

**GENERAL SPECIFICATIONS**

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## GENERAL SPECIFICATIONS

### 1. INTENT

It is the intention of these General Specifications to describe work, which may be performed or required, on the various storm drains, sewer, water main or structure projects.

### 2. PUMPING AND DRAINING

- a. The Contractor shall provide and maintain adequate pumping and drainage facilities for removal and disposal of water from drains, sewers, trenches or other excavations. He shall also provide pumping and drainage facilities for bulkheaded drain and sewer sections, and shall operate same as may be necessary until bulkheads have been removed or construction completed if bulkheads are to be left in place.
- b. Where the work is in ground containing an excessive amount of water, the Contractor shall provide, install, maintain, and operate suitable well points, deep wells, connecting manifolds or other methods, and reliable pumping equipment to operate same to insure proper construction of the work.
- c. When pumping equipment and/or generators are placed within populated areas, the equipment shall be adequately muffled. The Owner will require the construction of temporary barriers to isolate noisy equipment. Temporary barriers shall be 4 feet above highest part of generator.
- d. Drainage or discharge lines shall be connected to adjacent public storm water drains or extended to nearby watercourses whenever possible. Without exception, written permission must be obtained to traverse private property. All pumping and drainage shall be done without damage to any highway or other property, public or private, or to the environment, without interference with the rights of the public or private property owners. If it should become necessary to lay pipe in water, the Engineer must approve the method of installation.
- e. The Contractor shall receive no extra compensation for providing, maintaining, or operating dewatering or drainage facilities.

### 3. SHEETING, SHORING AND BRACING

- a. Excavations shall be sheeted and braced as necessary to insure substantial completion of the work and/or to insure the safety of the workmen or the public or to protect adjoining structures.
- b. No extra compensation shall be paid the Contractor for sheeting or bracing left in place, unless ordered left in place by the Engineer and then only a fair salvage value for material left in place shall be paid. The Contractor shall receive no extra compensation for sheeting or bracing left in place in tunnels.

### 4. DISPOSAL OF EXCAVATED MATERIAL

With the exception of an amount of excavated materials sufficient for backfilling and construction of fills as called for on the plans, the Contractor shall dispose of all broken concrete, stone and excess excavated materials. The Contractor will be required to obtain his own disposal ground, and will receive no extra compensation for disposing of any of the excess materials.

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### 5. SOIL CONDITIONS

- a. Borings may have been made by the Owner at the points indicated on the plans. This information is given to bidders as an aid in the determination of the character of the soil. The Owner does not guarantee, however, that the ground encountered during construction will conform to these borings and the bidders should secure such other information, as they consider necessary to check and supplement the above data.
- b. The Contractor shall assume all risk and responsibility and shall complete the work in whatever materials, and under whatever conditions he may encounter or create without extra cost to the Owner.

### 6. TREES

- a. The Contractor shall preserve and protect all trees along the line of his work except where specified herein to be removed and not replaced, and shall assume all risk and responsibility for any damage to trees which he may cause or create as the result of his operations under this Contract, for a period of one year.
- b. The Contractor will receive no extra compensation for preservation or protection of trees; for removal, disposal, replacement, trimming, or repair of damaged trees; or for other treatment specified herein except where noted.
- c. All work affecting all trees shall be done using the best nursery practice of the industry. Any trees, roots, trimmings and stumps which are removed during performance of contract work shall be disposed of in a manner acceptable to the Engineer, or as specified in the contract documents. Burial of trees or tree related refuse in the backfill of any excavation for contract work shall be expressly prohibited. All diseased trees or diseased tree related refuse, and all Ash or Elm trees or Ash or Elm tree related refuse shall be disposed of by burning or by other methods approved by the Michigan Department of Agriculture.
- d. Trees along the line of the work affected by the Contractor's operations which die, or trees planted by the Contractor which die, shall be removed completely by the Contractor and replaced as specified by Paragraph h. (4) below entitled, "REMOVE - REPLACE". Trees planted by the Contractor shall be guaranteed for one (1) year.
- e. Contract work affecting trees located within the public right-of-way (dedicated or assumed) under the jurisdiction of the Road Commission for Oakland County, the Michigan Department of Transportation or of the municipality shall be governed by the requirements of the construction or forestry permits issued by these respective agencies.
- f. In some instances it may be policy of municipalities or other governmental agencies to issue permits which specify requirements of contract work affecting trees. Requirements of such permits shall govern within the geographic boundaries established by the permit.
- g. The Contractor shall conduct and control his operations in accordance with the following specific requirements where trees are encountered in the performance of all contract work. Where such requirements differ from those specified by permits issued by the Road Commission for Oakland County, by the Michigan Department of Transportation, by municipalities or other governmental agencies, permit requirements shall govern.

