

# **GRAND TRAVERSE COUNTY ROAD COMMISSION**

## **South Airport Road**

GTCRC PROJECT # 18E004

February, 2018

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# GRAND TRAVERSE COUNTY ROAD COMMISSION

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# **ADVERTISEMENT FOR BIDS**

**ADVERTISEMENT FOR BIDS  
SOUTH AIRPORT ROAD  
GRAND TRAVERSE COUNTY ROAD COMMISSION**

Sealed Proposals on forms prepared by the Engineer will be received by GRAND TRAVERSE COUNTY ROAD COMMISSION at 1881 LAFRANIER ROAD, TRAVERSE CITY, MI 49696-8911 until 10:00 A.M. (local time) on 3/16/2018 for construction of South Airport Road PROJECT in accordance with plans, Specifications and other Contract Documents prepared by GRAND TRAVERSE COUNTY ROAD COMMISSION. Proposals will be publicly opened and read immediately after the time established above.

Project is as follows:

Project # 18E004 – South Airport Road

Principal items of work include but not limited to:

Curb and Gutter, Rem – 4,051 Ft

Pavt, Rem – 10,221 Syd

Aggregate Base, 6 inch – 41,302 Syd

HMA Surface, Rem – 54,369 Syd

HMA, 3E10 – 6,739 Ton

HMA, 4E10, High Stress – 11,806 Ton

Curb and Gutter, Conc, Det B2 – 769 Ft

Curb and Gutter, Conc, Det F4 – 4,601 Ft

Pavt Mrkg, Polyurea, 4 inch, White – 18,477 Ft

Pavt Mrkg, Polyurea, 4 inch, Yellow – 16,435 Ft

Recessing Pavement Markings, Longit – 25,893 Ft

Pavt Mrkg, Wet Reflective, Type NR, Tape, 4 inch, White, Temp – 22,392 Ft

Pavt Mrkg, Wet Reflective, Type NR, Tape, 4 inch, Yellow, Temp – 26,256 Ft

Slope Restoration – 9,226 Syd

Plans, Specifications, and other Contract Documents may be examined at the following location.

- GRAND TRAVERSE COUNTY ROAD COMMISSION; Traverse City, Michigan

Log Plans, Specifications and other Contract Documents may be obtained upon application at the office of GRAND TRAVERSE COUNTY ROAD COMMISSION, upon the payment of \$70.00 per set plus \$10.00 per set if mailed. Log Plans and specifications will not be mailed until payment is received. The non-refundable fee shall be in check form and shall be drawn payable to GRAND TRAVERSE COUNTY ROAD COMMISSION. The OWNER's address is GRAND TRAVERSE COUNTY ROAD COMMISSION, 1881 LAFRANIER ROAD, TRAVERSE CITY, MI 49696-8911 and the telephone number is 231-922-4848.

Each proposal shall be accompanied by an acceptable form of Bid Bond in an amount equal to at least five percent (5%) of the amount of the Proposal payable to GRAND TRAVERSE COUNTY ROAD COMMISSION as a guaranty that if the Proposal is accepted, the Bidder will execute the Contract and file acceptable Performance, Labor and Material Payment and Maintenance and Guarantee Bonds within **10** days after, and as a condition precedent to the award of the Contract.

The GTCRC reserves the right to reject any, all, or portions of the Proposals received, or to negotiate separately with any source whatsoever in any manner necessary to serve the best interest of the GRAND TRAVERSE COUNTY ROAD COMMISSION, and to waive any formality or technicality in any Proposal in the intersect of the GTCRC.

# **INSTRUCTIONS TO BIDDERS**

## INSTRUCTIONS TO BIDDERS

### ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the Construction Contract and the General Specifications. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

Bidder — The individual or entity who submits a Bid directly to the Road Commission.

Drawings or Plans — The terms drawing or plans as used in these documents may mean project specific drawing sheets, log scoping documents, or any other document setting forth the scope of the Work under the Contract.

Issuing Office — The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

Successful Bidder — The Bidder submitting a responsive Bid to whom the Road Commission (on the basis of the Road Commission's evaluation as hereinafter provided) makes an award.

### ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the fee, if any, stated in the Advertisement or Invitation to Bid shall be obtained from the Issuing Office. The fee is nonrefundable unless specifically stated otherwise in the proposal. Payment of the plan fee, and any applicable shipping charges must be received by the Issuing Office before copies of the Bidding Documents are issued. Before issuance of Bidding Documents, the name, address, email address, phone number and fax number of the person to whom the documents are issued shall be provided to the Issuing Office.

2.02 Complete sets of Bidding Documents obtained from the issuing office must be used in preparing Bids; the Road Commission does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 The Road Commission in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

## ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

- A. List of related project experience complete with dollar value of contract, type of work, project owner and project owner's representative and phone number.
- B. Current work now under contract or anticipated during the life of the project. Include project name, type, dollar value, completion date and percentage presently complete.
- C. Equipment list. Provide list of construction equipment presently owned and/or leased along with the equipment intended to be used on the project.
- D. List of suppliers and subcontractors.
- E. Bid Bond.
- F. Bidder Qualification Statement with supporting data.
- G. Affidavit of Non-Collusion.

## ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 On request, the Road Commission will provide Bidder access to the Site to conduct examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. A Right of Way Permit may be required for work within the Right of Way as a condition to access. Any fees for the Right of Way Permit will be waived by the Road Commission.

4.02 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy Bidder as to all federal, state, and local laws, rules, codes, and regulations that may affect cost, progress, or performance of the Work;

- D. carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided by the Road Commission, if any, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions.
- E. obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the materials, means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific materials, means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;
- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by the Road Commission and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
- I. promptly give the Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.03 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific materials, means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding

Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

## ARTICLE 5 - PRE-BID CONFERENCE

A mandatory pre-bid conference **will** be required on this Project.

5.01 A pre-bid conference will be held on March 7th, 2018 at 10:00am at the Grand Traverse County Road Commission. Representatives of the Road Commission will be present to discuss the Project. Bidders are required to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

## ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

## ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to the Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed, emailed, or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than 3 days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by the Road Commission or the Engineer.

## ARTICLE 8 - BID SECURITY – A Bid security **will** be required for this Project.

8.01 A Bid must be accompanied by Bid security made payable to the Road Commission in an amount of 5% of Bidder's maximum Bid price and in the form of a certified or bank check, money order or a Bid Bond on an AIA form issued by a surety meeting the requirements of paragraph 6 of the General Specifications.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish

the required contract security within 10 days after the Notice of Award, the Road Commission may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom the Road Commission believes to have a reasonable chance of receiving the award may be retained by the Road Commission until the earlier of 7 days after the Effective Date of the Agreement or 30 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom the Road Commission believes do not have a reasonable chance of receiving the award will be returned within 15 days after the Bid opening.

## ARTICLE 9 - CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Contract.

## ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Contract.

## ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to the Road Commission, application for such acceptance will not be considered by the Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in the General Specifications and may be supplemented in the General Requirements.

## ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A bid must be accompanied by a list of the subcontractors, suppliers, individuals, or entities proposed for the Work. Such list shall include the portion of the work the subcontractor will be performing and shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such subcontractor, supplier, individual, or entity. If the Road Commission, after due investigation, has reasonable objection to any proposed subcontractor, supplier, individual, or entity, the Road Commission may, before the Notice of Award is given, request the apparent Successful Bidder to submit a substitute, without an increase in the Bid.

12.02 If the apparent Successful Bidder declines to make any such substitution, the Road Commission may award the Contract to the next lowest Bidder that proposes to use acceptable subcontractors, suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any subcontractor, supplier, individual, or entity so listed and against which the Road Commission makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to the Road Commission subject to revocation of such acceptance after the Effective Date of the Agreement as provided in the General Specifications.

12.03 Contractor shall not be required to employ any subcontractor, supplier, individual, or entity against whom Contractor has reasonable objection.

## ARTICLE 13 - PREPARATION OF BID

13.01 The Bid form is included with the Bidding Documents. Additional copies may be obtained from the issuing office.

13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each [section, Bid item, alternative, adjustment unit price item, and unit price item] listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address, email, and telephone number for communications regarding the Bid shall be shown.

## ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

### 14.01 Unit Price

Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.

The total of all Bid prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined as follows:

1. For all Unit Price Work, initially the Contract Price will be deemed to include an amount equal to the sum of the Unit Price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by the Road Commission pursuant to the General Specifications.
2. Each Unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
3. Discrepancies between the multiplication of units of Work and Unit Prices will be resolved in favor of the Unit Prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

Bidders shall submit a Bid on a Unit Price basis for the base Bid and include a separate price for each alternate described in the Bidding Documents as provided in the Bid form, if any. The price for each alternate will be the amount added to or deleted from the base Bid if the Road Commission selects the alternate. In the evaluation of Bids, alternates will be applied in the same order as listed in the Bid form.

## ARTICLE 15 - SUBMITTAL OF BID

- 15.01 Bids may be submitted by either completing the Bid forms in the bound documents provided or by completing copies made from the Bid forms in the documents provided. A Bid shall include the completed Bid form, Bid security and other material identified for inclusion with the Bid.
- 15.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to GRAND TRAVERSE COUNTY ROAD COMMISSION, 1881 LAFRANIER ROAD, TRAVERSE CITY, MI 49696-8911.
- 15.03 Bids submitted by facsimile, email, in any another electronic form will not be considered.

## ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with the Road Commission and promptly thereafter demonstrates to the reasonable satisfaction of the Road Commission that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

## ARTICLE 17 - OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

## ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid form, but the Road Commission may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

## ARTICLE 19 - AWARD OF CONTRACT

19.01 The Road Commission reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. The Road Commission further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. The Road Commission may also reject the Bid of any Bidder if the Road Commission believes that it would not be in the best interest of the Project to make an award to that Bidder. The Road Commission also reserves the right to waive any or all formalities or nonconformities, and to negotiate contract terms with the Successful Bidder. Any such waiver shall not affect the validity of the Contract or affect the right of the Road Commission to enforce any provision of the Contract.

By submitting this Bid, the Bidder waives any and all claims against the Road commission related to the Road Commission's selection of the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, the Road Commission will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, the Road Commission will consider the qualifications of Bidders and may consider the qualifications and experience of subcontractors, suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of subcontractors, suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 The Road Commission may conduct such investigations as the Road Commission deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed subcontractors, suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, the Road Commission will award the Contract to the Bidder whose Bid is in the best interests of the Project and the Road Commission.

## ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Paragraphs 5 and 6 of the General Specifications, as may be modified by the Supplementary Conditions, set forth the Road Commission's requirements as to Bonds and Insurance. When the Successful Bidder delivers the executed Agreement to the Road Commission, it must be accompanied by such Bonds and Insurance.

## ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When the Road Commission gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 7 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to the Road Commission. The Road Commission shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

# **GENERAL SPECIFICATIONS**

## GENERAL SPECIFICATIONS

### 1. DEFINITIONS.

For the purpose of these specifications, the following terms are used herein and are respectively defined as follows:

- A. "Road Commission" shall mean the Grand Traverse County Road Commission represented by the County Highway Engineer.
- B. "Engineer" shall mean the County Highway Engineer of the Road Commission.
- C. "Board" shall mean the Board of Grand Traverse County Road Commissioners.
- D. "Contractor" shall mean the individual, partnership, corporation or a combination of any or all jointly, undertaking the execution of the Work under the terms of the Contract and acting directly or through agents or employees.

### 2. ENGINEER'S STATUS.

The Engineer will be the Road Commission's representative during construction of the Project. The Engineer has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of the Contract. The Engineer shall also have authority to reject all Work and materials which do not conform to the Contract.

### 3. CONTRACT DOCUMENTS.

If the Contractor believes a conflict, error, ambiguity, or discrepancy exists within the Contract Documents or between the Contract Documents and any provisions of any law or regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any supplier, Contractor shall report it to the Engineer in writing at once and request an amendment or supplement to the Contract documents by the Engineer. In the event that the Contractor proceeds with the Work without an amendment or supplement issued by the Engineer, Contractor shall assume all risk in performing the Work without such amendment or supplement, which shall include but not be limited to the risk that the Work performed shall be required to be removed, replaced, or corrected by the Road Commission.

### 4. SUBSURFACE AND PHYSICAL CONDITIONS

A. Reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been provided to the Contractor are as follows:

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B. Reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been provided to the Contractor are as follows: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. **INSURANCE.**

The Contractor is required to provide the following insurance. If any part of the Contract is sublet, insurance shall be provided by the Contractor on behalf of subcontractors to cover their operations. The insurance shall be contracted with a company licensed to do business in the State of Michigan and shall be subject to the approval of the Road Commission. Certified copies in duplicate, setting forth the limits and coverage shall be furnished to the Road Commission before commencing with any Work and at the time of executing this Contract. The policy shall contain endorsements stating that a 10 day notice will be given to the Road Commission prior to termination or any change in the policy, shall provide an endorsement stating that the Road Commission, its board, officers, employees, and agents have been named as additional insureds onto such policy for all claims arising out of the Contractor's Work, and shall describe the construction project and provide coverage for the following terms:

A. Contractor's General Liability and Property Damage. The Contractor shall procure and shall maintain during the life of this Contract Contractor's General Liability Insurance in an amount not less than \$2,000,000 per occurrence for injuries, including accidental death, for each person; and subject to the same limit for each person, in an amount not less than \$2,000,000 per occurrence on account of each accident; and Contractor's Property Damage Insurance in an amount not less than \$1,000,000 each occurrence; and combined Single Limit for Bodily Injury and Property Damage Liability in an amount not less than \$2,000,000 for each occurrence, including property damage coverage for the following terms:

1. Underground Damage to facilities due to drilling and excavating with mechanical equipment in streets and highways, easements or public property.
2. Collapse or Structural Injury to structures due to blasting or explosion, excavation, tunneling, pile driving or cofferdam Work.

Coverage shall include language that states: It is understood and agreed that by naming the Road Commission, its board, officers, agents, and employees as additional insured, coverage afforded is considered to be primary and any other insurance that the Road Commission may have in effect shall be considered secondary or excess.

B. Automobile Insurance. The Contractor shall procure and maintain during the life of this Contract Owned, Contract Hired and Non-Ownership Motor Vehicle Bodily Injury Insurance (comprehensive form) in an amount not less than \$500,000 for injuries, including accidental death for each person; and in an amount not less than \$1,000,000 for each accident; and Property Damage Liability Insurance in an amount not less than \$1,000,000 for each accident; and combined single limit for Bodily Injury and Property Damage Liability

Insurance in an amount not less than \$1,000,000 for each occurrence. These requirements may be met through an Umbrella Policy.

C. Worker's Compensation. The Contractor shall comply with the requirements of the Michigan Worker's Compensation Law and shall maintain such insurance as will protect him from claims under said law, and from any other claim for personal injury, including death, which may arise from operations by himself or by any other Contractor, or anyone directly or indirectly employed by either of them, and will give proof of such insurance to the Road Commission Engineer at the time of filing its bonds and Contract.

D. Owner's (Road Commission's) Protective Liability. The Contractor shall furnish to the Road Commission, in duplicate, an Owner's Protective Liability Policy insuring the Road Commission in an amount not less than \$1,000,000 with respect to any one person, and \$1,000,000 with respect to any occurrence in the case of bodily injury, and \$1,000,000 for each occurrence and a \$1,000,000 aggregate for property damage liability; and combined single limit for Bodily Injury and Property Damage in an amount not less than \$1,000,000 for each occurrence.

E. All Risk Builder's Insurance. The Contractor shall procure and maintain, in the name of the Road Commission and of the Contractor, as their respective interests may appear during the life of the Contract, All Risk Builder's Risk Insurance on a completed value basis in an amount not less than the Contract amount plus the value of all material furnished by the parties other than the Contractor for installation in the project to cover all project structures and materials, supplies, machinery, equipment and fixtures including the installation cost thereof which are owned by the insured or for which the insured is legally liable. This policy covers the property of the insured (a) while in transit at the risk of the insured; (b) while on the premises of construction or installation; and (c) during construction, installation or testing. This policy insures against all risk of direct physical loss or damage to the property insured hereunder and shall specifically cover loss due to fire, wind, flood and collapse, but may be subject to exclusion of losses from wear and tear, misappropriation of business, defective materials, collapse due to faulty Workmanship, nuclear or radiation war, insurrection, riot or civil disobedience.

F. Railroad Protective Liability Insurance. If checked, Contractor shall procure and maintain, railroad protective liability insurance with limits of not less than \$2,000,000 combined single limit for bodily injury or property damage per occurrence and an aggregate annual limit of \$6,000,000.

G. Cancellation. If any of the insurance is canceled, the Contractor and all subcontractors shall cease operations, and shall not resume until new insurance is obtained.

