71) detour limits end at the Legion Road and Cornell Road intersection. Westbound Corunna Avenue (M-71) detour limits end at the Washington Street and Monroe Street intersection.

Stage 2A

The traffic control required by this Special Provision for work on Monroe Street is based on a suggested part-width closure with advanced signing and a detour route for roadway users as contained in the Maintenance of Traffic plans. Please reference the 2-lane 2-way 1-lane closure (MDOT Typical M0140a) although traffic regulators shall not be necessary.

The maintenance of traffic plan (Stage 2A) for Monroe Street is shown on page 29 of the Industrial Park Connector Plans. The plan includes advanced signing, plastic drum placement, lighted arrow placement, barricade placement, temporary pavement markings, and traffic flow depictions. The south half of Monroe Street, as defined by the limits of this project, shall be reconstructed up to the new crown point. Eastbound traffic shall be shifted to and from the northern half of the existing Monroe Street pavement within the project limits in accordance with the MDOT Maintaining Traffic Typicals mentioned in this Special Provision and as shown on the plans. During Stage 2A, westbound traffic is not allowed within the construction area of Monroe Street at any time and shall follow the Stage 2 detour plan.

Stage 2B

Stage 2B is shown on page 30 of the Industrial Park Connector Plans. With the southern half of Monroe Street constructed, eastbound traffic shall follow the designated lane as shown in the maintenance of traffic plan with no traffic shifting. The plan includes advanced signing, plastic drum placement, lighted arrow placement, barricade placement, temporary pavement markings, and traffic flow depictions. Construction on Gould Street and the northern half of Monroe Street up to the crown point shall occur at this time. Eastbound traffic shall not shift but the constructed 13' lane will be narrowed to ±11' to accommodate a 2' shy distance. During Stage 2B, westbound traffic is not allowed within the construction area of Monroe Street at any time and shall follow the Stage 2 detour plan.

MEASUREMENT AND PAYMENT

Payment for Maintaining Traffic shall be in accordance with Section 812 of the Michigan Department of Transportation 2012 Standards for Construction for the work items listed on the plans and in the proposal, which shall be payment in full for all labor, material, and equipment needed to accomplish this work.

Payment for part-width construction of Monroe Street and all associated labor, material, and equipment needed to accomplish this work is included in the individual contract pay items and will not be paid for separately.

Payment for Temporary Signs, Lighted Arrows, Plastic Drums, and Barricades shall be made based on the maximum quantity in place at any one time as determined by the Engineer for the entire project. Moving of units from one location to another is considered included in the appropriate pay item.

Any additional signing or maintaining traffic devices required to expedite the construction of facilitate the Contractor's operations shall be at the Contractor's expense.

CITY OF OWOSSO

SPECIAL PROVISION
FOR
TURF ESTABLISHMENT, PERFORMANCE

DESCRIPTION

Section 816 of the Standard Specifications for Construction is deleted and replaced by this special provision. The Contractor shall be responsible for the performance and quality of turf growth in the areas indicated on the plans and as identified by the Engineer. The Contractor shall comply with all state and federal laws and regulations in completing this work.

The Contractor shall establish a durable, permanent, weed-free, mature, perennial turf. The work consists of fundamental turf work, including but not limited to topsoiling, seeding, mulching, erosion control, maintenance, and repair of turf as described herein during the life of the contract.

The Contractor shall choose and implement proven turf establishment industry practices; provide all necessary labor and equipment; select and provide all turf establishment materials; and control erosion and any subsequent sedimentation at all times.

The Contractor shall be responsible for a site analysis and its interpretation for their own use to ensure compliance with this specification. The site analysis will take into consideration topsoil needs, fertilizer and pH requirements, seed mix, existing and future soil moisture levels, slopes and grades, required erosion control items and devices, maintenance requirements, local highway snow deicing practices, and any other characteristics that influence and affect turf establishment.

Section 107.11 of the Standard Specifications for Construction is revised relative to the Contractor's responsibility for the repair of turf establishment work as follows. The Contractor shall be responsible, at no additional cost to the contract, for the repair of turf establishment work occasioned by storm events up to and including 3 inches of rain in a 24 hour period as documented by local meteorological data submitted to the Engineer for review and approval. All other portions of Section 107.11 remain unchanged.

1. Contractor Turf Establishment Experience Requirements.

   The Contractor shall possess valid Michigan Department of Agriculture commercial pesticide applicator's certificate for right-of-way category.