## GENERAL SPECIFICATIONS

### 6. TREES (continued)

- (1) **Permanent Easement** - Trees may be removed unless otherwise indicated on the Contract Drawings, Easement Conditions or in the Supplemental Specifications.
- (2) **Temporary Construction Easement** - Trees in wooded areas shall not be clear-cut. Trees four (4) inches in diameter and smaller may be removed unless otherwise indicated on the Contract Drawings, Easement Conditions or in the Supplemental Specifications. Trees larger than four (4) inches in diameter may be removed, if necessary, unless otherwise indicated on the Contract Drawings, Easement Conditions or in the Supplemental Specifications, and only with prior approval of the Engineer.
- (3) **Private or Public Road Right-of-Way** - Trees located at a distance ten (10) feet or less from the centerline of construction may be removed unless otherwise indicated on the Contract Drawings, Easement Conditions in the Supplemental Specifications, or by governing permit.

Trees located more than ten (10) feet from the centerline of construction shall not be clear-cut. Trees four (4) inches in diameter and smaller may be removed unless otherwise indicated on the Contract Drawings, Easement Conditions, in the Supplemental Specifications, or by governing permit. Trees larger than four (4) inches in diameter may be removed, if necessary, unless otherwise indicated on the Contract Drawings, Easement Conditions, in the Supplemental Specifications, or by governing permit, and only with prior approval of the Engineer.

#### h. Definition and Application of Terms

- (1) Tree size is to be expressed as its diameter measured 3 feet from the ground.
- (2) Where the term "REMOVE" is indicated to apply to a specific tree, the Contractor shall remove the tree completely, including the stump.
- (3) Where the term "PRESERVE AND PROTECT - CONDITIONAL REMOVE" is indicated to apply to a specific tree, the Contractor may work around such tree and preserve and protect it from damage; or may remove such tree completely. If such tree is removed, the Contractor shall pay to the Property Owner the dollar amount set forth on the Contract Drawings or in the Supplemental Specifications. Should this payment not be made within 30 days, such dollar amount will be deducted from any monies due the Contractor on a subsequent regular construction estimate.
- (4) Where the term "REMOVE - REPLACE" is indicated to apply to a specific tree, the Contractor shall remove the tree completely and plant a replacement tree. The selection of the replacement tree shall be governed by the following, appropriate condition:
  - (a) The type and size tree noted on the plans or in the Supplemental Specifications.

## GENERAL SPECIFICATIONS

### 6. TREES (continued)

- (b) A comparable quality tree at least two (2) inches in diameter from nursery stock acceptable to the Engineer.
- (c) The specific tree removed, if proper precautions are taken to prevent damage or permanent injury to the tree.
- (5) Where the term "SAVE" is indicated to apply to a specific tree, the Contractor shall work around such tree and shall preserve and protect it from damage.
- (6) Where the term "SAVE - TUNNEL" is indicated to apply to a specific tree, the Contractor shall tunnel or bore such tree.

#### i. Open Cut Excavation of Trees

- (1) Trees four (4) inches in diameter and smaller may be removed and replanted if proper precautions are taken to prevent damage or permanent injury to the tree.
- (2) Trees eight (8) inches in diameter and smaller should not be open cut closer than four (4) feet as measured from the center of the tree to the nearest point of open cut or excavation. Undermining of the root structure or disturbance to the soil closer than four (4) feet for the total depth of open cut or excavation should be avoided.
- (3) Trees larger than eight (8) inches in diameter and smaller than twenty-four (24) inches in diameter should not be open cut closer than the radius of the main trunk in inches multiplied by one (1) foot. For example, a twelve (12) inch diameter tree should not be open cut closer than six (6) feet. The controlling distance shall be measured from the center of the main trunk to the nearest point of open cut or excavation. Undermining of the root structure or disturbance of the soil closer than the controlling distance for the total depth of open cut or excavation should be avoided.
- (4) Trees twenty-four (24) inches in diameter through thirty-six (36) inches in diameter should not be open cut closer than twelve (12) feet. The controlling distance shall be measured from the center of the main trunk to the nearest point of open cut or excavation. Undermining of the root structure or disturbance to the soil closer than the controlling distance for the total depth of open cut or excavation should be avoided.
- (5) Trees larger than thirty-six (36) inches in diameter should not be cut closer than one-third (1/3) the diameter of the main trunk in inches multiplied by one (1) foot. For example, a forty-two (42) inch diameter tree should not be open cut closer than fourteen (14) feet. The controlling distance shall be measured from the center of the main trunk to the nearest point of open cut or excavation. Undermining of the root structure or disturbance for the total depth of open cut or excavation should be avoided.