## 6. BONDS.

The Contractor will be required to furnish surety bonds from a surety company with an A.M. Best rating of 'A' or better, U.S. Treasury Department listed and admitted to do business in the State of Michigan effective on the date the Notice to Proceed is issued.

The surety shall be acceptable to the Road Commission and shall be provided at the time this Contract is executed by the Contractor. Each bond shall be on the AIA Document A312 forms provided as follows:

A. Performance Bond. The Contractor, as Principal, shall furnish a surety bond in an amount at least equal to one-hundred (100%) percent of the Contract Price as security for faithful performance of this Contract. The Road Commission shall be Obligee under said bond. The bond shall guarantee the faithful performance and shall indemnify and save harmless the Road Commission from all costs and damages by reason of the Contractor's failure to perform in accordance with the Contract provisions. The Contract, by reference, shall be an integral part of the bond.

The above mentioned AIA Document A312 shall be modified to include the maintenance and guarantee obligations in the amount of not less than one hundred percent (100%) of the Contract Price in favor of the Road Commission to keep in good order and repair any defects in all of the Work extending for a period of one year from the date of payment of the final pay request or acceptance of construction pursuant to paragraph 7 of the Construction Contract.

B. Payment Bond. The Contractor, as Principal, shall furnish a surety bond in an amount equal to one-hundred (100%) percent of the Contract Price as security for the prompt payment to all subcontractors and persons supplying labor, equipment and material in the performance of all Work under said Contract, and any and all authorized modifications under this Contract. The Contract, by reference, shall be an integral part of the bond.

7. **PERMITS.**

The Contractor shall obtain all permits required for the Work by any federal, state, or local law, rule, code, or regulation. Contractor shall pay for same at Road Commission's own expense. Any inspection fees associated with such permits shall be paid for by the Contractor and Contractor shall conduct construction operations in accordance with provisions of such permits including tunneling of utilities where reburied. Contractor shall also furnish any required bonds and pay the cost of same.

8. **PRE-CONSTRUCTION MEETING.** A pre-construction meeting X   will not be required.

After the award of the Contract by the Road Commission, the Road Commission will organize and a principal member of the Contractor's organization and any other person or entities that the Road Commission requires shall attend a pre-construction meeting with all subcontractors to be held at a place and on a date mutually agreed upon. At this time, at a minimum, the requirements of the project, the Contractor's schedule of operations and construction methods, work zone traffic plan, and, if applicable, testing orders, job mix formula shall be provided. The Contract documents shall be delineated in order to obtain an understanding of the overall construction program by the Consultant and subcontractors.

9. **CONSTRUCTION SCHEDULE AND SAFETY PLAN.**

A. At the pre-construction meeting and prior to starting Work, the Contractor shall prepare and submit to the Engineer two copies of a construction progress schedule showing in a clear, graphical manner the proposed dates for the commencement, progress and completion of the Work. The progress schedule shall be predicated on the completion of the Work on or before the date of completion as stated in the Contract. Upon approval of the Progress Schedule by the Engineer in writing, it shall become a part of the Contract Documents. The Pre-construction meeting minutes approved by the Road Commission shall become a part of the Contract Documents.

B. If, during the course of the Work, it becomes apparent that the Progress Schedule is unrealistic or will not be met, it shall be revised and resubmitted to the Engineer for approval. Upon approval of the revised Progress Schedule, it shall become a part of the Contract documents. Approval of the revised Progress Schedule is in the sole discretion of the Engineer.

C. No later than the pre-construction meeting and prior to starting Work, the Contractor shall prepare and submit to the Engineer two copies of a Safety Plan showing in a clear, graphical manner the Contractor's plan for taking all necessary precautions for the safety of and provision of necessary protection to prevent damage or injury to all persons on the project site or who may be affected by the Work, all the Work and materials and equipment to be used, and other property at the project site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction. Upon approval of the Safety Plan, it shall become a part of the Contract documents.

Contractor shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### **10. CONTRACTOR'S SUPERVISION AND ORGANIZATION.**

A. The Work under this Contract shall be under the direct charge and direction of the Contractor at all times. The Contractor shall give superintendence to the Work, using his or her best skill and attention. The Contractor shall at all times keep competent persons and any and all necessary supervisors and assistants on the site of the Work during its progress. The Contractor shall designate a Project Supervisor and a Safety Supervisor who shall have the authority and responsibilities as set forth in Section 104.07 of the MDOT Standard Specifications for Construction and such other positions as the Engineer may require.

B. The Contractor shall employ only competent, efficient workers and shall not use on the Work any unfit person or one not skilled in the Work assigned and Contractor shall at all times enforce strict discipline and good order among Contractor's employees.

C. The Road Commission may request replacement of the Project Supervisor in the event that the Project Supervisor fails to provide efficient and effective superintendence to the Work or cooperate with the Road Commission. In the event that the Road Commission requests replacement, the Contractor shall replace the Project Supervisor with a competent

Project Supervisor unless the Contractor has a reasonable objection to replacement of the Project Supervisor and the Contractor provides sufficient assurance to the Road Commission that the Project Supervisor shall cooperate with the Road Commission and provide efficient and effective superintendence to the Work. Such assurance may be required by the Road Commission to be in writing and include detailed specifications to assure the Project Supervisor's performance.

D. Contractor shall be responsible for all costs incurred by the Road Commission, including attorney fees, in connection with Contractor's failure to properly provide superintendence of the Work or failure to be at the site of the Work on the dates or times indicated to the Road Commission without providing at least 12 hours' notice to the Road Commission.

## 11. SUBCONTRACTING.

A. Contractor shall not employ any subcontractor, supplier, or other individual or entity, whether initially or as a replacement, against whom the Road Commission may have reasonable objection. Contractor shall not be required to employ any subcontractor, supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. The Contractor shall give personal attention to the fulfillment of the Contract and shall keep the Work under its control.

C. No subcontractor will be recognized as such, and all persons engaged in the Work or construction will be considered as employees of the Contractor and the Contractor will be held responsible for their Work, which shall be subject to the provisions of this Contract. Contractor shall be fully responsible to the Road Commission for all acts and omissions of the subcontractors, suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for its own acts and omissions.

D. The Contractor shall perform with its own organization Contract Work amounting to not less than 40% percent of the original total Contract Price.

E. When a portion of the Work which has been subcontracted by the Contractor is not being executed in a manner satisfactory to the Road Commission, the subcontractor shall be removed immediately on the request of the Engineer and shall not again be employed on the Work.

F. The subcontractors do **not** need to be pre-qualified by the Michigan Department of Transportation to perform the classification of Work proposed.

## 12. PROTECTION OF WORK AND PROPERTY.

A. The Contractor shall continuously maintain adequate protection of all Contractor's Work from damage and shall protect all public property and private abutting property from injury or loss arising in connection with damage, injury or loss, and shall indemnify, defend and hold harmless the Road Commission from all such damages or injuries occurring because of

Contractor's Work. Contractor shall furnish and maintain all passageways, barricades, guard fences, lights and danger signals, provide watchmen and other facilities for protection required by public authority or local conditions, all at no additional cost to the Road Commission.

B. The Contractor shall assume full responsibility of loss or damage to the Work during the entire construction period resulting from conditions, and from all other causes whatsoever not directly due to the acts or neglect of the Road Commission, including fire, vandalism, flood, and malicious mischief, and shall turn the finished Work over to the Road Commission in good condition and repair at the time of the request for a certificate of Substantial Completion.

C. The Contractor shall not Work, store, or operate equipment outside designated Work areas as shown on plans without permission of the Road Commission Engineer. Permission shall not be granted unless the Contractor provides the Road Commission with documentation evidencing the consent of the person or entity having ownership or control of area.

D. Contractor shall provide the Road Commission with access to the site at all times during the project. No work performed by the Road Commission on the Project or at the Site shall be the basis for any claim of increased Contract Price or Contract Time under this Contract. Nor shall the Road Commission's performance of any of the Work under the Contract be the basis for a claim for damages or anticipated profits on the Work performed by the Road Commission. Further, the Contractor shall make available to the Road Commission any traffic control or other safety measures installed by the Contractor at the time the Road Commission performs any work at the site.

### **13. LIMITATIONS ON USE OF SITE OR OTHER AREAS.**

A. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the construction Site and other areas permitted by laws and regulations, and shall not unreasonably encumber the construction Site and other areas with construction equipment or other materials or equipment.

B. Contractor shall keep the construction Site and other areas free from accumulations of waste, materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable laws and regulations.

C. Prior to substantial completion of the Work, Contractor shall clean the Site and make it ready for the Road Commission's use. At the completion of the Work, Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by this Contract.

#### **14. CHANGES IN THE WORK.**

A. The Engineer shall have the right to require changes in or additions to the Work required by the Contract documents. The Engineer shall have the right to make any deductions for the Work. Adjustments in the Contract Price, if any, because of any change, addition or deduction in the Work shall be determined as set forth in sections 109.03 and 109.05 of the MDOT Standard Specifications for Construction, and any claims for extension of time for completion shall be adjusted at the time of ordering the change, addition or deduction. No claim for change, addition, deduction, or adjustment of price, or extension of time for completion thereof, shall be made or allowed unless done pursuant to an order from the Engineer specifically authorizing such change, addition or deduction and, in the case of an addition of labor, materials, equipment and appliances, specifically setting forth the agreed upon price for the additional labor, materials, equipment and appliances Contractor shall be assumed to have agreed to the terms and conditions of any Change Order 14 days following issuance by the Road Commission notwithstanding Contractor's failure to sign the Change Order.

B. Where the order diminishes the quantity of Work to be done, this shall not constitute a basis for a claim for damages or anticipated profits on the Work that may be dispensed with.

C. It is understood and agreed that in case any change in, addition to, or deduction from the Work is required, said change shall in no way invalidate the Contract and shall not affect or discharge the bonds furnished by the Contractor. Further, no notice to the surety shall be required.

D. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided herein.

E. During the term of the Contract, the Road Commission may add locations to the Scope of the Work under this Contract by change order. Any additional locations added to the Scope of the Work and the plans and details and other specifications for the additional locations shall be deemed to be a part of this Contract and subject to the terms and conditions of this Contract and shall become a part of the Scope of the Work contemplated by this Contract following acceptance of the additional location(s) by the Contractor.

F. Any addition to the Work resulting in an increase in the Contract Price of more than 5% shall (1) be approved by the Board of County Road Commissioners for Grand Traverse County and (2) require the Contractor to obtain a rider to the Performance and Payment Bonds required under this Contract to increase the amount of the surety bonds unless this requirement is waived in writing by the Road Commission.

G. The Contractor may not make a claim for an adjustment under the Contract after 28 days following the issuance of the Certificate of Substantial Completion to the Contractor by the Road Commission.

**15. DIFFERING SITE CONDITION.**

Contractor has represented that it has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions, including subsurface conditions that may affect cost, progress, and performance of the Work. As such, Contractor assumes the risk in encountering differing site conditions and all costs associated therewith. In the event that the Contractor encounters a differing site condition that materially and substantially causes an increase in the cost or time required for the performance of the Work, Contractor may request an increase in Contract Time or Contract Price prior to performing the increased work. Engineer may consider such request, but shall not be obligated to grant the request. In no case shall the Contractor request any increase in Contract Time or Contract Price for work already performed nor may the Contractor stop or delay the Work because of the differing site condition. In the event that the Engineer denies the request, Contractor shall be obligated to perform the Work required under this Contract. This provision shall supersede and replace any differing site condition or similar provision contained in any incorporated standard or specification referenced in the Contract.

**16. SUBSTITUTES.**

Substitution may only be offered following the Notice of Award. Whenever an item of material or equipment is specified or described in the Contract documents by using the name of a proprietary item or the name of a particular supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification indicates that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other suppliers may be submitted to the Engineer for review. The Engineer in his or her sole discretion may allow the use of substitutes or "or-equal" material or equipment. The Engineer may require that the Contractor provide such assurances as the Engineer may determine are necessary to allow a proposed substitute or "or equal" item. The Contractor shall at its own expense provide all data in support of any proposed substitute or "or equal" material or equipment.

**17. CONTRACTOR'S GENERAL WARRANTY AND GUARANTEE.**

Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract or a waiver of Contractor's obligation to perform the Work in accordance with the Contract:

- A. observation or failure to observe by the Road Commission, its agents, or employees;
- B. payment by the Road Commission of any progress payment;
- C. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Road Commission;
- D. use or occupancy of the Work or any part by the Road Commission;
- E. any acceptance by the Road Commission, its agents, or employees or any failure to do so;

- F. any inspection or test by the Road Commission, its agents, or employees;
- G. approval by others; or
- H. any correction of defective Work by the Road Commission.

**18. SHOP DRAWINGS AND SAMPLES.**

- A. Contractor shall submit shop drawings to the Road Commission Engineer for review and approval in accordance with the schedule of shop drawings acceptable to the Road Commission. All submittals will be identified as the Engineer may require and in the number of copies specified. The data shown on the shop drawings will be complete with respect to quantities, dimension, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information.
- B. Contractor shall also submit samples to Engineer for review and approval in accordance with the acceptable schedule of shop drawings. Each sample will be identified clearly as to material, supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as Engineer may require to enable Engineer to review the submittal.
- C. Before submitting each shop drawings or sample, Contractor shall have determined and verified all field measurements, quantities, dimension, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto; all materials with respect to intended use, fabrications, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; all information relative to means, methods, techniques, sequences, and procedures of contraction and safety precautions and programs incident thereto; and the Contractor shall also have reviewed and coordinated each shop drawings or sample with other shop drawings and samples and with the requirements of the Work and the Contract documents.
- D. At the time of each submittal, Contractor shall give Engineer specific written notice of such variation, if any, that the shop drawings or sample submitted may have from the requirement of the Contract documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made in each shop drawing and sample submitted to Engineer for review and approval of each variation.
- E. Engineer will timely review the shop drawings and samples to determine if the items covered by the submittals, will after installation or incorporation in the Work, conform to the information given in the Contract documents. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto. Engineer's review and approval of shop drawings or samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing called Engineer's

attention to the variance at the time of the submittal and the Engineer has approved the variance in writing.

**19. INSPECTION OF CONSTRUCTION.**

A. The Contractor shall maintain an inspection system and perform such inspections as will insure that the Work performed under the Contract conforms to Contract requirements. The Contractor shall maintain complete inspection records and make them available to the Road Commission.

B. The Road Commission Engineer may appoint resident project representatives who shall be under the direction of the Road Commission Engineer. The project representative will inform the Engineer as to the progress of the Work, the manner in which it is being done, and the quality of the materials being used. The representative may call to the attention of the Contractor any failure to follow the plans and specifications that he or she observes. The representative shall have the authority to reject materials or suspend the Work until any questions on the performance of the Work can be referred to and decided by the Engineer. The representative shall have no authority to supervise the Contractor's operations or to change the Contract or specifications. The Contractor shall not be a third party beneficiary of a Contract between the Road Commission and its project representatives. Any project representative is for the sole benefit of the Road Commission and the Contractor may not rely on any actions or omissions of the project representative.

C. The Contractor shall promptly furnish, at no increase in Contract Price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Road Commission. The Road Commission may charge to the Contractor any additional cost of inspection or test when Work is not ready at the time specified by the Contractor for inspection or test, or when prior rejections makes reinspection or retest necessary.

D. Road Commission inspections and tests are for the sole benefit of the Road Commission and in no instance shall any action or omission on the part of the project representatives or the Road Commission release the Contractor of the responsibility of completing the Work in accordance with the plans or specifications, constitute a waiver by the Road Commission of any standards or specifications required by the Contract, or act as a warranty as to the propriety of the Contractor's performance; nor shall an action or omission of the representative constitute acceptance by the Road Commission of Work and materials that do not conform to the Contract.

E. The Contractor shall, without charge, remove, replace or correct Work found by the Road Commission not to conform to Contract requirements and project specifications, unless in the public interest the Road Commission consents in writing to accept the Work with an appropriate adjustment in Contract Price. All corrective measures shall be as approved by the Engineer. The Contractor shall promptly segregate and remove rejected material from the premises. If the Contractor does not promptly remove, replace or correct rejected Work, the Road Commission may (1) remove, replace or correct the Work and charge the cost,

including overhead cost and attorney fees, to the Contractor; or (2) terminate for default the Contractor's right to proceed.

F. If, before acceptance of the Work as set forth in subparagraph (G), the Road Commission decides to examine already completed Work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the Work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the Work is found to meet Contract requirements, the Road Commission shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the Work was thereby delayed, an extension of time.

G. Work under the Contract shall be considered accepted only after the Contractor has notified the Road Commission in writing that the Work is complete and the Road Commission inspects the Work and notifies the Contractor in writing that the Work is completed. In no case shall portions of the Work be considered to be accepted prior to acceptance of the entire Work unless the Contractor requests and the Road Commission determines that portions of the Work be accepted separately in writing, the Contractor notifies the Road Commission that the portion of the Work is complete, and the Road Commission accepts the portion of the Work in writing. The determination of whether portions of the Work may be separately accepted is within the sole discretion of the Engineer.