   All herbicide applications shall be made by a commercial applicator licensed in the State of Michigan. All individuals applying pesticides shall possess a valid Michigan Department of Agriculture commercial pesticide applicator's certificate for the appropriate category. All application procedures and materials shall meet all federal, state and local regulations.

At least 10 days prior to start of turf establishment, the Contractor performing the turf establishment work shall provide the Engineer with documentation that they will meet one or both of the following requirements.

A. At least one person employed by the Contractor and assigned to the job site shall have a degree or certificate in Turf Management, Horticulture, or related field.

B. At least one person employed by the Contractor and assigned to the job site shall have at least five (5) years of experience in roadside turf establishment.

MATERIALS

The Contractor shall use topsoil, seed, mulch, pesticide, herbicide and/or mulch blankets and any other unique erosion control materials as necessary to fulfill this specification, as detailed in the plans, and as indicated in the work plan. The Contractor may use additional materials as necessary to meet the standards set forth for turf establishment in this special provision. The use of any sod on the project requires the prior approval of the Engineer and if approved, may be used at limited site locations only.

Selection of all materials is the responsibility of the Contractor with the following minimum conditions.

1. Soil. The Contractor shall provide furnished or salvaged topsoil which may be blended compost that will provide vigorous growth. It shall be humus bearing and of not less than four inches in depth. It shall be free of stones larger than 1 inch in diameter and other debris. The finished slope shall be trimmed and graded according to subsection 205.03.N of the Standard Specifications for Construction.

2. Seed. The Contractor shall use a seeding mixture that is composed of a blend of four or more species of perennial grass. All species and their cultivars or varieties shall be guaranteed hardy for Michigan

   The following is a list of recommended species of perennial grasses: Kentucky Bluegrass, Perennial Ryegrass, Hard Fescue, Creeping Red Fescue, Chewings Fescue, Turf-type Tall Fescue, Buffalo Grass, and Alkaligrass-Fults Puccinellia distans. The cultivars or varieties of grasses selected shall be disease and insect resistant and good color. No one species in the blend shall be more than 25 percent of the mixture by weight. No one species in the blend shall be less than 5 percent of the mixture by weight. No grass species selected shall be considered noxious or objectionable, such as Quack Grass, Smooth Brome, Orchard Grass, Reed Canary Grass, and others.

A. The seed shall be legally saleable in Michigan. The seed product shall not contain more than 10 percent inert materials. The seed source shall be from an Michigan Department of Transportation approved certified vendor.

B. The species and varieties of seed shall be adapted to all site conditions, to the site use, and to the soils, moisture, and local climate. Site use may include but is not limited to detention pond, wildlife habitat, playground, wetlands, forested wetland, rural roadside, urban roadside and highly maintained front yard.

C. At least two of the species in the mixture proposed to be planted within fifteen (15) feet behind the curb or the shoulder shall be salt tolerant.

3. Mulch. Seeded areas shall be mulched with the appropriate materials for the site conditions, shall promote germination and growth of seed and to mitigate soil erosion and sedimentation.

4. Herbicides. The Contractor shall comply with all federal, state and local laws as noted in the standard specifications, Section 107. A weed control application will require the Contractor to make proper notifications and/or postings as per label and MDA requirements for all locations that will be sprayed. The Contractor will also notify selected Engineer staff 48 hours prior to any applications being made. The Contractor shall furnish and apply herbicide(s) as needed. It shall be the Contractor's responsibility to select the herbicide(s) and the rate at which it will be used. The work and herbicide(s) shall be approved by the Engineer prior to the application of the material. A spray log will be required to be completed and submitted to the project office, each day an application is made.

   No water shall be drawn from any waterway (i.e. river, ditch, creek, lake etc.) that is located on any state, county or municipal right-of-way, for mixing with herbicides.

5. Fertilizers. The Contractor shall furnish and apply fertilizer(s) as needed. It shall be the Contractor's responsibility to select the fertilizer(s) and the rate at which it will be used. The work and fertilizer(s) shall be approved by the Engineer prior to the application of the material.

6. Water. The Contractor shall furnish and apply water from an approved source as specified in the work plan at a rate of promote healthy growth.

CONSTRUCTION

The Contractor shall be responsible for all work and any and all construction methods used in completing this work. Any part of MDOT standard specifications or standard plans chosen to be implemented by the Contractor shall not imply responsibility on the part of the Engineer or Owner for acceptability of the Contractor's construction methods or for the quality of the Contractor's work outcome at any time.

1. Inspection of the work. The Contractor shall be responsible for all inspection of turf establishment work.

   The Contractor shall use a Contractor's Daily Report approved by the Engineer to report inspections made and to document turf establishment work performed on this project. The Contractor's Daily Report shall be completed and submitted to the Engineer when any work performed under this special provision is in progress.