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### 6. TREES (continued)

#### j. Tunnels or Bores of Trees

- (1) Tunnels or bores under or adjacent to trees shall begin and end at points which fall outside a radius measured from the center of the tree equal to the radius of the main trunk in inches multiplied by one (1) foot plus one half the depth of open cut or excavation. In addition, the open cut or excavation at tunnel or bore and points should not be closer than the distance for open cut specified above under Paragraph i.
- (2) Tunnels or bores shall be constructed using structural liners to support the mined earth. Premined, unsupported, earth tunnels or bores shall be expressly prohibited.

#### k. Removal of Trees

Where trees are removed, the Contractor shall remove the tree, completely, including the stump and main roots.

#### l. Filling Under and Around Trees

Permanent placement of earth fill above existing ground level, under or around any existing tree, without the prior consent of the Engineer, should be avoided. Damage to trees may result from permanent placement of fill materials on the existing ground surface, and over the root system.

### 7. WORKING SPACE

- a. In his operations, the Contractor shall interfere as little as possible with traffic, and in all cases, shall confine his operations to the minimum space possible.
- b. Stockpiling of construction material and equipment will be permitted as necessary; but in no case shall traveled ways, driveways, or entrances be obstructed, without the approval of the Engineer.
- c. Should the Contractor desire space on private property, he may obtain such space on privately owned property at his own expense, by written agreement with the property owner thereof.
- d. The Contractor shall confine his operations to within public streets and/or certain permanent or temporary easements acquired by the Owner. Without exception, written permission must be obtained prior to traversing private property. Failure to meet these requirements will result in an immediate order to suspend operations related to trespass in accordance with Section 5A of the General Conditions. The Contractor shall be fully responsible for damages caused by his trespass. In all cases the Contractor shall take immediate steps to remove material and equipment from the trespassed area, and to make restitution for damages to the affected property owner(s). In the event of the Contractor's failure to comply with these provisions within seven (7) days, the Owner may with or without notice, cause the same to be done, and will deduct the cost of such work from any money due or to become due the Contractor under this Contract, but the performance of such work by the Owner, or at his insistence, shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.

**GENERAL SPECIFICATIONS**

**8. FINAL CLEANUP AND RESTORATION**

- a. Upon completion of construction and before final payment is made the Contractor shall properly restore all disturbed areas to original or better condition as existed before his operations were started. He shall go over the entire line and refill any places that may have settled. He shall then regrade all backfilled trenches, all fills he may have made from excess excavated materials, and all other areas that may have been disturbed through his operations.
- b. The Contractor shall restore the job site to substantially the same condition as existed prior to beginning of work. All topsoil in the area of the excavation or in any area, which will be disturbed by construction, shall be excavated and stockpiled. After backfilling is completed and settlement has taken place, the topsoil shall be replaced. Topsoil removal, stockpiling, replacement and seeding as necessary, shall be as directed by the Engineer.
- c. Minimum seeding requirement shall be MDOT "Roadside" Mixture.
- d. Where the Contractor has disturbed lawn area, he shall then bring all areas to be seeded to an acceptable subgrade, and shall then apply three inches (3") of "quality" topsoil acceptable to the engineer to attain finished grade.

"Quality" topsoil shall be defined as a loose black colored soil suitable for the growth of grass seed, obtained from the upper layer of an existing soil, free of limbs, twigs, rocks, stones, roots and debris, etc., containing organic matter rich in nutrients, with negligible clay content.

Prior to applying seed, all topsoil shall be brought to a friable condition conducive to receive the seed. All lumps and clods, etc. shall be thoroughly broken, crushed or removed. If the friable condition of the topsoil is lost through compaction or crusting due to rain, equipment movement, etc. prior to seeding, the seedbed shall again be made friable by raking, disking, etc. before applying the seed.

The Contractor shall then apply seed and fertilizer in accordance with the following table:

<b>Location</b>	<b>Seeding Requirement</b>	<b>Fertilizer Requirement</b>
Maintained Lawn Areas	MDOT "Class A" Mix (30% Perennial Rye, 30%; Kentucky Blue, 40% Red Fescue) applied at 100 lbs./acre	600 lbs./acre of 10-6-6
Fields, Slopes & Ditch Banks, Etc.	MDOT "Roadside" Mix (50% Perennial Rye, 15% Kentucky Blue, 35% Red Fescue) applied at 100 lbs./acre	600 lbs./acre of 10-6-6

The Contractor shall then mulch all seeded areas with unweathered small grain straw, applied at the rate of 2-3 bales/1000 sq. ft. The mulch shall be anchored in place with biodegradable netting with openings not to exceed 1 1/2 inches x 3 inches, and a minimum roll width of 35 inches. It shall be anchored with wood pegs at least 6 inches long.

The Contractor shall be responsible to insure the growth of all seeded areas and shall reseed as necessary, at his expense, to accomplish this end.