H. Inspection of the Work or a portion of the Work if applicable by the Road Commission shall be conducted as soon as practicable by the Road Commission following receipt of notification from the Contractor that the Work or portion of the Work is complete. In no case shall the Road Commission be responsible for any delay in the progress of the Work as a result of the Contractor's request to have a portion of the Work inspected and accepted. Further, in no case shall the Road Commission's delay in inspecting the Work or portion of the Work be deemed an acceptance of the Work. This provision shall supersede and replace any inspection timeline contained in any incorporated standard or specification referenced in the Contract.

I. The Road Commission shall accept non-defective Work as promptly as practicable after notification by the Contractor of completion and inspection of the Work, and for the entire Work, verification of punchlist items, completed project documentation, and material testings. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Road Commission's rights under any warranty or guarantee. This provision shall supersede and replace any acceptance timeline to the contrary contained in any incorporated standard or specification referenced in the Contract.

## **20. ESTIMATES AND PAYMENTS.**

- A. The Road Commission shall pay and the Contractor shall receive the Unit Prices bid in the Bid form or agreed upon, less any deduction for any uncompleted portion based upon measurements made by the Engineer or as otherwise herein stipulated, and such measurements shall be final and conclusive.
- B. The Road Commission shall make progress payments on account of the Contract Price on the basis of a reconciliation of the Road Commission's Draft Pay Estimate and the Contractor's application for payment on monthly intervals as provided herein.
- C. While the Work is being performed, the Contractor and the Road Commission or Road Commission's agent or representative shall confer daily on the quantity and amount of Work completed each day.
- D. Monthly, the Contractor shall provide the Road Commission with an application for payment within 7 days from receipt of the Road Commission's Draft Pay Estimate. In the event that the Contractor fails to provide the Road Commission with an application for payment within 14 days following receipt of the Road Commission's Draft Pay Estimate, the Road Commission's Draft Pay Estimate shall be deemed approved by the Contractor and the quantities and payments set forth therein may not be altered unless such alteration would result in a reduction in the total payment applied for or as agreed by the Road Commission in writing. For purposes of this paragraph, receipt is defined as the business day following the day the Road Commission's Draft Pay Estimate was emailed to the Contractor or, if mailed, the day the Road Commission's Draft Pay Estimate post marked.
- E. In the event that the Contractor's application for payment is timely provided and different than the Road Commission's Draft Pay Estimate, the Road Commission and Contractor shall resolve the discrepancy within 14 days from the date that the Contractor's application for payment is received by the Road Commission otherwise the Road Commission's Draft Pay Estimate shall be deemed approved by the Contractor and the quantities and payments set forth therein may not be altered unless such alteration would result in a reduction in the total payment or as agreed by the Road Commission in writing. For purposes of this paragraph, receipt is defined as the business day following the day the Road Commission's Draft Pay Estimate was emailed to the Contractor or, if mailed, the day the Road Commission's Draft Pay Estimate is post marked.
- F. Prior to substantial completion, the Contractor shall submit to the Road Commission an application for each payment and shall submit a Contractor's Declaration stating that it has not performed any work, furnished any material, sustained any loss, damage or delay for any reason, including soil conditions encountered or created, or otherwise done anything for which the Contractor will ask, demand, sue for or claim compensation from the Road Commission other than as indicated on the Contractor's Declaration and shall submit receipts or

other vouchers showing its payments for materials and labor, including payments to subcontractors. Proof of payment made to all subcontractors and suppliers for all prior applications in the form of a release executed by the subcontractor or supplier indicating that it has been paid for the Work performed.

G.  Contract Price \$30,000 or more or Contract Price to be paid in more than three (3) payments:

Payments, based on progress estimates, will be made within 30 days from approval for Ninety (90%) percent of the Work completed as set forth in the progress estimate, until the Work is Fifty (50%) in place. Thereafter, additional retainage shall not be withheld unless it is determined that the Contractor is not making satisfactory progress, or that there is other specific cause relating to the Contractor's performance under the Contract. If such a determination is made, not more than Ten (10%) percent of the dollar value of the work more than Fifty (50%) percent in place shall be retained as additional retainage. No payment estimate shall be paid until approved by the Engineer, and shall be less any deductions or reservations which may be made in accordance with the terms of the Contract. No allowance will be made for materials furnished, unless incorporated in the finished Work, unless otherwise stated.

OR

Contract Price less than \$30,000 or Contract Price to be paid in three (3) or less payments.

Payments, based on progress estimates, will be made within 30 days from approval for 90% of the Work completed as set forth in the progress estimate and approved by the Engineer, less any deductions or reservations which may be made in accordance with the terms of the Contract. No allowance will be made for materials furnished, unless incorporated in the finished Work, unless otherwise stated.

H. The Road Commission may withhold the payment of any estimate or portion of estimate until the Contractor shall have furnished satisfactory evidence that he has paid all claims of every nature.

I. No payment shall be considered as acceptance of the Work or any portion thereof prior to the final acceptance of the Work, and the payment of the final estimate.

J. The Contract will not be finalized until all submittals, guarantees, bonds, warranties, insurance, certifications, licenses and affidavits required for the Work as specified are satisfactorily filed with the Road Commission.

When required, the Contractor shall provide notarized copies of all valid licenses and certificates required for performance of the Work. The notarized copies shall

be delivered to the Road Commission Engineer no later than ten (10) days after the Contractor received the Notice of Award from the Road Commission Engineer. Current notarized copies of licenses and certificates shall be provided to the Road Commission Engineer within twenty-four hours of demand at any time during the Contract term. Licenses and certificates required for this Contract include, by way of illustration and not limitation, the following:

None

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- K. When Contractor considers the entire Work ready for its intended use, Contractor shall notify the Road Commission in writing that the entire Work is substantially complete and request that the Engineer issue a certificate of Substantial Completion. On a form provided in this contract document made part of.
- L. Within thirty (30) days after the issuance of the Certificate of Substantial Completion and the Contractor's completion of the Contract and in accordance with all and singular terms and stipulations herein contained, the Road Commission shall make payment from an invoice approved by the Engineer sufficient to achieve total payments to 100% of the Work completed less 150% of the value of the Work to be completed or corrected as identified in the certificate of Substantial Completion.
- M. Before final payment is made, the Contractor shall submit a Contractor's Affidavit stating that all claims of every nature have been paid or a release secured from the surety or sureties approving payment of the final estimate by the Road Commission.
- N. Upon final completion of the Work and any correction to the Work as set forth in the Certificate of Substantial Completion, the Road Commission shall pay the remaining Contract Price to the Contractor. The final payment, when made, shall be considered as final approval and acceptance of the completed Work subject to any guarantees or warranties provided herein. The acceptance by the Contractor of the final payment aforesaid shall operate as and shall be a release to the Road Commission and its agents from all claims and liability to the Contractor for anything done or furnished for relating to the Work or for any act of neglect of the Road Commission or of any person relating to or affecting the Work any reservation or protest notwithstanding.
- O. Only those items mentioned in the bid form are pay items. It is the Contractor's responsibility to complete those items and to furnish all other materials, workers, and machines to obtain a complete and satisfactory job. All other necessary items for a complete job shall be considered incidental and not pay items.

**21. ESTIMATED QUANTITIES.**

The quantities of the various classes of Work to be done and materials to be furnished under this Contract, which have been estimated as stated elsewhere herein, are approximate and only for the purpose of comparing, on a uniform basis, the bids offered for the Work under this Contract; and neither the Road Commission nor its agents is to be held responsible should any of the said estimated quantities be found incorrect during the construction of the Work; and the Contractor shall make no claim for anticipated profit nor for loss of profit, because of a difference between the quantities of the various classes of Work actually done or materials actually delivered, and the estimated quantities as herein stated.

**22. PAYMENTS WITHHELD.**

- A. The Road Commission may withhold or nullify the whole or a part of any certificate for progress payment to such extent as may be necessary to protect itself from loss on account of:
  - 1. Defective Work not remedied;
  - 2. Defective materials not replaced;
  - 3. Claims filed or reasonable evidence indicating probable filing of claims;
  - 4. Failure of the Contractor to make payments properly to subcontractors or for material or labor;
  - 5. A reasonable doubt that the Contract can be completed for the balance then unpaid;
  - 6. Damage to another contractor; or
  - 7. Liquidated Damages.
- B. When the above grounds are removed, payment shall be made for amount withheld because of them.

**23. TIME FOR COMPLETION; LIQUIDATED DAMAGES.**

- A. The Work which the Contractor is required to perform under this Contract shall be commenced and fully completed at the time stipulated by the Road Commission in a written "Notice to Proceed" to the Contractor.
- B. This is to be a daytime operation (8:00 a.m. - 5:00 p.m.), Monday through Friday, unless otherwise approved by the Engineer.
- C. Liquidated Damages for Road Commission Oversight Costs. The Contractor shall be responsible for liquidated damages in the amount set forth in the Schedule of Liquidated Damages for Oversight in Table 108-1 of the 2012 Standard Specifications for

**Construction** per calendar day for each day after the substantial completion date the Work remains substantially incomplete until the Work is substantially complete unless approved by the Road Commission in writing. Additionally, the Contractor shall be responsible for liquidated damages in the amount of the greater of one-half (1/2) of the amount set forth in the Schedule of Liquidated Damages for Oversight in Table 108-1 of the 2012 Standards Specifications or the actual expenses incurred by the Road Commission each day after the Work is substantially complete but outstanding items (Punch List Items) remain incomplete unless the Punch List Items are completed within the deadline set forth by the Road Commission in writing.

Sums assessed as liquidated damages are not penalties, but fixed and agreed upon damages due to the Road Commission from the Contractor representing the Road Commission's added cost of engineering and supervision and other items causing the expenditure of public funds due to the Contractor's failure to substantially complete or complete the Work within the specified time period.

24. **USE OF REFERENCES.**

- A. Work specified by reference to the published standard or specification of a government agency, technical association, trade association, professional society or institute, testing agency, or other organization shall conform to or surpass the minimum standards of quality for materials and Workmanship established by the designated standard or specification.
- B. Where so specified, products or Workmanship shall also conform to the additional prescriptive or performance requirements included within the Contract Document to establish a higher or more stringent standard of quality than that required by the referenced standard.
- C. Where two or more standards are specified to establish quality, the product and Workmanship shall conform to or surpass the requirements of both.
- D. In case of conflict between referenced standards, the more stringent shall apply.
- E. Where both a standard and a brand name are specified for a product on the Contract Document, the proprietary product named shall conform to or surpass the requirements of the specified reference standard. The listing of a trade name in a Contract Document shall not be construed as warranting that such product conforms to the respective reference standard.
- F. Copies of applicable referenced standards have not been bound in this Contract Document. Where copies of standards are needed by the Contractor for superintendence and quality control of the Work, the Contractor shall obtain a copy or copies directly from the publication source and maintain it in an orderly manner at the jobsite where it is available to the Contractor's personnel, subcontractors, Road Commission personnel and the Engineer.

25. **CONTRACT SUBMITTALS.**

- A. **Record Drawings.** Will **not** be required. Unless otherwise directed by the Engineer, at the time of substantial completion, the Contractor shall submit to the Engineer a current listing and description of each change incorporated into the Work since the preceding submittal.
- B. **Warranties.** The Contractor shall furnish one copy of all manufacturers' warranties, if any, for products or systems installed in the Project.
- C. **Material Certifications.** The Contractor shall submit as requested by the Engineer, material tickets, site measurements, and material certifications.

# **CONSTRUCTION CONTRACT**

**GRAND TRAVERSE COUNTY ROAD COMMISSION  
CONSTRUCTION CONTRACT**

**PROJECT: 18E004 – South Airport Road**

**LOCATION: South Airport Road**

THIS CONTRACT is made this \_\_\_\_\_ day of \_\_\_\_\_, 2018, by and between GRAND TRAVERSE COUNTY ROAD COMMISSION, a quasi-municipal corporation and a duly organized County Road Commission in the State of Michigan, of 1881 LaFranier Road, Traverse Road Commission, Michigan 49696 (the “Road Commission”) and \_\_\_\_\_, a \_\_\_\_\_ corporation, whose address is \_\_\_\_\_, (the “Contractor”);

WHEREAS, the parties wish to accomplish improvements at the above location (the “Site”) and have solicited and submitted a bid for such improvements;

THEREFORE, the parties mutually agree as follows:

1. Contract Documents. The following designated documents shall be deemed to be a part of this Contract:

- Advertisement
- Information to Bidders
- Instructions to Bidders
- Affidavit of Non-Collusion
- Bid
- Legal Status of Bidder
- Performance Bond with maintenance and guarantee obligations
- Payment Bond
- Notice of Award
- Notice to Proceed
- Authorization of Change(s)
- Work Item Descriptions
- General Specifications
- Supplemental Specifications
- Special Provisions
- Plans and Details
- Progress Schedule
- Contractor Safety Plan
- Pre-Construction Meeting Minutes
- Reports

- Michigan Department of Transportation Standard Specifications for Construction, excluding any standard specifically executed in the Contract Documents and;

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- Grand Traverse County Road Commission Standards and Specifications
- Addenda

2. Scope of the Work - Subject Matter. The Contractor, under penalty of bond, if applicable, attached, shall furnish all labor, materials, equipment and appliances suitable, capable, and necessary for the Work and do all the Work as set forth in the bid for the above project according to the specifications, plans, bids, bonds and other Contract documents which are or become a part of this Contract, in a manner, time and place as herein set forth.

It is the intent of the Contract to describe a functionally complete Project to be constructed in accordance with the Contract. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract or from prevailing custom or trade usage as being required to produce the intended result will be provided at no additional cost to the Road Commission. The Scope of Work is referred to herein as the "Work" or the "Scope of Work."

3. Contract Times. The services to be rendered under this Contract shall commence upon issuance of the Notice to Proceed. The Contract working time shall be as defined within the progress clause with an intended substantial completion date as defined within the progress clause and a final completion date as defined within the progress clause. Except as otherwise provided, should the Contractor be obstructed or delayed in the prosecution or completion of the Work by any act, neglect, or default of the Road Commission, then the time herein fixed for completion of the Work shall be extended for a period equivalent to the time lost by reason of such delay for the causes herein mentioned. The duration of such extension shall be determined by the Road Commission Engineer.

4. Contract Price. The Road Commission agrees to pay the Contractor the Unit Prices provided in the attached bid(s), specifications and other Contract documents in the time and manner therein provided. The total estimated price for all Work described herein shall be \_\_\_\_\_, more or less, to be paid pursuant to the procedures established in the Contract documents.

5. Non-Discrimination. The parties agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions or privileges of employment, or a matter directly or indirectly related to employment because of race, color, sexual orientation, gender identity, religion, national origin, age, sex, height, weight, family status, marital status, or physical or mental disability. Breach of this covenant may be regarded as a material breach of this Contract.

6. Independent Contractor. The relationship of the Contractor to the Road Commission is that of an independent contractor and in accordance therewith, the Contractor covenants and agrees to conduct itself consistent with such status and that neither it nor its employees, officers or agents will claim to be an officer, employee or agent of the Road Commission or make any claim, demand or application to or for any rights or privileges applicable to any officer or employee of same, including but not limited to worker's compensation coverage, unemployment insurance benefits, social security coverage, or retirement membership or credit. The parties do not intend the services provided by the Contractor to be a joint venture.

7. Maintenance and Guarantee. For one year after the date of final payment, the Contractor shall maintain and repair the Work. Any Work which is found to be defective shall promptly and without cost to the Road Commission and in accordance with the Road Commission's written instructions, be corrected or replaced with non-defective Work. If the Road Commission determines that Work must be replaced, the Contractor shall promptly replace the Work. If the Contractor believes that replacement of the Work was unreasonable and only repair of the Work should have been ordered by the Road Commission, the Contractor may file a claim against the Road Commission for the difference in cost, and, if the Road Commission disagrees with said claim, may pursue such claim in accordance with the dispute resolution procedure established in the Contract. If the Contractor does not promptly repair or replace the Work pursuant to the Road Commission's directions, the Road Commission may itself correct the defective Work or may have the defective Work corrected by another contractor. The Contractor shall pay all of the Road Commission's costs and expenses, including Road Commission overhead costs and attorney fees associated with the repair or replacement of the defective Work. Where defective Work has been corrected or removed and replaced under this paragraph, the correction period with respect to such Work will be extended for an additional term of one year after such correction or removal and replacement has been completed. These obligations are in addition to any other obligation provided by law or this Contract or warranty.