   The Contractor's Daily Report shall be accompanied by all necessary materials documentation including tests slips, certifications, etc.

   The Engineer shall determine the acceptability of these reports in terms of their completeness and accuracy. The Engineer reserves the right to verify all submitted measurements and computations. Failure by the Contractor to submit acceptable and timely reports to the Engineer may result in withholding of progress pay estimates on turf-related items until such time as reports are submitted in an acceptable and timely fashion.

   The Engineer reserves the right to inspect the project for any reason in accordance with subsection 104.01 of the Standard Specifications for Construction, including the fulfillment of other inspection requirements such as soil erosion and sedimentation control, NPDES, etc. These inspections made by the Engineer shall not relieve the Contractor of the inspections required by this special provision or the Contractor's responsibilities for erosion control and turf establishment.

2. Erosion Control. Erosion shall be controlled at all times according to Section 208 of the standard specifications. Control of soil erosion is the responsibility of the Contractor. However, sedimentation controls shall be placed as indicated on the plans or as directed by the Engineer. The site shall be continuously monitored by the Contractor for needed erosion repair from any cause as addressed in the contract documents. All eroded areas shall be returned to their original grade as detailed in the contract documents.

If sedimentation occurs in drainage structures or any watercourse or water containment area, corrective action shall be taken immediately and all disturbed areas contributing to this sedimentation shall be restored within 24 hours of erosion occurrence. Sediment deposited as a result of the Contractor's inability to control the soil erosion shall be removed at the Contractor's expense.

The Contractor shall reimburse the Owner for any costs levied against the Owner, such as fines, environmental costs, costs for remedies required, or any other costs as a result of the Contractor's failure to comply with this specification and with all federal, state, and local laws.

3. Erosion Repair. The Contractor is responsible for all repair and liable for all consequences (legal, monetary, or other) associated with erosion or sedimentation damage to finished or unfinished work.

   All erosion occurrences and the repairs made by the Contractor shall be reported to the Engineer in the format and at the frequency required by the Engineer. Any erosion, displacement, or disturbance to ongoing or completed work by any cause shall be repaired by the Contractor at no additional cost to the contract unless otherwise noted herein.

   The Contractor shall be responsible and liable for all traffic control and safety measures required to repair and protect damaged turf areas. Any eroded area that may affect the support of the roadbed or safety of the public shall be repaired within 24 hours of the erosion occurrence.

   Protection devices such as barriers, directional sign/signals, temporary fence, or any other safety measures shall be placed by the Contractor immediately after any erosion damage occurs that has the potential of endangering the public. In these instances, the Contractor shall, within 24 hours of the occurrence of the damage, provide the Engineer with a written summary of the immediate action taken and describing the repairs made and the safety measures taken.

4. Final Acceptance. Before final acceptance of the turf establishment work, all of the following minimum parameters shall be met throughout all exposed areas of the project designated on the plans or identified by the Engineer as turf establishment areas. There shall be no exposed bare soil and the turf shall be fully germinated, erosion free, weed free, disease free, dark green in color and in a vigorous growing condition.

   The Engineer will notify the Contractor of the dates and times of all acceptance inspections. The Contractor may accompany the Engineer while these inspections are

being made. If the Contractor does not agree with the decision made by the Engineer, the Contractor can request an inspection by a mutually agreed upon third party (Michigan State University Extension service or other). A joint inspection, including the Engineer, the Contractor, and the third party, will be scheduled. All expert fees and expenses charged by the third party will be paid by the Contractor.

Any and all claims for extra compensation shall be according to subsection 104.09 of the Standard Specifications.

MEASUREMENT AND PAYMENT

The completed work as measured will be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Pay Unit
Turf Establishment, Performance	Square Yard

Turf Establishment, Performance shall be measured in place by area in square yards. All materials, labor, and equipment required or selected by the Contractor to install, maintain, inspect, repair, and meet the acceptance parameters for turf establishment specified in this special provision, including preparation, updating, and submittal of the Contractor's work plan and Contractor's Daily Reports, will not be paid separately but will be considered included in the contract unit price bid for Turf Establishment, Performance.

The following schedule of payment applies to work performed according to this special provision. Upon completion of topsoil surfacing stage, fifty percent of the authorized amount for Turf Establishment, Performance will be paid to the Contractor. The remaining authorized amount will be paid upon completion of all other work necessary to comply with this special provision and to meet all final acceptance parameters for Turf Establishment, Performance.