The basis for payment for seed restoration shall be 50% upon the completion of the initial seeding, with the remaining 50% being paid upon establishment of a dense lawn of permanent grasses to the satisfaction of the engineer.

## GENERAL SPECIFICATIONS

### 8. FINAL CLEANUP AND RESTORATION (continued)

- e. The Contractor may restore areas disturbed by his operations with sod conforming to MDOT 2003 Specifications Section 917.13 instead of seed, with the approval of the Engineer. In addition, sod shall be placed where called for on the Contract Drawings or Supplemental Specifications. Sod shall be placed on a prepared bed of 2" of "quality" topsoil. On slopes steeper than 1 vertical to 3 horizontal, the sod shall be pegged with wooden pegs or wire stakes driven flush with the surface of the sod. Sod placed by the Contractor shall match existing lawn.

The basis for payment for sod restoration shall be 50% upon completion of initial sodding, with the remaining 50% being paid upon establishment of a dense lawn of permanent grasses to the satisfaction of the engineers.

- f. If any special landscaped area is disturbed, because of the operations of the Contractor, it shall be reasonably restored to its original condition by the Contractor, or as specified in easement conditions or the contract documents.
- g. Seeding or sodding, as may be required by Road Permits, shall be done in accordance with requirements of governing body issuing said Road Permits.
- h. Final cleanup and restoration work shall be commenced and completed as soon as possible. The work must be done so as to assure that no disturbed areas exist within 1,000 feet behind pipe laying and/or within 30 days after pipe laying, whichever is less. The above shall apply exclusive of the time period from **December 1** to **April 1**. The Contractor shall maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.
- i. If, in the opinion of the Engineer, work has not progressed in a reasonable manner, he shall have the right to direct the Contractor to proceed with the work or any portion thereof immediately. In the event that the Contractor does not proceed with the work immediately, as directed by the Engineer, the Engineer may order any or all other operations of the Contractor, under this Contract, to cease until the final cleanup and restoration work is proceeding in an acceptable manner. Should the Contractor fail to comply with these provisions, the owner may with or without notice cause the required restoration and cleanup to be done by the owner or others and will deduct the cost of said work from any money due or to become due the Contractor under this Contract. The performance of such work by the owner or others shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.

### 9. EXISTING STRUCTURES AND UTILITIES

The location of existing public and/or private underground structures and utilities shown on the plans is in accordance with the best information available. No guarantee is given or implied that the locations are absolutely accurate or that underground structures or utilities other than those shown are not present. The Contractor shall uncover such structures and/or utilities for a reasonable distance ahead of his pipe laying operations to permit accurate location of such facilities, and to permit field corrections in grade and/or alignment to be made where necessary.

## GENERAL SPECIFICATIONS

### 10. PUBLIC AND PRIVATE UTILITIES - ROAD PERMITS

- a. **Utilities** - Where any utilities, water, sewer, gas, telephone or any other either public or private, are encountered, the Contractor must provide adequate protection for them and he will be held responsible for any damages to such utilities arising from his operations.
- (1) When it is apparent that construction operations may endanger the foundation of any utility conduit, or the support of any structure, the Contractor shall notify the utility owner of this possibility and he shall take such steps as may be required to provide temporary bracing or support of conduits or structures.
  - (2) In all cases where permits or inspection fees are required by utilities in connection with changes to or temporary support of their conduits, the Contractor shall secure such permits and pay all inspection fees.
  - (3) When it is necessary in order to carry out the work, that a pole, electric or telephone, be moved to a new location, or moved and replaced after construction, the Contractor shall arrange for the moving of such pole or poles, and the lines thereof, and shall pay any charges therefor.
  - (4) Where it is the policy of any utility owner to make his own repairs to damaged conduit or other structures, the Contractor shall cooperate to the fullest extent with the utility owner and he shall see that his operations interfere as little as possible with those operations.
- b. **Existing Sewer Facilities** - In certain instances, existing sewers or drains will be encountered along the line of work. In all such cases, the Contractor shall perform his operations in such a manner that sewer service will not be interrupted, and shall, at his own expense, make all temporary provisions to maintain sewer service.
- (1) Unless otherwise indicated on the plans, the Contractor shall replace any disturbed sewer or drain, or relay same to a new grade to be established by the Engineer such that sufficient clearance for the sewer will be provided.
  - (2) The Contractor will receive no extra compensation for replacement of sewers or drains encountered, or for relaying at a new grade.
- c. **Existing Water Facilities** - Where existing water facilities are encountered in the work, they shall be maintained in operation. If necessary, they shall be relayed, using ductile iron pipe, offsets, bends and sleeves. The Contractor will receive no extra compensation for the relaying and/or lowering or raising of water mains.
- d. **Existing Gas Facilities** - Where existing gas facilities are encountered, the Contractor shall arrange with the gas company for any necessary relaying, and shall pay for the cost of such work.
- e. In all cases the Contractor shall contact "**MISS DIG**" not less than **48 hours** before starting construction for assistance in locating utilities or for any work to be done on utilities. The toll free telephone number is 800-482-7171.