8. Recovery of Money. Whenever, under this Contract, any sum of money shall be recoverable from or payable by the Contractor to the Road Commission, the same amount may be deducted from any sum due to the Contractor under this Contract or under any other contract between the Contractor and the Road Commission. The rights of the Road Commission are in addition and without prejudice to any other right the Road Commission may have to claim the amount of any loss or damage suffered by the Road Commission on account of the acts or omissions of the Contractor.

9. Illegal Workers. The Contractor certifies that it does not and will not, during the performance of this Contract, employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986, as amended.

10. Contractor Responsibility. The Contractor shall perform the Work in a good and workerlike manner and assumes the risk in performing under this Contract. Contractor shall be solely responsible and answerable in damages for all improper Work, accidents or injuries to person or property.

11. Indemnification. Contractor shall indemnify and hold harmless the Road Commission, its board members, officers, agents and employees from and against any and all claims, liabilities, losses, damages, or expenses (including costs of investigation and defense, actual attorney fees and expenses, and settlement expenses) arising from or related to any claim (whether or not a third-party claim) alleging (1) bodily injury or death of any persons and damage or loss of any property, (2) breach of any representation, warranty, or covenant by the Contractor, (3) a hazardous environmental condition resulting or arising out of or in connection with the performance of any Work relating to this Contract, and (4) any negligent (or more culpable) act or omission of the Contractor in connection with the performance of its obligations under this Contract based upon any act, omission, or negligence of Contractor or its employees, agents, servants, subcontractors, or any other person or persons, including but not limited to the Road Commission, its agents, officers, or employees. The obligations to indemnify, and hold harmless contained herein shall exclude only those matters in which the claim arises out of allegations of the sole negligence of the Road Commission, its officers, agents or employees. This indemnification provision shall not be limited by reason of insurance coverage of any type. This provision is not intended to waive the defense of governmental immunity that may be asserted by the Road Commission in an action against it nor is it the Road Commission's exclusive remedy under this Contract.

The Road Commission hereby reserves the right to select its own counsel in defense of any matter arising hereunder, and no payment, or acknowledgement of liability, loss, fine, penalty or charge shall be made against the Road Commission without its express written consent.

The Contractor expressly acknowledges and agrees that this indemnification provision is intended to be as broad and inclusive as is permitted by law and that if any portion thereof is held invalid, it is agreed that the balance shall, notwithstanding, continue in full legal force and effect.

This indemnity shall survive the expiration or termination of this Contract.

12. Compliance with Regulations. The Contractor shall keep itself fully informed of and shall at all times comply with all local, state and federal laws, rules and regulations applicable to this Contract and the Work to be done hereunder.

13. MISS DIG. The Contractor shall be responsible for contacting and coordinating with all affected utilities. The Contractor is responsible for complying with the MISS Dig Underground Facility Damage Prevention and Safety Act for all Work under this Contract.

14. Standard of Conduct. Unless a higher standard is contained in Contractor's bid, Contractor shall render all services under this Contract according to generally accepted industry practices for the intended use of the Work or project.

15. Third Party Participation. The Contractor agrees that despite any subcontract entered into by the Contractor for execution of activities or provision of services related to the completion of this project, the Contractor shall be solely responsible for carrying out the project pursuant to this Contract. The Contractor shall specify in any such subcontract that the subcontractor shall be bound by this Contract and any other requirements applicable to the Contractor in the conduct of the project unless the Road Commission and the Contractor agree to modification in a particular case.

16. Qualifications of the Contractor. The Contractor specifically represents and agrees that its officers, employees, agents and consultants have and shall possess the experience, knowledge, and competence necessary to qualify them individually for the particular duties they perform hereunder and to perform the Work.

- The Contractor does have to be pre-qualified by the Michigan Department of Transportation for the Work to be performed under this Contract.

17. Contractor's Representations. The Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions, including subsurface and soil conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state, and local laws, rules, and regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface and surface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the General Specifications and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the General Specifications as provided in the General Specifications.

E. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (including surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the material, means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including applying the specific material, means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by Contractor to perform the Work, and safety precautions and programs incident thereto.

F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of Work to be performed by the Road Commission and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. Contractor has given the Road Commission Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

K. Contractor has reviewed, examined, and understands all standards referenced in the Contract.

L. Contractor understands that any quantity estimates are provided for reference only and the Contractor has verified final quantities. Contractor has provided written notice of any substantial discrepancies and the written resolution thereof by the Engineer is acceptable to Contractor.

18. Notice. Whenever it is provided in this Contract that a notice or other communication is to be given or directed to either party, the same shall be given or directed to the respective party at its address as specified in this Contract, or at such other address as either party may, from time to time, designate by written notice to the other.

19. Termination.

A. For Fault. If the Road Commission determines that the Contractor has failed to perform or will fail to perform all or any part of the services, obligations, or duties required by this Contract, the Engineer may terminate or suspend this Contract in whole or in part upon written notice to the Contractor specifying the portions of this Contract and in the case of suspension shall specify a reasonable period not more than 10 days from receipt of the notice, during which time the Contractor shall correct the violations referred to in the notice. If the Contractor does not correct the violations during the period provided for in the notice, this Contract shall be terminated upon expiration of such time. Upon termination, any payment due the Contractor at time of termination may be adjusted to cover any additional costs occasioned or to be occasioned by the Road Commission by reason of the termination and failure to perform, including attorney fees and overhead costs. This Section shall not limit or modify any other right of the Road Commission to proceed against the Contractor at law or equity or under the terms of this Contract.

For the avoidance of doubt, failure to perform under this Section includes, but is not limited to, the following:

1. Contractor fails to begin the Work within the time specified.
2. Contractor fails to prosecute the Work to assure completion within the number of days specified.
3. Contractor fails to perform in accordance with the Contract.
4. Contractor fail to perform in accordance with the Contract requirements and specifications.
5. Contractor neglects or refuses to remove and replace rejected materials or Work.
6. Contractor discontinues the Work without the Road Commission's approval.
7. Contractor fails to resume work that has been discontinued within a reasonable number of days after notice to do so.
8. Contractor is uncooperative, disruptive or threatening.
9. Contractor fails to conduct the Work in an acceptable manner.

B. Not for Fault. The performance of Work or any portion thereof under the Contract may be terminated by the Road Commission Manager in whole or in part whenever the Road Commission Manager determines that termination is in the Road Commission's best interest. Any such termination shall be effected by the delivery to the Contractor of a written notice of termination at least 5 days before the date of termination, specifying the extent to which performance of the Work under the Contract is terminated and the date upon which such termination becomes effective.

After receipt of a notice of termination, except as otherwise directed, the Contractor shall stop Work on the date of receipt of the notice of termination or

other date specified in the notice; place no further orders or subcontracts for materials, services or facilities except as necessary for completion of such portion of the Work not terminated; terminate all vendors and subcontracts, settle all outstanding liabilities and claims and secure the site as directed by the Road Commission in the notice of termination.

Upon termination, the Contractor shall be entitled to and the Road Commission shall pay the costs actually incurred in compliance with this Contract up to the date of termination. In no event shall the Contractor be entitled to recover costs not actually incurred or anticipated profits on Work not completed or dispensed with.

20. Failure to Enforce. Failure by the Road Commission at any time to enforce the provisions of the Contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the Contract or any part thereof, or the right of the Road Commission to enforce any provision at any time in accordance with its terms.

21. Freedom of Information Act. The Contractor acknowledges that the Road Commission may be required from time to time to release records in its possession by law. The Contractor hereby gives permission to the Road Commission to release any records or materials received by the Road Commission as it may be requested to do so as permitted by the Freedom of Information Act, MCL 15.231 *et seq.* Provided, however, that the Contractor shall not be held liable for any reuse of the documents prepared by the Contractor under this Contract for purposes other than anticipated herein.

22. Force Majeure. If because of Force Majeure either party is unable to carry out any of its obligations under this Contract (other than obligations of such party to pay or expend money for or in connection with the performance of this Contract), and if such party promptly gives to the other party concerned written notice of such force majeure, then the obligations of the party giving such notice will be suspended to the extent made necessary by such force majeure and during its continuance, provided the effect of such force majeure is eliminated insofar as possible with all reasonable dispatch. "Force Majeure" means unforeseeable events beyond a party's reasonable control and without such party's fault or negligence, including, but not limited to, acts of God, acts of public enemy, acts of the federal government, fire, flood, inclement weather, epidemic, quarantine restrictions, strikes and embargoes, labor disturbances, the unavailability of raw materials, legislation, orders or acts of civil or military authority, injunctions, or other causes of a similar nature which wholly or substantially prevent performance. If the suspension of Work lasts for more than thirty (30) days, the Road Commission may terminate this Contract pursuant to paragraph 17.B.

If the Contractor is delayed in the completion of Work due to Force Majeure, or otherwise, the time for completion may be extended for a period determined by the Road Commission to be equivalent to the time of such delay. However, the

Contractor shall not be entitled to any increase in Contract Price as a result of the Force Majeure unless otherwise expressly agreed in writing by the Engineer.

23. Dispute Resolution. If any party has a dispute with another regarding the meaning, operation or enforcement of this Contract or any provision of this Contract, the disputing parties agree to meet and confer to negotiate a resolution of the dispute. They further agree as follows:

- A. Mediation. If they are unable to resolve the dispute themselves and before formally instituting any other dispute mechanism, they shall utilize the services of a mutually acceptable neutral mediator, who meets the qualifications of MCR 2.411, to bring them together in at least one mediation session.
- B. Arbitration. If they are unable to resolve the dispute through mediation, it shall be decided by final and binding arbitration according to the rules and procedures of an arbitration service as the parties may agree. Judgment upon the award rendered by the arbitrator may be entered in Circuit Court.
- C. Venue. All meetings, hearings and actions to resolve the dispute shall be in Grand Traverse County.
- D. Notice. Written notice of a dispute shall be given to the other party not later than 90 days after the occurrence giving rise to the dispute becomes known or should have become known. Negotiations and mediation shall occur within 60 days after such notice. Unless a longer time is agreed upon, arbitration must be demanded within 120 days after such notice and, if not, the claim is deemed waived. Arbitration must be demanded within this time limit even if negotiation or mediation has not occurred, but the arbitrator must direct the parties to mediation before issuing an award.
- E. Work Continuance and Payment. Unless otherwise agreed in writing, Contractor shall continue the Work and maintain the approved schedules during any dispute resolution proceedings. If Contractor continues to perform, the Road Commission shall continue to make payments in accordance with this Agreement.
- F. Emergency Injunctive Relief. Nothing in this Contract shall prohibit the Road Commission from seeking emergency injunctive relief, should the situation warrant it under MCR 3.310.
- G. Agent Dispute Resolution. Notwithstanding the above, at the option of the Road Commission, the Road Commission and the Contractor shall submit the following matters to a person with background, training, and experience in similar projects:

1. To determine whether there has been a delay for reasons that were within the control of the Contractor, and the period of time that delay has been caused, continued, or aggravated by actions of the Contractor.
2. To determine whether there has been an unacceptable delay by the contractor in the performance of the remaining Work under the contract any time after 94% of the Work is in place.

The agent selected shall be mutually agreeable to the Road Commission and the Contractor provided that the Road Commission and the Contractor can mutually agree within 10 days from the date of the dispute. In the event that the parties cannot agree, the agent shall be selected by the Road Commission. The agent shall not be an employee of either party. This process shall be governed by and subject to the provisions of MCL 125.1564(4) – (8).

24. Entire Contract. This Contract, together with all items incorporated herein by reference, constitutes the entire Contract of the parties and there are no valid promises, conditions or understandings which are not contained herein.

25. Amendments. This Contract may be modified from time to time, but such modifications shall be in writing and signed by both parties.

26. Interpretation. This Contract shall be governed by the laws of the State of Michigan, both as to interpretation and performance. This Contract was drafted at the joint direction of the parties. The pronouns and relative words used herein are written in the neuter and singular. However, if more than one person or entity joins in this Contract on behalf of Contractor, or if a person of masculine or feminine gender joins in this Contract on behalf of Contractor, such words shall be interpreted to be in the plural, masculine or feminine as the sense requires.

In the event that any term, clause or provision of this Contract conflicts with any term, clause, or provision contained in any attachments to this Contract, this Contract's terms shall prevail. In the event any term, clause or provision of a standard, specification, manual, or code published or prepared by any entity other than the Road Commission or its agents conflicts with any term, clause, provision or specification prepared by the Road Commission or its agents, the term, clause, provision or specification prepared by the Road Commission or its agents shall prevail except as otherwise required by law.

References to standards, specifications, manuals, or codes of any technical society organization, or association shall mean the standard, specification, manual, code, or law or regulation in effect at the time of opening the Bid or the date of this Agreement, whichever occurs first, except as otherwise stated or required by law or regulation. References to any law, rule, or regulation shall mean the law, rule, or regulation in effect at the time the Work or any portion thereof is performed by the Contractor.

27. Record Drawings. Record drawings are **not** required. Contractor shall create and submit 3 sets of record drawings of the finished Work to the Road Commission. Final Payment shall not be due until the drawings are reviewed and accepted by the Road Commission.

28. Authority to Execute. The parties agree that the signatories appearing below have the authority and are duly authorized to execute this Contract on behalf of the party to the Contract.

29. Third Party Beneficiaries. This Contract confers no rights or remedies on any third party, other than the parties to this Contract and their respective successors and permitted assigns.

30. Reuse of Documents. All documents and electronic files delivered to the Road Commission are instruments of service in respect of the project. Nevertheless, all documents and electronic files delivered to the Road Commission shall become property of the Road Commission upon completion of the Work and payment in full of all monies due the Contractor. Copies of the Road Commission-furnished data that may be relied upon by the Contractor are limited to the printed copies (also known as hard copies) that are delivered to the Contractor. Files on electronic media of text, data or graphics or of other types that are furnished by the Road Commission to the Contractor are only for convenience of the Contractor. Any conclusion of information obtained or derived from such electronic files will be at the user's sole risk. Economic benefit to the Road Commission for having these files is predicated on the files being in media form, software release number and hardware operating system number as utilized by the Contractor. Copies of documents that may be relied upon by the Road Commission are limited to the printed copies (also known as hard copies) that are signed or sealed by the Contractor. Files on electronic media of text, data or graphics or of other types that are furnished by the Contractor to the Road Commission shall be in a compatible software format for use by the Road Commission. Any conclusions or information obtained or derived from such electronic files will be at the user's sole risk. Electronic file copies of drawings will not contain the Contractor's seal or the identification of the Contractor in the title block.

31. Digital Signatures. The parties hereto acknowledge and agree under the Uniform Electronic Transactions Act, MCL 450.832, *et seq.* that this Contract may be executed with the electronic signature of any person authorized and required to sign on behalf of the parties hereto.

32. Execution in Counterparts. This Contract may be executed in counterparts, each of which shall be an original and all of which shall constitute the same instrument.

33. No Waiver. No waiver by any party of any default by another party in the performance of any portion of this Contract shall operate or be construed as a waiver of any future default, whether like or different in character.

34. Costs and Expenses. Contractor shall be responsible for reasonable attorney fees and costs incurred by the Road Commission in connection with recovery under the bonds furnished by Contractor or any of its subcontractors under this Contract as well as any reasonable attorney fees and costs incurred by the Road Commission in connection with the Contractor's performance or failure to perform under this Contract. Costs that may be charged to the Contractor include, but are not limited to, all costs and expenses incurred by the Road Commission in connection with performing any portion of the Work that the Contractor fails and refuses to perform following notice to the Contractor. In case of an emergency, where in the opinion of the Engineer, delay would cause serious loss or damage, or presents a safety hazard to the traveling public, corrective work may be undertaken without advance notice to Contractor, and Contractor shall be liable for all costs and expenses incurred. The remedies set forth in this paragraph are cumulative of any other remedies the Road Commission may have.

IN WITNESS WHEREOF, the parties hereto have executed this Contract on the date and year first above written.

## CONTRACTOR

By \_\_\_\_\_

Its \_\_\_\_\_

STATE OF MICHIGAN )  
COUNTY OF )

On \_\_\_\_\_, 201\_\_\_\_\_, before me, a notary public in and for said County, personally appeared \_\_\_\_\_, a Michigan corporation, who executed the above instrument on behalf of said corporation.

Notary Public  
\_\_\_\_ County, Michigan  
Acting in \_\_\_\_\_ County, Michigan  
My Commission Expires: \_\_\_\_\_

# **GRAND TRAVERSE COUNTY ROAD COMMISSION**

By \_\_\_\_\_  
, Chairperson

By: \_\_\_\_\_  
Debra J.M. Hunt, Clerk

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GRAND TRAVERSE COUNTY ROAD COMMISSION  
CONSTRUCTION CONTRACT

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STATE OF MICHIGAN )  
COUNTY OF )

On \_\_\_\_\_, 201\_\_\_\_\_, before me, a notary public in and for said County, personally appeared \_\_\_\_\_, the Chairperson, and \_\_\_\_\_, the Clerk of the Grand Traverse Road Commission, who executed the above on behalf of the Grand Traverse County Road Commission.

