SUPPLEMENTAL SPECIFICATIONS
FOR
EXCAVATION AND CONSTRUCTION

1. **General.** The following procedures for construction in the county road right-of-way shall be followed. These procedures will supersede any previously published orders or rules by this Commission, which apply to the construction of underground utilities or structures in the County Road right-of-way. These procedures and rules do not apply to present or future rules for the control of subdivision construction, or driveway construction.

2. **Permit**. The individual in charge of the work shall have the permit and the approved plans or sketches in his possession on the job at all times.

3. **Excavation and Disposal of Excavated Material**. The Contractor and/or Utility Company shall provide and place the necessary sheeting, shoring and bracing required to prevent caving, loss or settlement of foundation material supporting the pavement, or any other highway installation such as sewers, culverts, etc. The Contractor and/or Utility Company shall assume the full responsibility for this protection and shall not proceed in these areas before approval of methods by the Commission.

   Excavated material shall be stocked in such locations that it does not obstruct vision on the traveled portion of the roadway and in such a manner that it will interfere as little as possible with the flow of traffic. Sod and topsoil shall be stockpiled separately from the other excavated material. The applicant shall dispose of all surplus and unusable material outside the limits of the right-of-way unless the permit provides for disposal at approved locations within the right-of-way. In the latter case, the material shall be leveled and trimmed in an approved manner.

4. **Boring method**.
   A. Boring, tunneling and jacking methods which do not effect the roadway surface, will be approved, if proposed by the applying agency or its Contractor, and in the opinion of the County Highway Engineer or his designated representative, will provide satisfactory results.
   B. Construction procedures must be followed which will prevent any loss of support to the roadway surface. Where soil conditions are poor, boring sleeves must be used and left in place. Bore holes which are not used because of misalignment or for any other reason, shall be filled by grouting or some other approved method.
   C. Boring of concrete or bituminous roads will be an accepted method of construction for these utilities where grade control is not critical, and where size and depth requirements do not rule out this construction method as a practical solution.

5. **Open Cut Method**
   A. Open cut will be allowed on all gravel roads on the county road system. The applying agency and its Contractor must backfill, re-gravel and maintain until the excavated area can be maintained by County forces by the application of routine procedures used on that roadway section.
   B. Open cut will be allowed on concrete and bituminous pavements for structures where grade control is critical and where soil conditions or shallowness of construction make boring unsatisfactory. When open cutting is allowed on concrete or bituminous roadways, the following minimum conditions will be met.
      1. The contractor will notify the local police & fire department, and the County Highway Engineer or his designated representative, of the work to be done 24 hours in advance of construction.

      2. The contractor shall place all signs, barricades and lights in conformance with the current issue of the Michigan Manual for Uniform Traffic Control Devices as necessary prior to construction.

      3. The pavement shall be cut to neat lines with a pavement saw or cutting wheel prior to excavation.

      4. Partial closure - where practical, traffic will be maintained using part width construction to allow the least amount of traffic interference.
      5. The Contractor shall excavate the trench to the minimum safe width for the installation of the pipe or conduit. Excavation shall not be carried out below the required grade except if, in the opinion of the County Highway Engineer or his designated representative, the underlying soil will not adequately support the pipe or conduit. If this condition exists the unstable material shall be removed and replaced with suitable material and compacted to an adequate density to support the pipe and overlying fill. The pipe shall be bedded in granular fill to a depth of one foot over the top of the pipe. This granular fill shall be compacted to 95 percent (95%) of maximum density as determined by the Michigan Sand Cone Test. The remainder of the fill shall be of native soil removed from the trench. This material shall be compacted to, 95 percent (95%) of maximum

density if the soil is cohesive as determined by AASHTO T-99, or 100 percent (100%) of maximum density if the soil is non-cohesive as determined by the Michigan Sand Cone Test. If in the event the material removed from the trench is unusable due to excessive moisture the fill shall consist of a material of like granular configuration and acceptable to the County Highway Engineer or his designated representative.

6. An aggregate base course equal to the existing roadway shall be placed and compacted to 100 percent (100%) maximum density.

7. **Concrete Surface** - All roadway cuts in concrete roads will be repaired by placing a concrete patch, equal in thickness, on concrete roads to the thickness of the concrete already in place and any bituminous overlay which may be in place.
   a. Concrete used in such patches, will be portland cement concrete having a compressive strength of 3,500 psi or more and a slump of 3" or less. When admixtures are used to achieve high early strength or to prevent freezing, the Engineering Department of the County Road Commission will be so advised. When requested, test cylinders or beams will be provided from material delivered to or made at the site and used in the patch. If, in the opinion of the County Highway Engineer or his designated representative, the area of concrete patch or the condition of the soil makes it necessary, bar reinforcement will be installed by the agency or its contractor. When this reinforcement is determined and necessary, the bar size and spacing must be approved by the Engineering Department of the County Road Commission.
   b. Existing concrete will be saw cut at least two (2) feet wider on each side of the excavation and the vertical edges cleared of all loose and foreign material to provide undisturbed soil for support of the concrete patch. Where existing concrete has been broken in the vicinity of the excavation by construction machinery or for any other reasons, it will be removed and replaced to limits determined by the County Highway Engineer or his designated representative.

8. **Bituminous Surface** - Bituminous patch will be placed in bituminous surfaces which have been open cut. Bituminous patches will not be permitted in concrete pavements. The bituminous patching shall be 4½" - 9" deep depending on traffic volume, but in no case less than the adjoining existing pavement.
   a. Bituminous material shall be placed and compacted in layers no greater than 3". The bituminous material in the bottom layers shall be Bituminous Base Course - 21A or better. The surface of the patch shall be Bituminous Wearing Course - 25A. All material shall be compacted to not less than 98% of maximum density.
   b. The existing pavement will be saw cut at least two (2) feet wider on each side than the excavation and the vertical edges cleared of all loose and foreign material. Bond coat will be applied to vertical edges.
   c. The patch will be allowed to settle for a minimum period of ninety (90) days. At the conclusion of the ninety (90) days settling period, the patch will be inspected by the Engineering Department of the Road Commission. If the patch is found to be acceptable, no further work will be required. If settling or "pushing" has occurred, the surface of the patch will be reworked with the aid of an approved heating unit. The patch will be reviewed and reworked in sixty (60) day increments until no settling or "pushing" is observed.