## GENERAL SPECIFICATIONS

### 10. PUBLIC AND PRIVATE UTILITIES - ROAD PERMITS (continued)

- f. **Roads and Road Permits** - The Contractor shall obtain any necessary construction permits for work within public streets, highways, roads or alleys. He shall pay for same at his own expense as well as for any inspection fees that may be required in connection with such permits, and in addition to all other requirements of these Contract Documents, shall conduct his entire operation in accordance with the provisions of such permits including tunneling of pavements where required. He shall also furnish any required bonds and/or cash deposits and pay the cost of same. In the event that the Contractor fails to furnish the Owner with proof of payment within ten (10) days after receipt of billing for the above-mentioned charges, the Owner will assume that the charges are equitable and unpaid and the Owner will pay such bills and deduct the sum plus 10% for handling costs from any money due or to become due the Contractor under the terms of this Contract. Improved roadways or walkways damaged by the Contractor shall be repaired to substantially the same condition as existed prior to beginning of work unless otherwise stated on plans or in Supplemental Specifications.

### 11. REQUIREMENTS PERTAINING TO WORK WITHIN RAILROAD RIGHT-OF-WAY

- a. Where the Contract plans call for work within railroad right-of-way or where the work crosses under railroad tracks, the Contractor shall secure the approval of the railroad company of his method and schedule of operations and shall carry out his work in strict accordance therewith, all to the satisfaction of the railroad company and at no extra cost to the Owner.
- b. No work of installing, maintaining or repairing of the facility shall be done until the railroad company shall have had sufficient prior notice of at least seventy two (72) hours (exclusive of Saturdays, Sundays and Holidays) to allow assignment of an inspector to the job to protect railroad interests.
- c. All work of installation, maintenance and repair of the facility and appurtenances shall be performed to the satisfaction of the Chief Engineer of the railroad company, or his duly authorized representative, and when any work hereunder is completed, the area shall be left in a neat, smooth and level condition.
- d. The Contractor shall reimburse the railroad for any necessary expense it is put to incidental to the installation of the facility, including the wages and expenses of railroad inspectors and flagmen.
- e. The Contractor shall reimburse the railroad for any costs of resurfacing the railroad tracks due to settlement caused by the Contractor's tunneling operations, including the wages and/or expense of watchmen, flagmen, barricades, lights, or inspectors, etc., as required by the railroad to protect its operations and property during the Contractor's construction operations on railroad property.
- f. In the event that the Contractor fails to furnish the Owner with proof of payment within ten (10) days after receipt of billing for the above-mentioned charges, the Owner will assume that the charges are equitable and unpaid and the Owner will pay such bills and deduct that sum plus 10% for handling costs from any money due or to become due the Contractor under the terms of this Contract.
- g. All tunnel headings shall be breasted at the end of each mining operation.

## GENERAL SPECIFICATIONS

### 11. REQUIREMENTS PERTAINING TO WORK WITHIN RAILROAD RIGHT-OF-WAY (continued)

- h. Prior to beginning of construction on railroad property, the Contractor shall submit, through the Owner, for approval, the details of any proposed construction shaft located within the limits of the railroad right-of-way, including details of sheeting and bracing. Any such shaft shall be tightly braced to prevent any movement of the adjacent soil or structure.
- i. The additional named insured under GENERAL CONDITIONS for "Owner's Protective Public Liability and Property Damage Insurance" and "Owner's and Contractors Protective Public Liability and Property Damage Insurance", shall include the name of the railroad company.

### 12. GAS

If gas is present in existing sewers or open excavations in which the Contractor must work, the sewer or open excavation shall be cleared of gas before entering. If the gas cannot be removed by natural ventilation, or by the removal of manhole covers on existing sewer appurtenances, the Contractor shall maintain forced draft or such other gas control or removal process as may be necessary to render the sewers or open excavation safe as determined by gas detection instruments and shall pay all costs therefor.