Notary Public  
\_\_\_\_ County, Michigan  
Acting in \_\_\_\_\_ County, Michigan  
My Commission Expires: \_\_\_\_\_

APPROVED AS TO SUBSTANCE:

**APPROVED AS TO FORM:**

Jim Cook  
Road Commission Manager

Karrie A. Zeits  
Road Commission General Counsel

# **BID FORM**

## BID FORM

### PROJECT IDENTIFICATION:

GRAND TRAVERSE COUNTY ROAD COMMISSION  
South Airport Road

**OWNER PROJECT NUMBER: 18E004**

### THIS BID IS SUBMITTED TO:

GRAND TRAVERSE COUNTY ROAD  
COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49696-8911

- 1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Road Commission in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
- 2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance and the prices guaranteed for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of the Road Commission.
- 3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:
  - A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No. Addendum Date

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions, including subsurface conditions, that may affect cost, progress, and performance of the Work.

- C. Bidder is familiar with and is satisfied as to all federal, state and local laws, rules, and regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site which may have been provided, if any, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which may have been provided.
- E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the materials, means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific materials, means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by the Road Commission and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- K. The Bidder understands that if it is the Successful Bidder, it is being selected by the Road commission to perform the Work because of Bidder's skill and expertise to perform the Work and Bidder specifically represents and agrees that it has the experience, knowledge, and competency necessary to perform the Work or oversee the performance of the Work and assumes the responsibility for

the performance of the Work pursuant to the Contract documents and assumes the risk in performing the Work.

- 4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over the Road Commission.
- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

**UNIT PRICE BID:**

*Acceptance or rejection of each bid alternate will be at the sole discretion of the Road Commission and will be determined prior to award.*

See Attachment A which includes the following:

**Project #18E004 – South Airport Road**

Unit Prices have been computed in accordance with the Instructions to Bidders.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

- 6.01 Bidder agrees that the Work will be substantially completed and completed and ready for final payment in accordance with the General Specifications on or before the dates or within the number of calendar days indicated in the Contract Documents.
- 7.01 Bidder accepts the provisions of the Contract as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the Contract.
- 8.01 The required Bid security is attached to and made a condition of this Bid.
- 9.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Bidding Documents.

SUBMITTED on \_\_\_\_\_, 20\_\_\_\_

*Note to Bidders - Complete only one of the following three sections as appropriate for your business status: individual, partnership or corporation.*

If Bidder is:

An Individual

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_  
(Individual's signature)

Doing business as: \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_ Fax No.: \_\_\_\_\_

A Partnership

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_  
(Authorized Individual's signature)

Doing business as: \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_ Fax No.: \_\_\_\_\_

A Corporation/Limited Liability Company/Professional Liability Company

Name (typed or printed): \_\_\_\_\_

State of Formation \_\_\_\_\_

Type: \_\_\_\_\_

By \_\_\_\_\_  
(signature)

Name: \_\_\_\_\_  
(type or printed)

Title \_\_\_\_\_

Business Address:\_\_\_\_\_

Phone:\_\_\_\_\_ Fax No.:\_\_\_\_\_

e-mail:\_\_\_\_\_

# **ATTACHMENT A**

## PLAN INDEX

SHEET NUMBER	SHEET DESCRIPTION
1	TITLE SHEET
2-5	TYPICAL CROSS SECTIONS
6	NOTE SHEET
7-36	PLAN & PROFILE SHEETS
37-46	PERMANENT SIGNAGE & PAVEMENT MARKING SHEETS

# GRAND TRAVERSE COUNTY ROAD COMMISSION

IN COOPERATION WITH  
GARFIELD TOWNSHIP

PLANS OF PROPOSED IMPROVEMENTS TO  
SOUTH AIRPORT RD

PLACING OF TEMPORARY TRAFFIC CONTROL ITEMS SHALL BE DONE IN ACCORDANCE WITH THE 2011 EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS REVISED.

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS, AS AMENDED.

THE PROPOSED IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH SECTION C (3R) OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION LOCAL AGENCY PROGRAMS GUIDELINES FOR GEOMETRICS DATED MARCH 4, 2014.

## TRAFFIC DATA

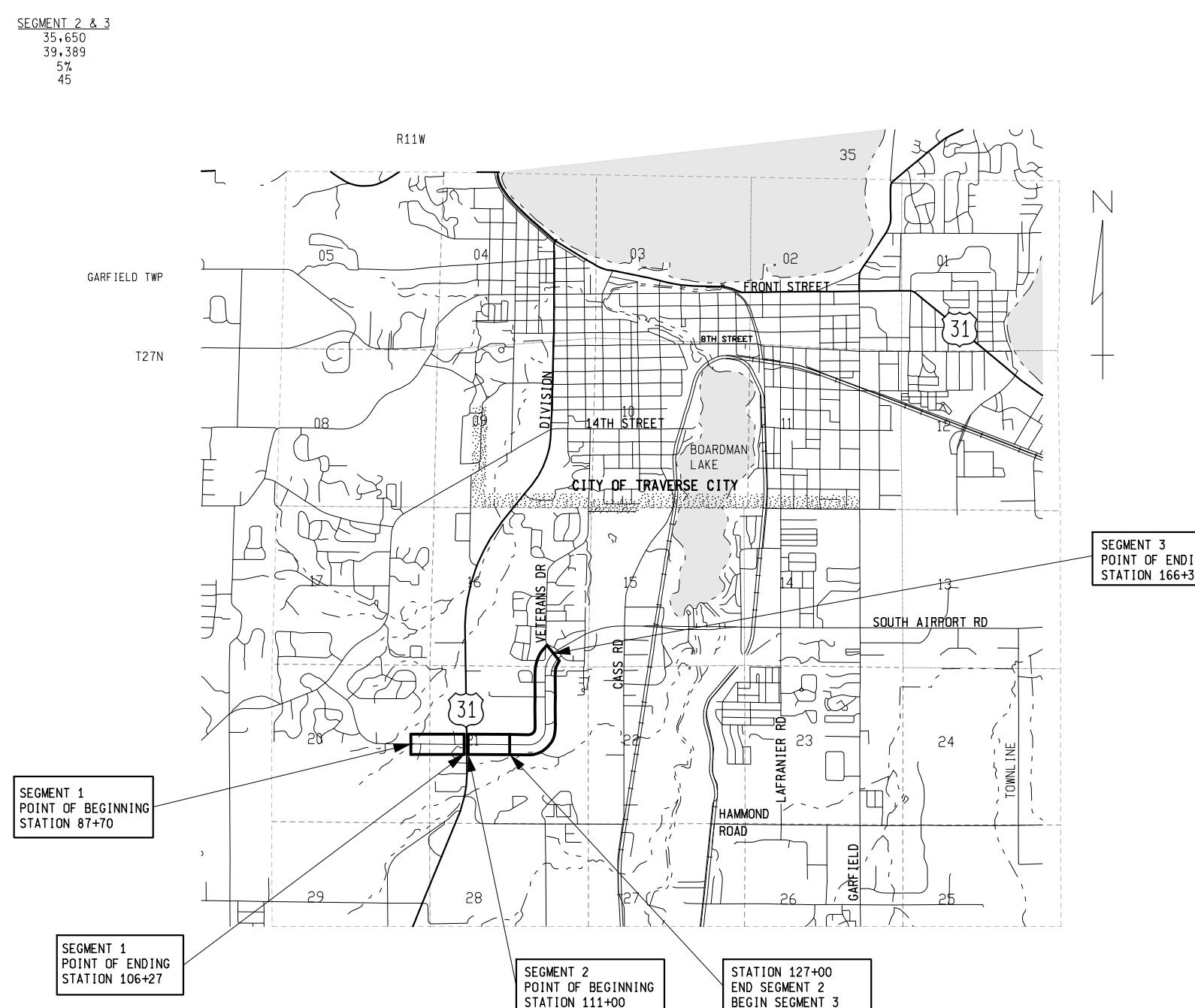
PRESENT ADT (2018)	SEGMENT 1 14,375	SEGMENT 2 & 3 35,650
FUTURE ADT (2038)	15,883	39,389
% COMMERCIAL	5%	5%
DESIGN SPEED (MPH)	55	45



COUNTY KEY



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811



PROJECT LENGTH: SEGMENT 1 = 0.35 MILES  
SEGMENT 2 & 3 = 1.05 MILES

CONTRACT FOR:  
SEGMENT 1: WIDENING FOR LANE ADDITION INCLUDING CONC C&G, DRAINAGE IMPROVEMENTS AND HMA SURFACING.

SEGMENT 2: RECONSTRUCTION INCLUDING REMOVAL OF UNDERLYING CONC AND HMA ROADWAY, CONC C&G, GUARDRAIL AND HMA SURFACING

GRAND TRAVERSE COUNTY ROAD COMMISSION

JAMES P. JOHNSON, P.E.  
COUNTY HIGHWAY ENGINEER

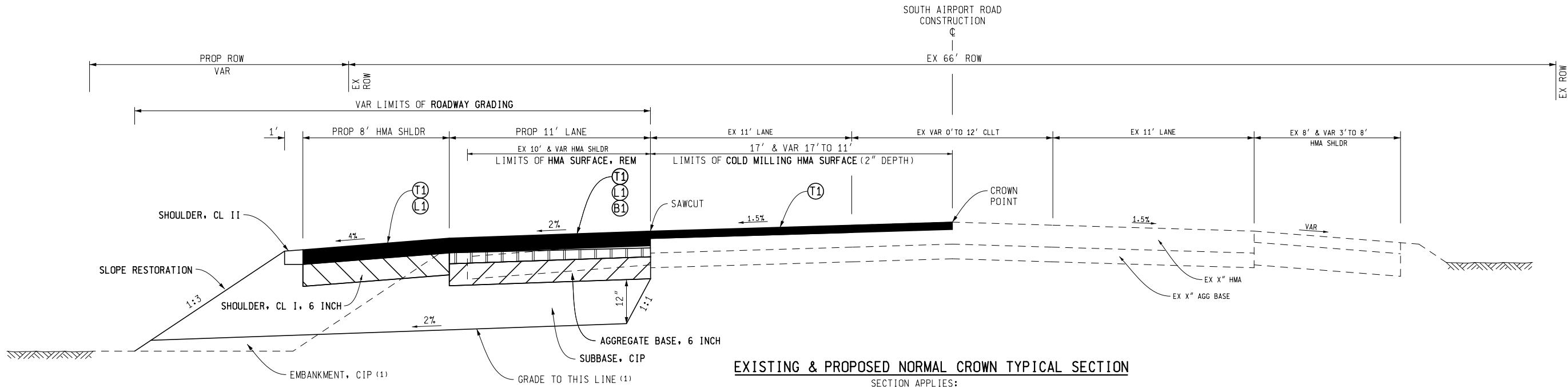
DATE

PREPARED UNDER SUPERVISION OF  
PATRICK J. MIDDLETON, P.E.  
REGISTERED PROFESSIONAL ENGINEER

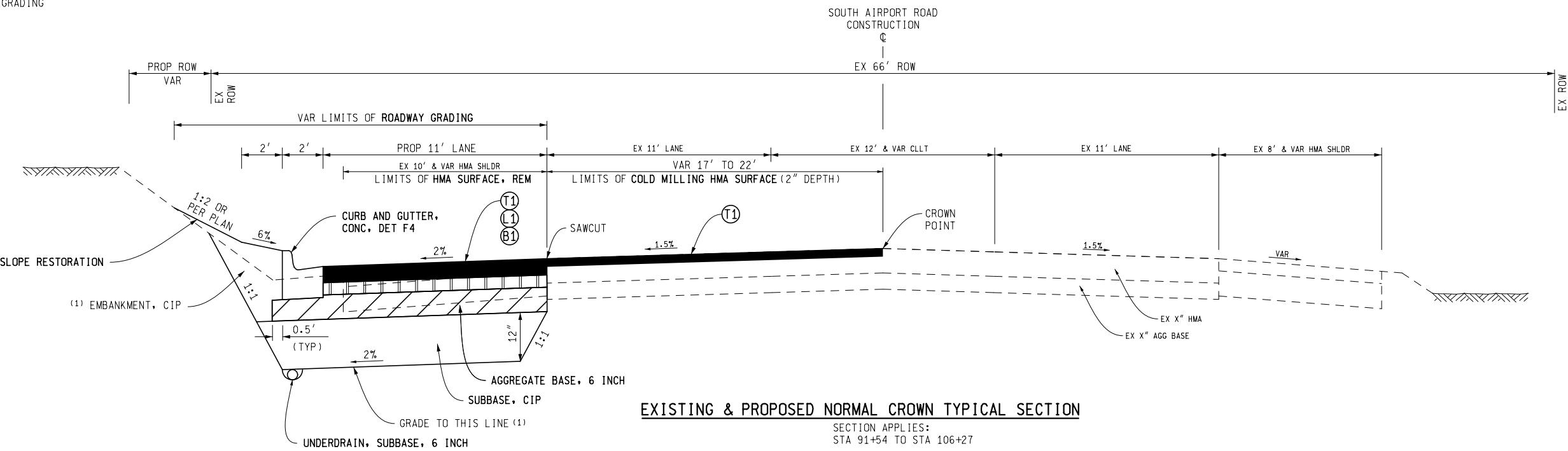
45673  
REGISTRATION NUMBER

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

DATE: 2/27/2018



(1) INCLUDED IN PAYMENT FOR ROADWAY GRADING



#### HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER SYD	PERFORMANCE GRADE	REMARKS
(1)	HMA, 4E3	220#	PG 64-28	TOP COURSE, AWI = 260
(1)	HMA, 4E3	220#	PG 64-28	LEVELING COURSE
(2)	HMA, 3E3	330#	PG 58-22	BASE COURSE
(2)	HMA, 4E10, High Stress	220#	PG 70-28P	TOP COURSE, AWI = 260
(2)	HMA, 4E10, High Stress	220#	PG 70-28P	LEVELING COURSE
(2)	HMA, 3E10	330#	PG 58-22	BASE COURSE
(4)	HMA APPROACH	440#	PG 70-28P	HMA, 4E3 (2 COURSES AT 220#)
* BOND COAT				
0.05-0.15 GAL/SYD				

\* FOR INFORMATION ONLY

0 1 2 3 4 5 6  
SCALE  
(VERTICAL SCALE VARIES)



3 WORKING DAYS  
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800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

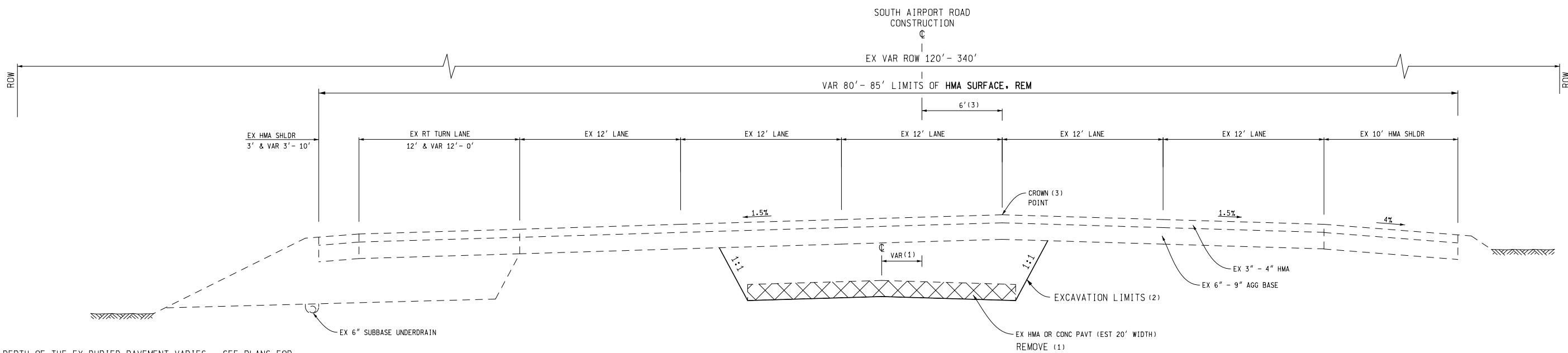
TYPICAL CROSS SECTIONS

DATE  
2/27/2018

TOWNSHIP  
GARFIELD

SOUTH AIRPORT RD  
WEST OF US-31 TO VETERANS DR

2



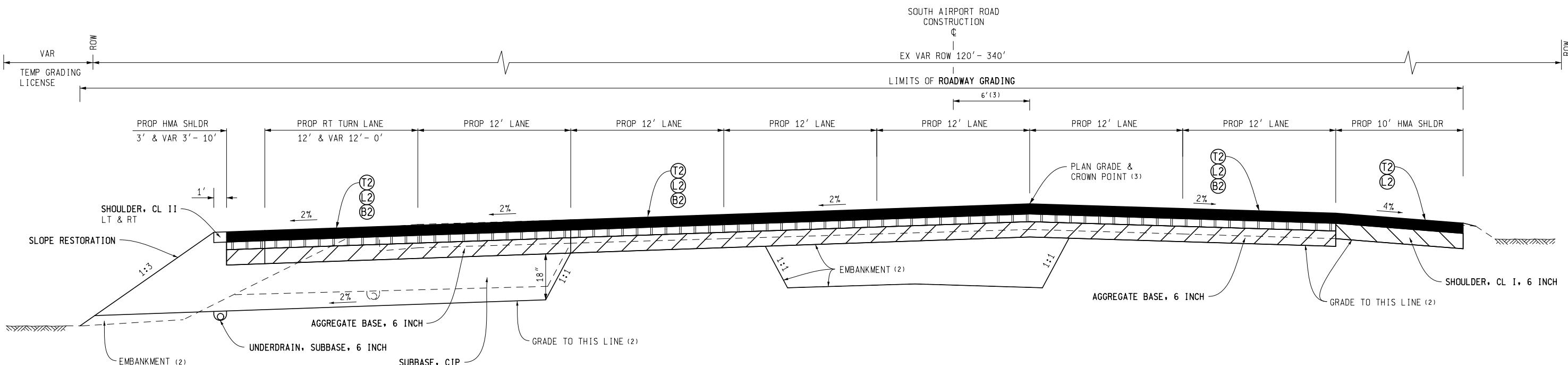
(1) THE LOCATION AND DEPTH OF THE EX BURIED PAVEMENT VARIES. SEE PLANS FOR APPROXIMATE LOCATIONS. FROM STA 115+50 TO 120+50, THE BURIED PAVT IS HMA (EST 5" THICKNESS). FROM 120+50 TO 166+35, THE BURIED PAVT IS CONCRETE. THERE MAY BE SOME HMA OVER THE CONCRETE. REMOVAL OF THE HMA CAP WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN PAYMENT FOR REMOVAL OF THE UNDERLYING CONCRETE.

(2) INCLUDED IN PAYMENT FOR ROADWAY GRADING

(3) STA 111+00 TO 113±80 - CROWN POINT IN CENTER OF LEFT TURN LANE  
STA 113±80 TO 114±80 - CROWN POINT TRANSITIONS TO RIGHT EDGE OF LEFT TURN LANE

### EXISTING NORMAL CROWN TYPICAL SECTION

SECTION APPLIES:  
STA 111+00 TO STA 122+4



PROPOSED NORMAL CROWN TYPICAL SECTION

SECTION APPLIES:  
STA 111+00 TO STA 122+4



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

# **GRAND TRAVERSE**

County Road Commission

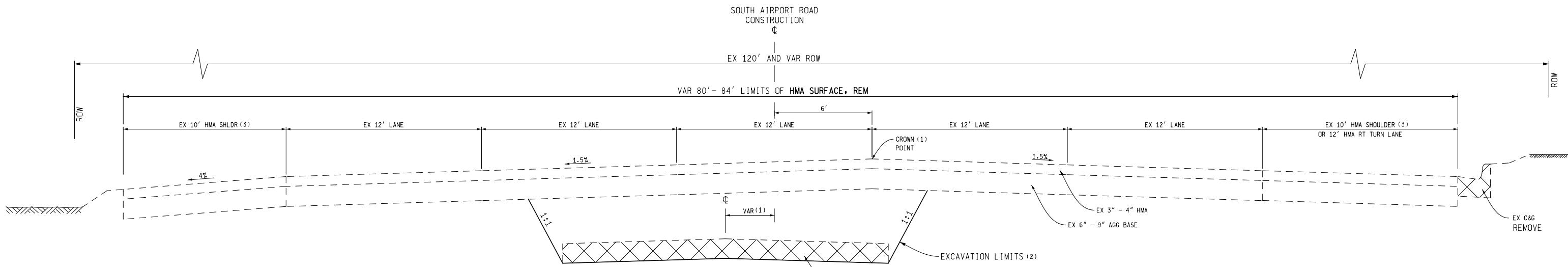
**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

## TYPICAL CROSS SECTIONS

ING DATE  
2/27/201

TOWNSHIP  
GARFIELD

SOUTH AIRPORT RD  
WEST OF US-31 TO VETERANS DR



(1) THE LOCATION AND DEPTH OF THE EX BURIED CONC PAVEMENT VARIES. THERE MAY BE SOME HMA OVER THE CONCRETE. REMOVAL OF THE HMA CAP WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN PAYMENT FOR REMOVAL OF THE UNDERLYING CONCRETE.

(2) INCLUDED IN PAYMENT FOR ROADWAY GRADING, TYPE 2

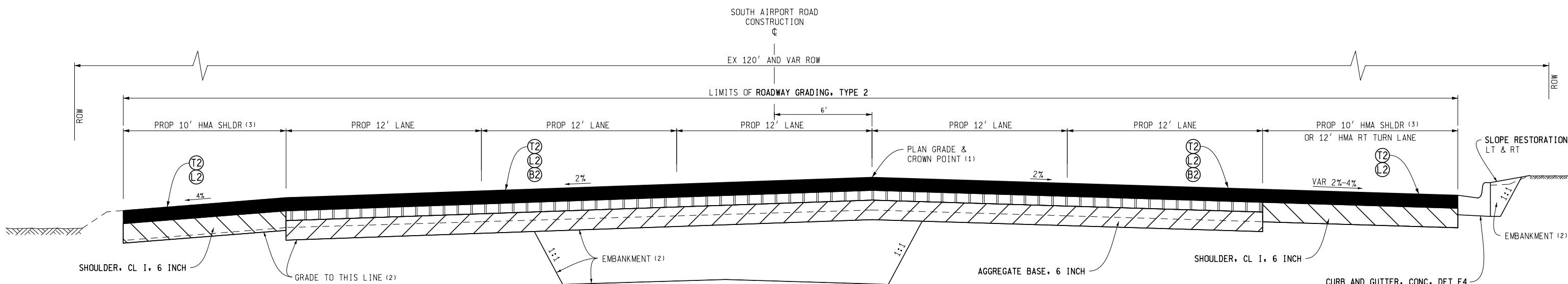
### EXISTING NORMAL CROWN TYPICAL SECTION

SECTION APPLIES:  
STA 122+40 TO STA 126+94  
STA 143+63 TO STA 154+36

(3) EX HMA/SHOULDERS/TURN LANE LOCATIONS

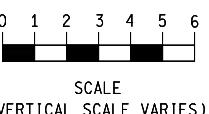
LEFT  
STA 122+40 TO STA 123+82 - 10' HMA SHLDR  
STA 123+82 TO STA 126+94 - 12' RT TURN LANE W/C & G  
STA 143+63 TO STA 150+85 - 12' RT TURN LANE W/C & G  
STA 150+85 TO STA 154+36 - 10' HMA SHI DR

RIGHT  
STA 122+40 TO STA 126+94 - 10' HMA SHLDR  
STA 143+63 TO STA 154+36 - 10' HMA SHLDR



PROPOSED NORMAL CROWN TYPICAL SECTION

SECTION APPLIES:  
STA 122+40 TO STA 126+94  
STA 143+63 TO STA 154+36



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

# **GRAND TRAVERSE**

County Road Commission

**E**  **KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

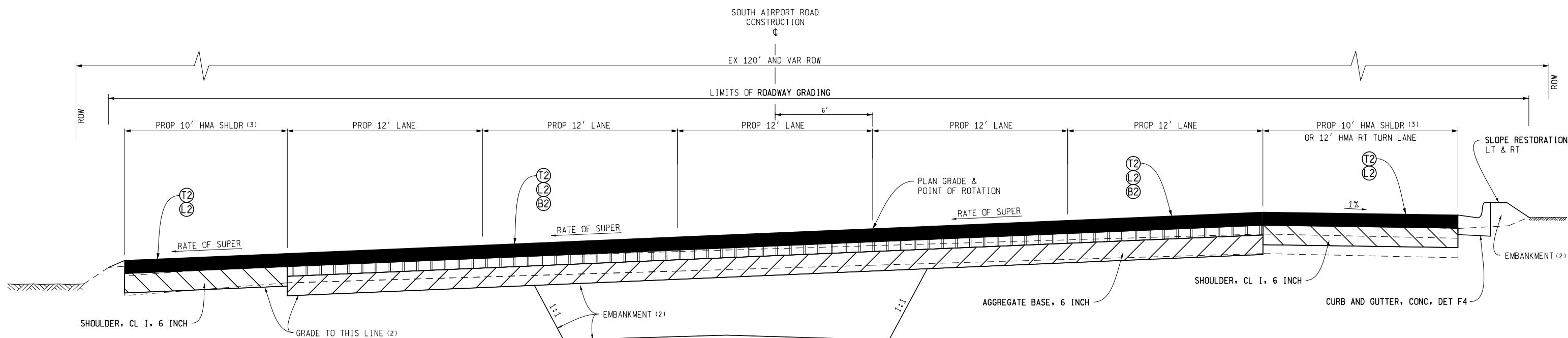
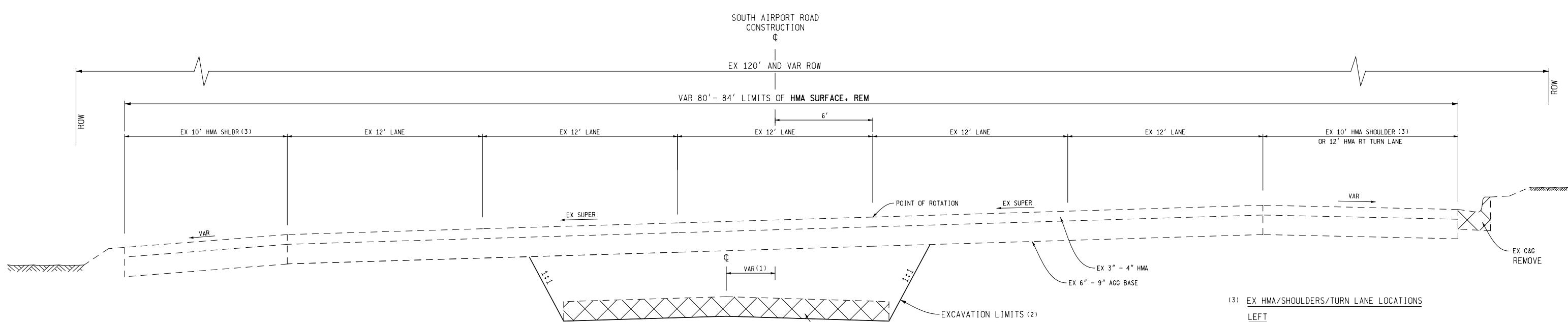
## TYPICAL CROSS SECTIONS

ING DATE  
2/27/201

**TOWNSHIP  
GARFIELD**

SOUTH AIRPORT RD  
WEST OF US-31 TO VETERANS DR

HEET NO



**SUPERELEVATION TABLE**

STATIONING OF FULL SUPERELEVATION	RADIUS OF CURVE	PROP SUPER	$\Delta\%$	$Z\Delta\%$	CROWN RUNOUT (C)	TRANSITION HIGH SIDE (L)	TRANSITION LOW SIDE (L-C)	ADVISORY SPEED (mph)	EX SUPER
132+27 TO 138+29	550'	6.0%	0.54%	0.36%	133'	400'	266'	N/A	5.0%
159+62 TO 165+24	900'	5.6%	0.52%	0.35%	138'	388'	195'	35	4.0%

0 1 2 3 4 5 6  
SCALE (VERTICAL SCALE VARIES)



3 WORKING DAYS  
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**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

DATE  
2/27/2018

**TYPICAL CROSS SECTIONS**  
TOWNSHIP  
GARFIELD  
SHEET NO.  
5

## GENERAL PLAN NOTES

### UNDERGROUND UTILITIES / MISS DIG

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

### DETECTABLE WARNING SURFACES

DETECTABLE WARNING SURFACES COLOR SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

### ADJUSTING MONUMENT BOXES

ALL GOVERNMENT CORNERS ON THIS PROJECT SHALL BE PRESERVED, WHETHER SHOWN OR NOT. IT MAY BE NECESSARY TO PLACE OR ADJUST MONUMENT BOXES, AS REQUIRED.

### SIDEWALK AND SIDEWALK RAMP GRADES

ALL SIDEWALK AND SIDEWALK RAMP GRADES SHALL BE STAKED ACCORDING TO STANDARD PLAN R-28 SERIES AND AS SHOWN ON THE PLANS. PRIOR TO CONSTRUCTING THE SIDEWALK AND SIDEWALK RAMPS, THE ENGINEER WILL VERIFY THE GRADES AND AUTHORIZE THE CONSTRUCTION OF THE SIDEWALK AND SIDEWALK RAMPS.

### SOIL BORINGS AND/OR PAVEMENT CORES

THE SOIL BORING LOGS AND/OR PAVEMENT CORES REPRESENT POINT INFORMATION. NO INFERENCE SHOULD BE MADE THAT SUBSURFACE OR PAVEMENT CONDITIONS ARE THE SAME AT OTHER LOCATIONS.

### PROPERTY OWNERS

PROPERTY INFORMATION, WHERE SHOWN, IS FOR INFORMATION ONLY, AND RELATED ACCURACY IS NOT GUARANTEED.

### LAWN SPRINKLER SYSTEMS AND LANDSCAPING

OWNERS OF EXISTING LAWN SPRINKLER SYSTEMS AND/OR LANDSCAPING SHALL BE NOTIFIED (IN WRITING) BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF ANY WORK TO BE DONE THAT WILL AFFECT THOSE SYSTEMS AND/OR LANDSCAPING. IF THE PROPERTY OWNER FAILS TO RELOCATE THE LAWN SPRINKLER SYSTEM PRIOR TO THE CONTRACTOR BEGINNING WORK, AND IF THE CONTRACTOR CUTS THE SYSTEM DURING THE CONSTRUCTION, THE CONTRACTOR SHALL CAP THE SYSTEM PIPE AND WITNESS THE LOCATION OF THE CAP WITH A WOODEN STAKE FOR THE PROPERTY OWNERS USE. THE CONTRACTOR SHALL PLACE THE SALVAGED SPRINKLER HEADS ON THE PROPERTY OWNERS PROPERTY. THIS WORK IS INCLUDED IN OTHER ITEMS OF THE PROJECT.

### AGGREGATE BASE

AGGREGATE BASE USED ON THIS PROJECT SHALL BE AGGREGATE 22A.

### SAWCUTTING

SAWCUT AT ALL LIMITS OF CONSTRUCTION INCLUDING DRIVEWAYS. PAYMENT FOR SAWCUTTING REQUIRED THROUGHOUT THE PROJECT SHALL BE INCLUDED IN OTHER ITEMS.

### SOIL EROSION MEASURES

APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTH-DISTURBING ACTIVITIES. PLACE TURF ESTABLISHMENT ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODIBLE SLOPES AS DIRECTED BY THE ENGINEER. CRITICAL DITCH GRADES SHALL BE PROTECTED WITH EITHER SOD OR SEED/MULCH OR MULCH BLANKET AS DIRECTED BY THE ENGINEER.

### SLOPE RESTORATION

SLOPE RESTORATION QUANTITIES FOR SEGMENT 1 ARE TO THE SLOPE STAKE LINE.

SLOPE RESTORATION QUANTITIES FOR SEGMENT 2 & 3 ARE ESTIMATED AT 6' WIDE (I.E. PAST THE SLOPE STAKE LINE) EXCEPT FROM STA 111+00 TO STA 118+00 LT WHERE THEY ARE ESTIMATED TO THE SLOPE STAKE LINE.

ANY ADDITIONAL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

### PROPERTY CORNERS

IN ACCORDANCE WITH SECTION 821 OF THE 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION, EXISTING PROPERTY CORNERS WITHIN THE GRADING LIMITS SHALL BE LOCATED, WITNESSED, ADJUSTED VERTICALLY, AND DOCUMENTED. THIS WORK IS INCLUDED IN PAYMENT FOR PROTECT CORNERS AND SHALL BE PERFORMED WHERE DIRECTED BY THE ENGINEER.

### SIGN REMOVAL

ALL REMOVED SIGNS SHALL BECOME THE PROPERTY OF GRAND TRAVERSE COUNTY ROAD COMMISSION AND SHALL BE STOCKPILED IN A LOCATION AS DESIGNATED BY THE ENGINEER.