### 13. MAINTENANCE AND RESTORATION OF ROAD SURFACES, STRUCTURES AND TRENCH BACKFILL

- a. All structures, including curbing, driveways, walks, paving, gravel, or street road surfaces, etc. that may be damaged or destroyed by the Contractor's operations, shall be maintained, repaired and replaced by him at his own expense.
- b. In order to insure proper maintenance of service, the Contractor shall follow immediately behind the pipe laying operation with the restoration of all drainage facilities including driveways and road culverts, catch basins, manholes, ditches, sewers, and any other structure as deemed necessary by the Engineer. Mailboxes where removed or disturbed shall be replaced as soon as is practicable. Trenches shall be promptly backfilled after the pipe is laid with no more than 50 lineal feet of trench being open at one time. The trench backfill may be neatly mounded over the centerline of the excavation to provide sufficient material to establish the original grade after settlement has taken place. All construction debris, equipment, and excess dirt shall be removed from the site. Stockpiling of excess excavated materials in large piles will not be allowed without permission of the Engineer.
- c. All haul roads, detour roads, gravel roads, and driveways must be maintained in a dust-free condition during the life of this Contract. The control of dust shall be accomplished by the application of dust control materials and methods of application, which are in accordance with the requirements of the agency having jurisdiction over the roadway. Such dust control materials shall be applied as often as is necessary to control the dust. The use of road oils and waste oils to control dust is prohibited.
- d. Where concrete or asphalt areas are disturbed, temporary cold patching will be as required elsewhere in these Contract Documents.
- e. Maintenance and restoration of road surfaces, structures and trench backfill shall be commenced and completed within a reasonable length of time after construction. If in the opinion of the Engineer work has not progressed in a reasonable manner, he shall have the right to direct the Contractor to proceed with the work or any portion thereof immediately. In the event that the Contractor does not proceed with the work immediately, as directed by the Engineer, the Engineer may order any or all other operations of the Contract, under this Contract, to cease until the maintenance and restoration of road surfaces, structures and trench backfill is proceeding in an acceptable manner.

## GENERAL SPECIFICATIONS

### 13. MAINTENANCE AND RESTORATION OF ROAD SURFACES, STRUCTURES AND TRENCH BACKFILL (continued)

- f. If, due to weather conditions, the existing gravel roads, disturbed by the Contractor's operations, cannot be maintained with 21AA natural aggregate, the Contractor shall, at the Engineer's request, provide sufficient crushed stone of a size approved by the Engineer until final restoration can be accomplished with 21AA natural aggregate.
- g. The Contractor shall immediately restore all roadways and shoulders with 8" of 21AA natural aggregate, parking areas and driveways with a minimum of 6" 21AA natural aggregate and shall maintain as settling occurs. If necessary, the Contractor shall build a sub-base using larger size aggregate in order to open the facility to traffic.
- h. All driveways disturbed by the Contractor's operations shall be promptly restored by the Contractor using materials matching or exceeding the performance characteristics and visual aspects of the original driveway construction.
- i. New gravel shall be used for all road and driveway restoration; no salvaged material shall be used.

### 14. REPLACEMENT OF CONCRETE OR ASPHALT PAVEMENT CROSSINGS

Unless otherwise specified or required by the local units of government, the Road Commission for Oakland County or the Michigan Department of Transportation, all existing concrete or asphalt paved areas shall be restored with materials of similar type, thickness and width to match existing material using the following minimum criteria:

#### a. Concrete Pavement Replacement

- (1) The replacement concrete shall be at least the thickness of the existing slab and of Grade A (3,500 p.s.i.) compressive strength.
- (2) In all cases, the concrete replacement shall be a minimum of four (4") inches thick and have a minimum 18 inches bearing on undisturbed ground on each side of the trench excavation.
- (3) The existing slab shall be saw-cut to provide the concrete replacement width required in (2), above, however if a saw-cut is closer than three (3) feet from a parallel joint, the existing slab shall be removed and replaced to that joint.
- (4) The concrete replacement shall be reinforced in a manner equal to the existing slab, however, if the existing slab is unreinforced the replacement concrete shall have a 6" x 6" w6/w6 welded wire fabric, steel mesh placed therein.
- (5) A temporary cold patch (equal to the Michigan Department of Transportation CP-3 Patching Mixture) shall be used to surface the area where the concrete has been removed until the concrete pavement can be replacement. The Contractor shall maintain this temporary cold patch until it is removed for completion of the work.

## GENERAL SPECIFICATIONS

### 14. REPLACEMENT OF CONCRETE OR ASPHALT PAVEMENT CROSSINGS (continued)

#### b. Asphalt Pavement Replacement

- (1) Asphalt surfaces shall be replaced to sawed joints as directed by the Engineer. Repair areas shall be such that the sawed joints are parallel to the undisturbed edge of the surface at the furthest extremity of the disturbed area. No "checkerboard" repairs shall be permitted.
- (2) The asphalt replacement shall have a minimum of eight (8) inches of MDOT 21AA natural gravel or slag aggregate, or approved equal, to match original aggregate subgrade material, with a minimum of four (4) inches of bituminous surface course in accordance with MDOT (2003) Division 5 Specifications, as necessary to match existing surface.
- (3) A temporary cold patch (equal to Michigan Department of Transportation CP-3 Patching Mixture) shall be used to surface the area where the asphalt has been removed until the asphalt pavement can be replaced. The Contractor shall maintain this temporary cold patch until it is removed for completion of the work.