### PERMANENT SIGNING

ALL SIGNS SHALL BE INSTALLED, REMOVED, AND/OR SALVAGED ACCORDING TO THE CURRENT EDITION OF "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND THE CURRENT EDITION OF MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) "STANDARD SPECIFICATIONS FOR CONSTRUCTION." SIGN LAYOUTS SHALL BE ACCORDING TO THE CURRENT EDITION OF "STANDARD HIGHWAY SIGNS" MANUAL OR AS DETAILED IN THE PLANS. LEGEND LENGTH SHALL BE DETERMINED USING THE "SIGNCAD" SOFTWARE. HANDLING AND INSTALLATION OF ALL SIGNS SHALL CONFORM WITH THE SHEETING MANUFACTURER'S SPECIFICATIONS AND GUIDELINES.

WHEN ATTACHING SIGNS TO SUPPORTS, TIGHTEN THE NUT, NOT THE BOLT HEAD. SIGNS THAT HAVE WRINKLED OR TWISTED SHEETING MAY BE REJECTED.

NYLON WASHERS SHALL BE PLACED BETWEEN THE STEEL WASHER AND THE SIGN FACE SHEETING. THE NYLON WASHERS ARE TO BE CONSIDERED TO BE PART OF THE ATTACHING DEVICES AND HARDWARE. NYLON WASHERS SHALL HAVE A 3/8 INCH INNER DIMENSION, A 7/8 INCH OUTER DIAMETER AND A 1/16 INCH THICKNESS.

### SLOPES

CLASS A SLOPES WILL BE REQUIRED THROUGHOUT THIS PROJECT.

### UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

UTILITY NAME  
DTE ENERGY  
1250 MICH CON LANE, SW  
PO BOX 279  
KALKASKA, MI 49646  
CONTACT: LARRY BOURKE  
231-592-3244

UTILITY  
TYPE  
GAS

AT&T  
142 E STATE ST, FLOOR 2 WEST  
TRAVERSE CITY, MI 49686  
CONTACT: KATHY DOHM-BEISER  
231-941-2707

TELEPHONE/FIBER OPTIC

CHARTER COMMUNICATIONS  
1392 TRADE CENTER DR  
TRAVERSE CITY, MI 49696  
CONTACT: JAMES LUCAS  
(231) 941-3727

CABLE

GRAND TRAVERSE DPW  
2650 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686-8972  
CONTACT: SAM TYSON  
(231) 995-6039

WATER/SEWER

CONSUMERS ENERGY  
821 HASTINGS STREET  
TRAVERSE CITY, MI 49686  
CONTACT: CURTIS HANSEN  
(231) 929-6265

ELECTRIC

### MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

#### MISCELLANEOUS ITEMS

1	LS	Mobilization, Max.
10	Ea	Post, Mailbox
150	Cyd	Maintenance Gravel, LM
100	Ft	Erosion Control, Silt Fence
12	Ea	Erosion Control, Inlet Protection, Fabric Drop
12	Ea	Dr Structure, Cleaning
100	Cyd	Non Haz Contaminated Material Handling and Disposal, LM
2	Ton	Cement

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR MAINTAINING TRAFFIC WHERE DESIGNATED BY THE ENGINEER.

#### MISCELLANEOUS ITEMS

10	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted Furn
10	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted Oper
3	Ea	Lighted Arrow, Type C, Furn
3	Ea	Lighted Arrow, Type C, Oper
1	LSUM	Minor Traf Devices
358	Ea	Plastic Drum, High Intensity, Furn
358	Ea	Plastic Drum, High Intensity, Oper
827	Sft	Sign, Type B, Temp, Prismatic, Furn
827	Sft	Sign, Type B, Temp, Prismatic, Oper
15,338	Ft	Pav Mrkg, Longit, 6 inch or less Width, Rem
581	Ft	Pav Mrkg, Type NR, Tape, 4 inch, White, Temp
764	Ft	Pav Mrkg, Type NR, Tape, 4 inch, Yellow, Temp
22,392	Ft	Pav Mrkg, Wet Reflective, Type NR, Paint, 4 inch, White, Temp
26,256	Ft	Pav Mrkg, Wet Reflective, Type NR, Paint, 4 inch, Yellow, Temp
6118	Ft	Pav Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp
7329	Ft	Pav Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp
148	Ft	Pav Mrkg, Type NR, Paint, 24 inch, Stop Bar
10	Ea	Pav Mrkg, Type NR, Paint, Lt Turn Arrow
1	Ea	Pav Mrkg, Type NR, Paint, Rt Turn Arrow
390	Ft	Pav Mrkg, Wet Reflective, Type R, Tape, 24 inch, Stop Bar
13	Ea	Pav Mrkg, Wet Reflective, Type R, Tape, Lt Turn Arrow
1	Ea	Pav Mrkg, Wet Reflective, Type R, Tape, Rt Turn Arrow
4	Ea	Sign, Portable, Changeable Message, Furn
4	Ea	Sign, Portable, Changeable Message, Oper
10	Ea	Sign Cover
1	LSUM	Traffic Regulator Control
10	Ton	Hand Patching (FOR HMA SHLDR REPAIR)

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR SLOPE RESTORATION WHERE DESIGNATED BY THE ENGINEER.

#### MISCELLANEOUS ITEMS

9226	Syd	Slope Restoration
------	-----	-------------------

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT TO CORRECT POSSIBLE UNSTABLE SUBGRADE CONDITIONS WHERE DESIGNATED BY THE ENGINEER.

#### MISCELLANEOUS ITEMS

2000	Cyd	Subgrade Undercutting, Type II
300	Ft	Underdrain, Subgrade, 6 inch
30	Ft	Underdrain, Outlet, 6 inch
2	Ea	Underdrain, Outlet Ending, 6 inch

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT WHERE DESIGNATED BY THE ENGINEER.

#### MISCELLANEOUS ITEMS

50	Ft	Exploratory Investigation, Vertical
----	----	-------------------------------------

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR TEMPORARY SIGNAL WORK AS DESIGNATED BY THE ENGINEER.

#### MISCELLANEOUS ITEMS

8	Ea	TS, Bag
8	Ea	TS, Bag, Rem
16	Ea	TS Head, Adj
4	Ea	TS Head, Temp



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**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

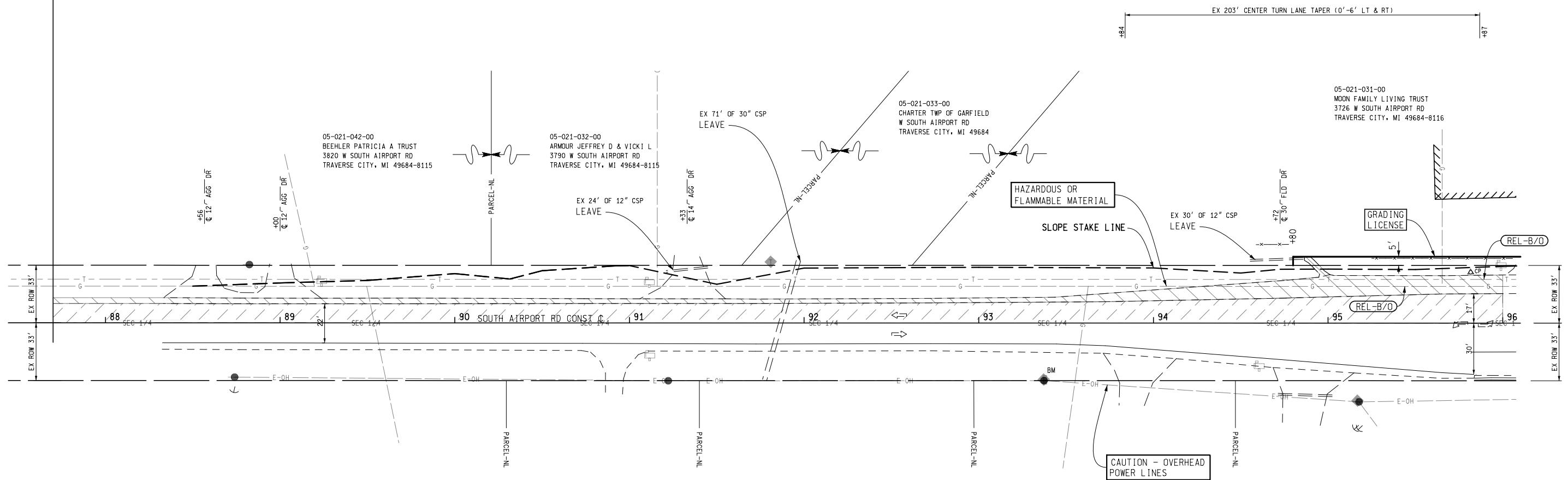
NOTE SHEET  
TOWNSHIP  
SOUTH AIRPORT RD  
WEST OF US-31 TO VETERANS DR  
SHEET NO. 6

SOUTH AIRPORT RD  
POINT OF BEGINNING  
87+70

SECTION 21  
T27N R11W  
GARFIELD TWP

BENCH MARK  
STA 93+38, 33' RT  
SPIKE IN POLE  
ELEV = 754.88

CONTROL POINT  
STA 95+81, 29' LT  
N = 515,323.52  
E = 19,351,091.11



REMOVAL QUANTITIES THIS SHEET  
443 Syd HMA Surface, Rem  
8.3 Sta Roadway Grading, Type 1  
1122 Syd Cold Milling HMA Surface

REMOVAL SHEET



3 WORKING DAYS  
BEFORE YOU DIG  
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OR 811

**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, POB STA 87+70 TO STA 96+00  
DATE 2/27/2018 TOWNSHIP GARFIELD  
SHEET NO. 7  
WEST OF US-31 TO VETERANS DR

SOUTH AIRPORT RD  
POINT OF BEGINNING  
87+70

PRIOR TO CONSTRUCTION, CONTRACTOR SHALL INSTALL SILT FENCE FROM STA 91+50 TO STA 94+25 LT AS DIRECTED BY THE ENGINEER:

SOIL EROSION AND SEDIMENTATION CONTROL QUANTITIES			
SEE STANDARD PLAN R-96 SERIES FOR DETAILS			
KEY NO.	NAME	PAY ITEM	
26	SILT FENCE	275 Ft	Erosion Control, Silt Fence

SECTION 2  
T27N R11W  
GARFIELD T.

BENCH MARK  
STA 93+38, 33' RT  
SPIKE IN POLE  
ELEV = 754.88

CONTROL POINT  
STA 95+81, 29' LT  
N = 515,323.52  
E = 19,351,091.11

STORM SEWER QUANTITIES THIS SHEET

STR #	STATION & OFFSET	Dr Structure, -- inch dia (Ea)		Culv End Sect, Conc, 12 inch (Ea)	Dr Structure Cover, Type K (Ea)	Sewer, CI E, 12 inch, Tr Det E (Ft)
		24	48			
1	94+46, 24.3' LT		1	1	1	8
	TOTALS		1	1	1	8

935' WB LANE SHIFT (FROM 11' LT TO 28' LT)

GUARDRAIL QUANTITIES THIS SHEET

150 Ft Guardrail, Type B  
8 Ea Guardrail Reflector  
2 Ea Guardrail Approach Terminal, Type 2B

05-021-031-00  
MOON FAMILY LIVING TRUST  
3726 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8116

GRADE AND SURFACE DRIVES THIS SHEET

STATION	Approach, C I II (Ton)
88+56 LT	5
89+00 LT	5
91+33 LT	6
94+72 LT	8
TOTALS	24

CONSTRUCTION QUANTITIES THIS SHEET

10 Ton	Shoulder, Cl II
322 Syd	Shoulder, Cl I, 6 inch
691 Syd	Aggregate Base, 6 inch
235 Ton	HMA, 4E3 (TOP COURSE)
105 Ton	HMA, 4E3 (LEVELING COURSE)
98 Ton	HMA, 3E3 (BASE COURSE)
446 Ft	Curb and Gutter, Conc, Det F4
446 Ft	Underdrain, Subbase, 6 inch
10 Ft	Underdrain Outlet, 6 inch
1 Eg	Underdrain, Outlet Ending, 6 inch

CONSTRUCTION SHEET



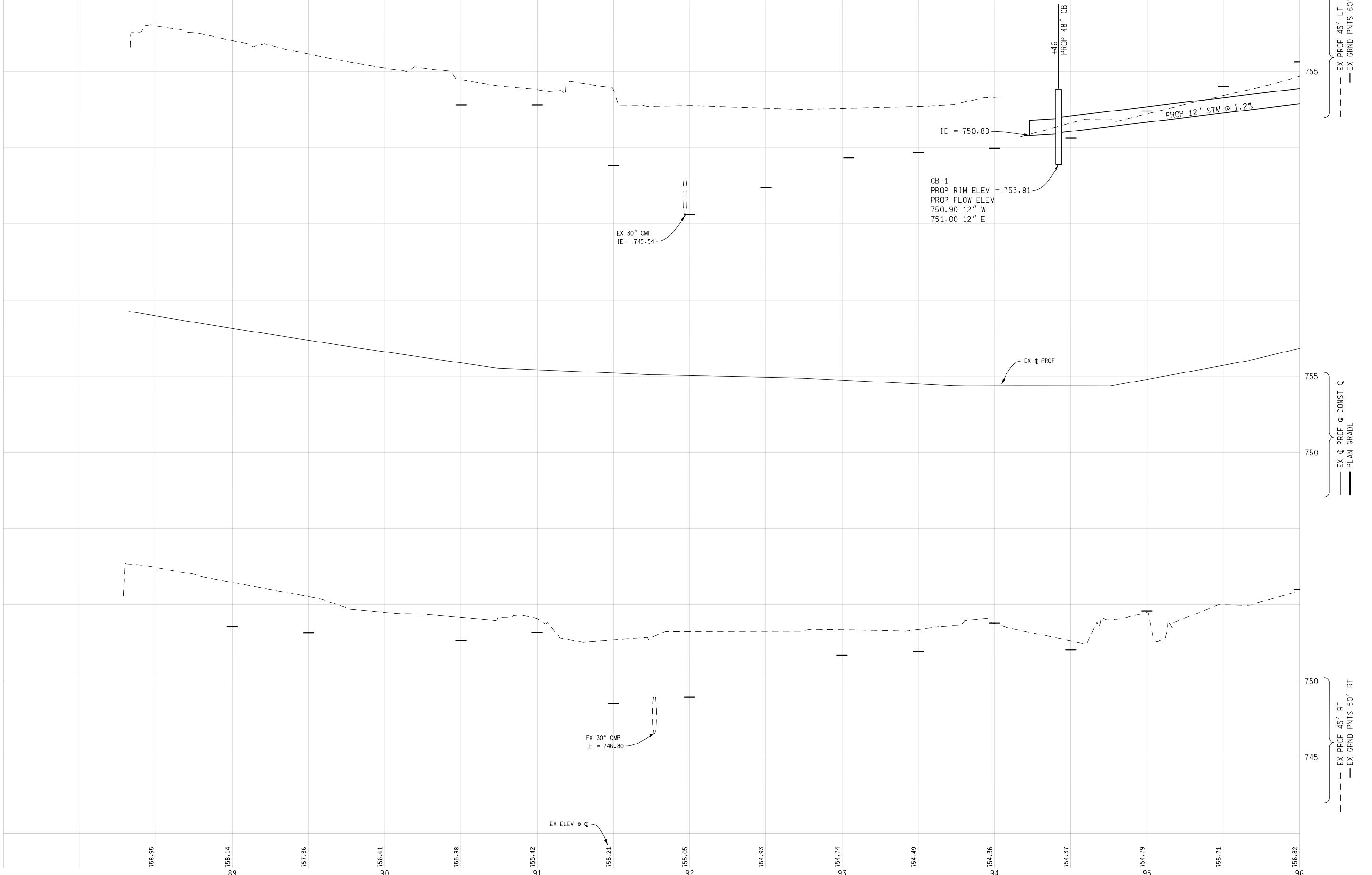
3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

# **GRAND TRAVERSE**

County Road Commission

**KPM ENGINEERING**  
Engineering & Construction

SOUTH AIRPORT ROAD, POB STA 87+70 TO STA 96+00  
G DATE TOWNSHIP SOUTH AIRPORT RD SHEET NO.  
2/28/2018 GARFIELD WEST OF US-31 TO VETERANS DR 8



SHEET NO. 9      DATE 2/27/2018      LOCATION SOUTH AIRPORT ROAD, POB STA 87+70 TO STA 96+00      DRAWING NO. KPM ENGINEERING CIVIL ENGINEERING CONSULTANTS