#### c. Replacement of Driveway Approach Pavement

When either asphalt or concrete drive approach pavement is removed, the area to be repaired shall include the entire approach from the existing pavement to the sidewalk. If there is no sidewalk the repair shall extend to the "throat" of the driveway or to the point at which the approach meets the driveway at its normal width.

### 15. REPLACEMENT OF SHRUBBERY

The Contractor shall protect and/or replace all shrubbery damaged or destroyed by operations under this Contract, as governed by easement conditions and the contract documents.

### 16. ENGINEER'S AND INSPECTOR'S FIELD OFFICE

- a. The Contractor shall provide and maintain, at his own expense, a field office for the exclusive use of the Owner's Engineers and Inspectors. It shall be centrally located within the limits of the Contract. The field office shall have all utilities in service PRIOR to the commencement of construction and shall not be removed until the completion of all work including cleanup and restoration. The Contractor shall not remove the field office without receiving written permission to do so from the Owner.
- b. The field office shall contain a minimum area of 192 square feet and be equipped with the following: heat, air conditioning, electric lights, sanitary facilities, closet, two desks, one drafting table and stool, a print rack, fax-copier, six sturdy chairs, a four drawer legal size file cabinet, a 3 foot by 4 foot bulletin board, mop, broom, pail, first aid kit, fire extinguisher, bottled water and dispenser, locks and 4 keys for the doors.
- c. Field offices, having chemical/holding tank sanitary facilities may be utilized provided, in the opinion of the Owner, the Contractor adequately maintains the sanitary facilities.

**GENERAL SPECIFICATIONS**

**16. ENGINEER'S AND INSPECTOR'S FIELD OFFICE** (continued)

- d. The Contractor will receive no special payment for the cost of the field office, and the cost shall be included in other items of the proposal. Costs of heat, electricity and telephone service, including reasonable toll calls, shall be borne by the Contractor. Two or more Contractors on a multi-sectioned project may join together to furnish a field office, if, in the opinion of the Owner, it would meet certain location and size requirements.
- e. A mobile telephone system may be provided for telephone service, subject to approval of the Owner and Engineer.

**17. Contractor Furnished Survey Equipment**

The Contractor shall provide one (1) tripod, automatic level and level rod for the use of the Inspector for the duration of the project. The level rod shall be in English units. The equipment shall be of commercial construction grade quality. The equipment shall be calibrated within the last year with a copy of the calibration certificate provided to the Inspector for his records. The survey equipment will be returned to the Contractor at the end of the project

**18. EASEMENTS**

This Contract may require work to be performed within easements provided by the Owner. All easements provided by the Owner are on file in the office of the Owner, and are available for inspection. The Contract Documents show the location and limits of all such easements. These easements are, in general, of the following typical forms:

a. **Permanent - Easement**

**Sample Permanent Easement**

KNOW ALL MEN BY THESE PRESENTS, That \_\_\_\_\_ hereinafter called the Grantor, for and in consideration of the sum of (\$ \_\_\_\_\_) paid to them by the County of Oakland, a Michigan Constitutional Corporation, hereinafter called the County, whose address is 1200 North Telegraph Road, Pontiac, Michigan 48341, do hereby grant to the County the right to construct, operate, maintain, repair and/or replace a storm drain, water supply system and sanitary sewer system across and through the following described land situated in the \_\_\_\_\_.

**A Permanent Easement Described As Follows:**

(Legal description inserted here)

The Grantor herewith agrees not to build or convey to others permission to build any permanent structures on the above-described permanent easement.

All trees within the permanent easement can be removed and not replaced.

The premises so disturbed by reason of the exercise of any of the foregoing powers shall be reasonably restored to its original condition by the County.

This instrument shall be binding upon and inure to the benefit of the parties hereto, their heirs, representatives, successors and assigns.

A map of the above-described easement is attached hereto and made a part hereof.

**GENERAL SPECIFICATIONS**

**18. EASEMENTS** (continued)

**b. Temporary Construction Easement**

**Sample Temporary Construction Easement**

KNOW ALL MEN BY THESE PRESENTS, That \_\_\_\_\_ hereinafter called the Grantor, for and in consideration of the sum of (\$) paid to them by the County of Oakland, a Michigan Constitutional Corporation, hereinafter called the County, whose address is 1200 North Telegraph Road, Pontiac, Michigan 48341, do hereby grant to the County a temporary easement only for use during the construction of a portion of the storm drain, sanitary sewer and water supply system across and through the following described parcel of land situated in the \_\_\_\_\_.

**A Temporary Easement Described As Follows:**

(Legal Description Inserted Here)

Said temporary construction easement(s) shall terminate upon the completion date of construction.

The premises so disturbed by reason of the exercise of any of the foregoing powers, shall be reasonably restored to its original condition by the County.

This instrument shall be binding upon and inure to the benefit of the parties hereto, their heirs, representatives, successors, and assigns.

A map of the above-described easement is attached hereto and made a part hereof.

- c. Easements provided by the Owner in the foregoing general forms may also include specific written conditions or restrictions. Either the Contract Drawings, the Supplemental Specifications, or both, disclose such conditions or restrictions.
- d. The Contractor shall conduct his operations in easements to comply with all requirements contained in easement agreements including those directed specifically to the "Contractor", to the "County", to the "Owner", or the "Grantee". All costs necessary to comply with such easement agreements shall be included in the Contract bid prices.
- e. Additional agreements obtained by the Contractor from any property owner that alter or extend the rights granted under easement agreement provided by the Owner, or any additional easement agreements obtained by the Contractor from any property owner, shall be obtained by the Contractor at his own expense. Such additional agreements or easement agreements shall not be binding upon the Owner. The Contractor shall defend and hold the Owner harmless from any action that may arise from activities related to such additional agreements or easement agreements.

**19. MONUMENTS**

Monuments or other recognized property boundary markers at street intersections, section corners, acreage or lot corners, and right-of-way lines shall be preserved and protected. Where such monuments or markers must be removed during construction, the Engineer shall be notified and the Contractor shall make all necessary arrangements, at his own expense, with a Land Surveyor registered in the State of Michigan to have these monuments or markers properly witnessed prior to disturbance or removal and later reset by the Registered Land Surveyor.

## GENERAL SPECIFICATIONS

### 20. MAINTENANCE OF TRAFFIC

- a. During the progress of the work, the Contractor shall accommodate both vehicular and pedestrian traffic in road rights-of-way as provided in these specifications. Access to fire hydrants, water and gas valves shall always be maintained. All local traffic ordinances and regulations of the Fire and Police Department and the Department of Public Services shall govern the Contractor's truck and equipment operations on public streets.
- b. Working sites at manholes, alignment holes, and other minor openings in streets need not be fenced but they shall not be larger than necessary and shall be well protected by barricades and lights and shall not be occupied longer than necessary. Small openings in streets shall be covered with strong steel plates anchored in place, when they are not required to be open for construction purposes.
- c. Shaft locations shall be selected at point where they will interfere with traffic as little as possible and their working site arrangements shall meet the approval of the Engineer. Detouring of traffic shall be done in accordance with the requirements of the municipal unit having jurisdiction therefor.
- d. Where streets are partially obstructed, the Contractor shall place and maintain temporary driveways, ramps, bridges and crossings that, in the opinion of the Engineer, are necessary to accommodate the public. In the event of the Contractor's failure to comply with the foregoing provisions, the Owner may, with or without notice, cause the same to be done and deduct the cost of such work from any monies due or to become due the Contractor under this Contract, but the performance of such work by the Owner, or at his insistence, shall serve in no way to release the Contractor from his liability for the safety of the traveling public.
- e. The Contractor shall provide flagmen, warning lights, signs and barricades necessary to direct and protect vehicular and pedestrian traffic.
- f. The Contractor shall inform the local Police, Fire and Public Services Department in advance of his program of street obstructions and detours, so that those Departments have ample time to develop plans for servicing the area in case of an emergency. He shall also notify the Owner at least one week prior to obstructing any street.

### 21. PROGRESS SCHEDULE

- a. The Progress Schedule as called for in INFORMATION TO BIDDER, Item 4, entitled QUALIFICATIONS OF BIDDERS shall show in a clear, graphical manner the proposed dates for the commencement and completion of each of the various subdivisions of the work. The schedule shall be predicated on starting the work sixty (60) days or less after award, and on the completion dates outlined in the AGREEMENT, Article II, entitled THE TIME. The schedule shall indicate the number of crews, including subcontractors if any are to be employed, on the project and the manner and times in which they will be utilized.
- b. Should the Contractor elect to change the progress schedule by the addition of one or more crews, he shall notify the Engineer in writing along with revised progress schedule two (2) weeks prior to the addition of any crew(s).
- c. Should the Contractor elect to change his location of work or move to a different area, he shall notify the Engineer seventy two (72) hours in advance (excluding weekends and holidays) of his intended move.
- d. If during the course of the work, the time of completion of the Contract is extended, or if in the opinion of the owner the progress is behind schedule so as to affect its completion, the Progress Schedule shall be corrected to show the revised commencement and completion dates of those parts of the work which are affected.