2/27/2018      7:52:42 AM

BENCH MARK  
STA 98+55, 40' RT  
SPIKE IN POLE  
ELEV = 766.22

SECTION 21  
T27N R11W  
GARFIELD TWP

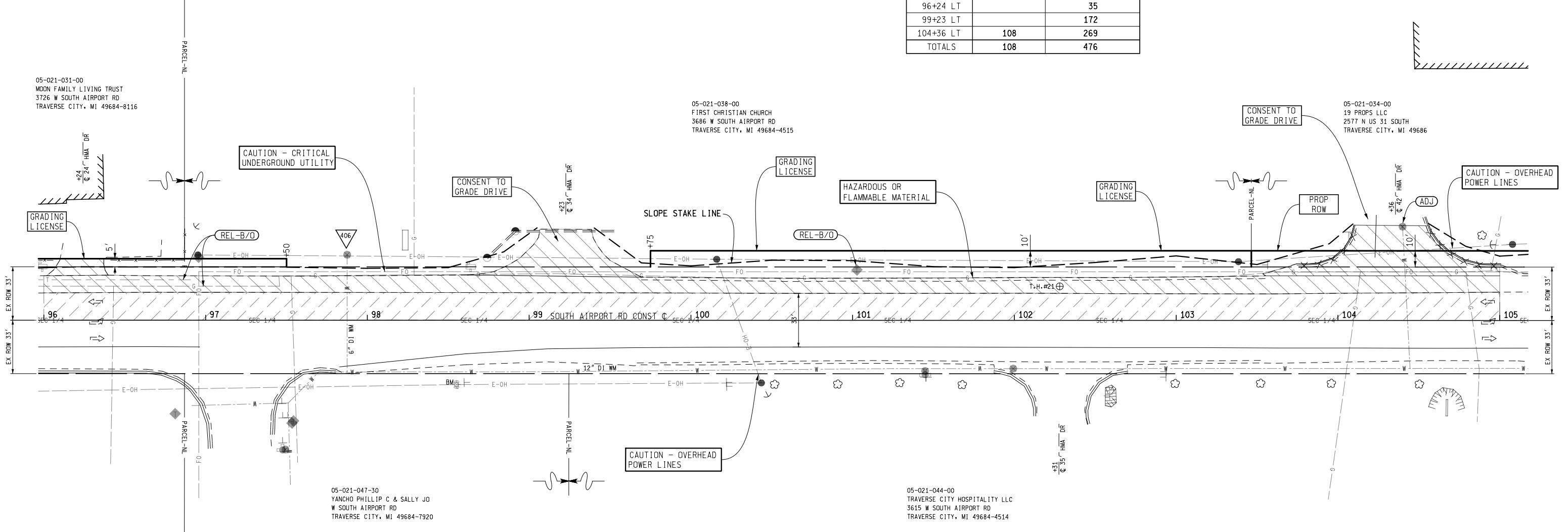
DRIVE REMOVAL QUANTITIES THIS SHEET

STATION	Curb and Gutter, Rem (Ft)	HMA Surface, Rem (Syd)
96+24 LT		35
99+23 LT		172
104+36 LT	108	269
TOTALS	108	476

05-021-031-00  
MOON FAMILY LIVING TRUST  
3726 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8116

05-021-038-00  
FIRST CHRISTIAN CHURCH  
3686 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-4515

05-021-034-00  
19 PROPS LLC  
2577 N US 31 SOUTH  
TRAVERSE CITY, MI 49686



05-021-047-30  
YANCHO PHILLIP C & SALLY JO  
W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-7920

05-021-044-00  
TRAVERSE CITY HOSPITALITY LLC  
3615 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-4514

SECTION 21  
T27N R11W  
GARFIELD TWP

REMOVAL QUANTITIES THIS SHEET  
1015 Syd HMA Surface, Rem  
9.0 Sta Roadway Grading, Type 1  
1687 Syd Cold Milling HMA Surface

REMOVAL SHEET



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 96+00 TO STA 105+00  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 10  
WEST OF US-31 TO VETERANS DR

BENCH MARK  
STA 98+55, 40' RT  
SPIKE IN POLE  
ELEV = 766.22

SECTION 21  
T27N R11W  
GARFIELD TWP

STORM SEWER QUANTITIES THIS SHEET

STR #	STATION & OFFSET	Dr Structure, -- inch dia (Ea)	Dr Structure Cover, Type K (Ea)	Sewer, CI E, 12 inch, Tr Det B (Ft)
2	96+46, 27.9' LT	24	48	200
3	97+02, 28.9' LT		1	56
4	97+10, 29.0' LT	1		8
	TOTALS	1	2	264

935' WB LANE SHIFT (FROM 11' LT TO 28' LT)

+05

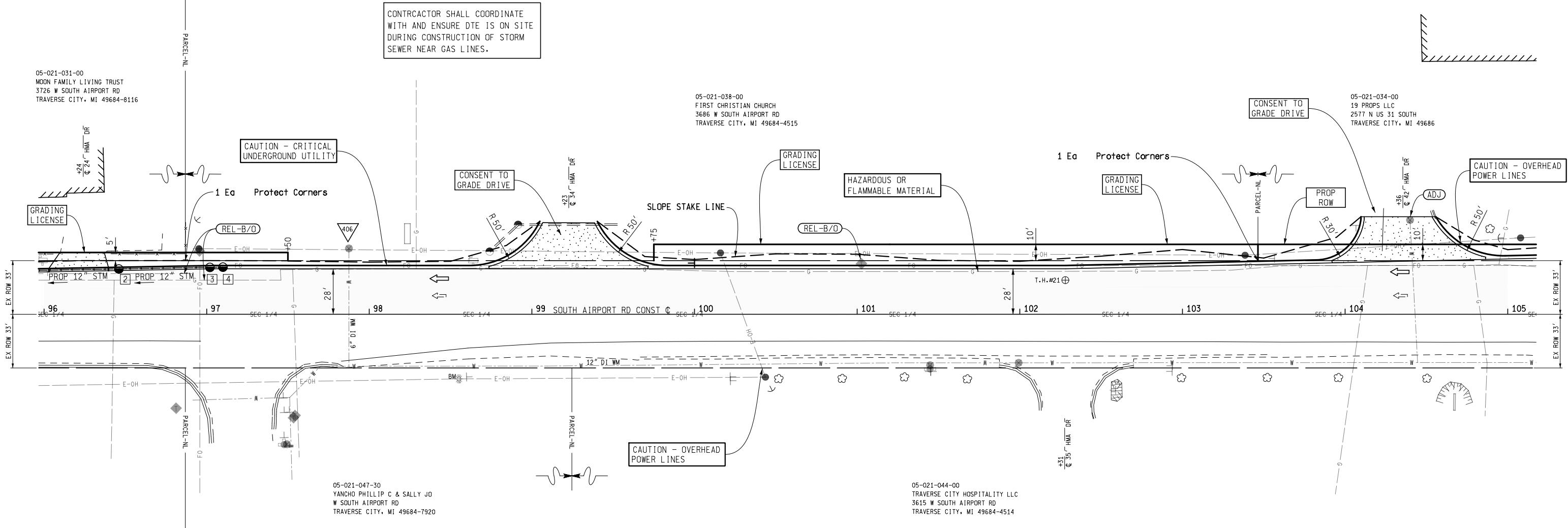
630' WB LANE SHIFT (FROM 28' LT TO 42' LT)

+28

05-021-031-00  
MOON FAMILY LIVING TRUST  
3726 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8116

05-021-038-00  
FIRST CHRISTIAN CHURCH  
3686 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-4515

05-021-034-00  
19 PROPS LLC  
2577 N US 31 SOUTH  
TRAVERSE CITY, MI 49686



05-021-047-30  
YANCHO PHILLIP C & SALLY JO  
W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-7920

05-021-044-00  
TRAVERSE CITY HOSPITALITY LLC  
3615 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-4514

GRADE AND SURFACE DRIVES THIS SHEET

STATION	Approach, CI I, 6 inch (Syd)	HMA Approach (Ton)	Curb and Gutter, Conc. Det F4 (Ft)	Driveway Opening, Conc. Det M (Ft)
96+24 LT	34	8		
99+23 LT	179	42	88	122
104+36 LT	185	43	79	116
TOTALS	398	93	167	238

CONSTRUCTION QUANTITIES THIS SHEET

1443 Syd	Aggregate Base, 6 inch
333 Ton	HMA, 4E3 (TOP COURSE)
138 Ton	HMA, 4E3 (LEVELING COURSE)
207 Ton	HMA, 3E3 (BASE COURSE)
662 Ft	Curb and Gutter, Conc. Det F4
900 Ft	Underdrain, Subbase, 6 inch
10 Ft	Underdrain Outlet, 6 inch
1 Ea	Gate Box, Adj. Case 1

CONSTRUCTION SHEET



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

GRAND TRAVERSE  
County Road Commission

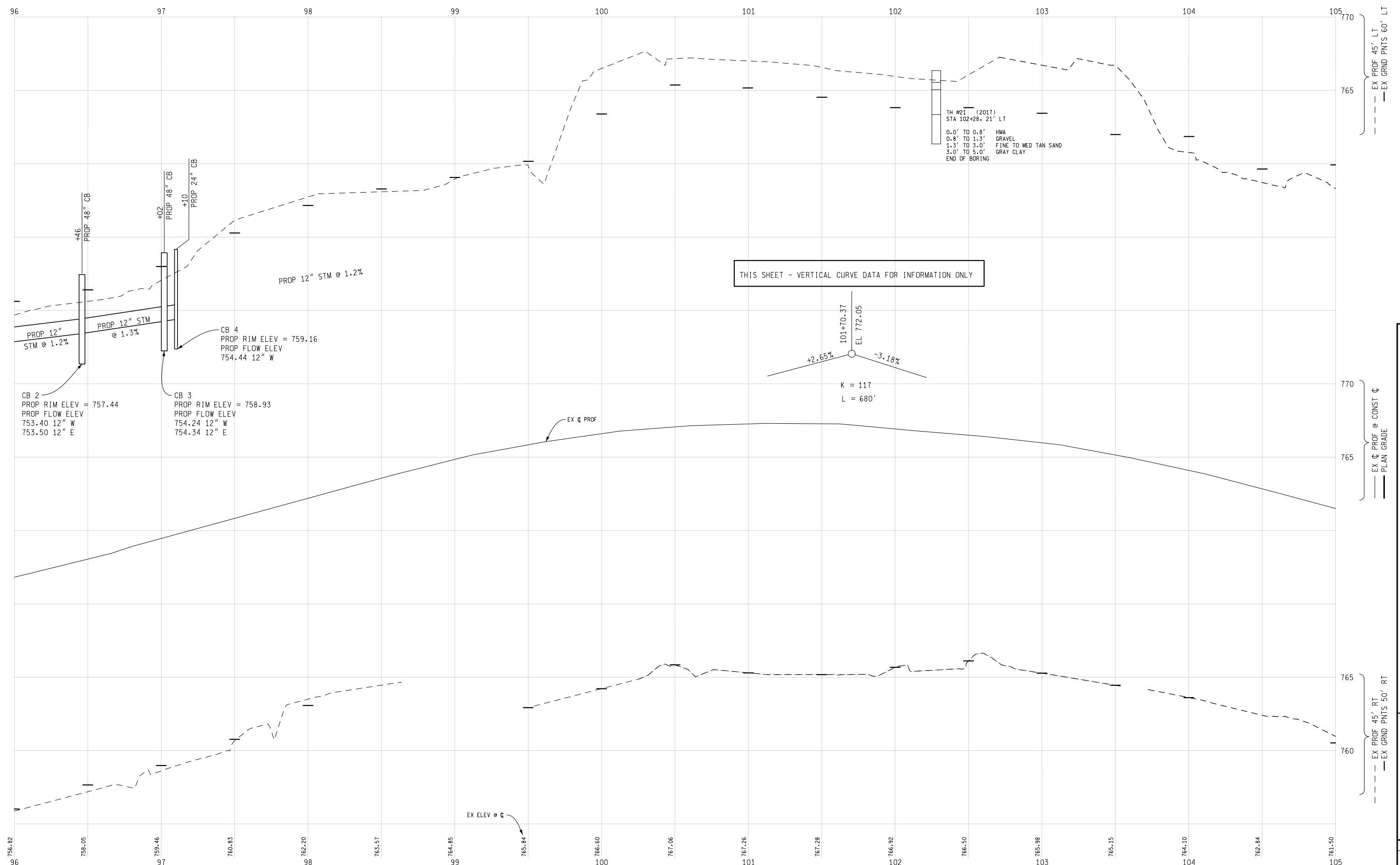
KPM ENGINEERING  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 96+00 TO STA 105+00  
TOWNSHIP  
GARFIELD  
SHEET NO. 11  
DATE 2/27/2018  
WEST OF US-31 TO VETERANS DR

CONC C&G, 2' BERM, 1:2 F

CONC C&G, 2' BERM, 1:1.5 BS

CONC C&G, 1' BERM, 1:1.5 BS



KPMG  
EET N  
12

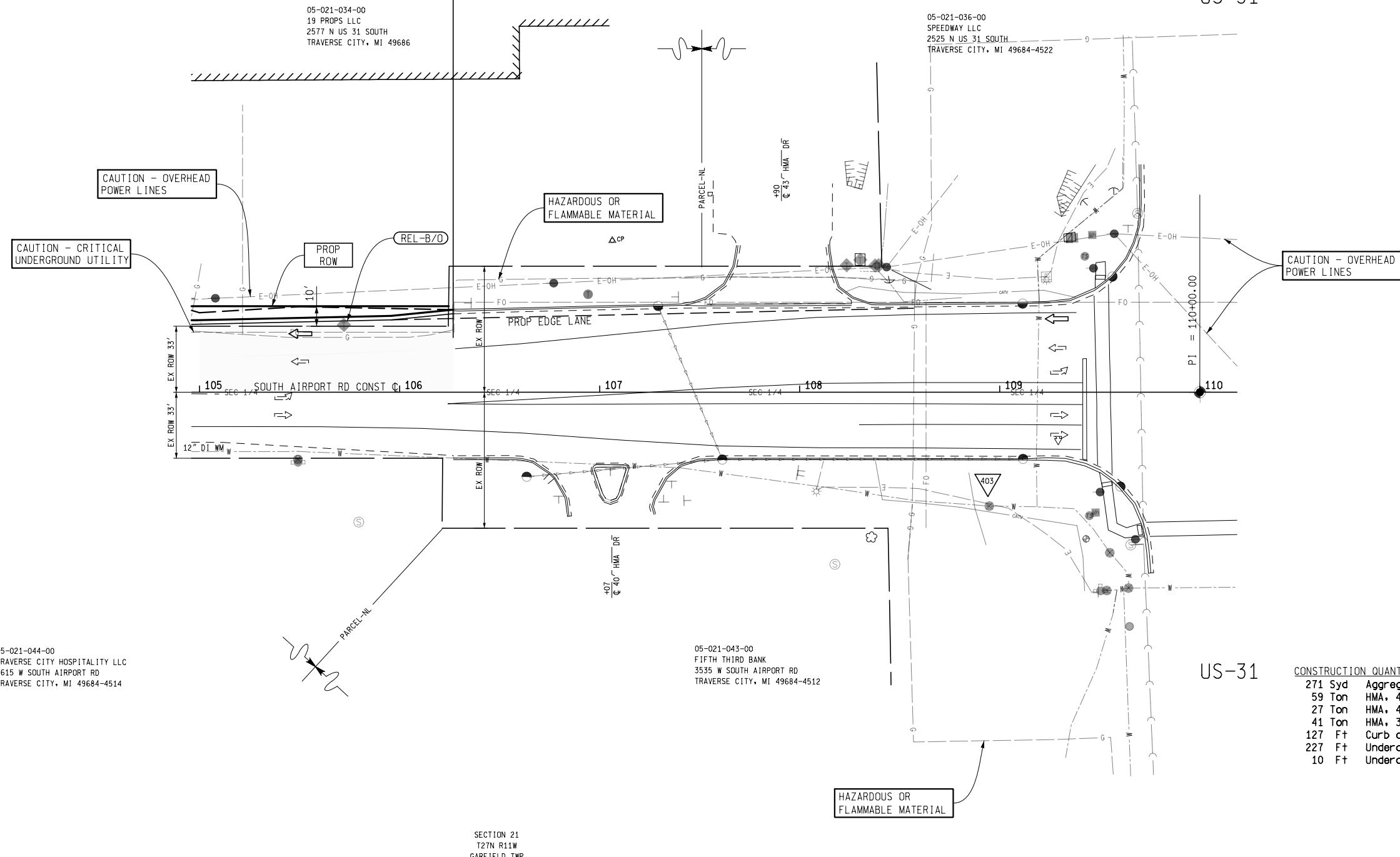


SOUTH AIRPORT RD  
SEGMENT 1  
LIMIT OF CONSTRUCTION  
106+27

CONTROL POINT  
STA 107+05, 75' LT  
N = 515,339.83  
E = 19,352,216.66

SECTION 21  
T27N R11W  
GARFIELD TWP

630' WB LANE SHIFT (FROM 28' LT TO 42' LT)



CONSTRUCTION QUANTITIES THIS SHEET  
 271 Syd Aggregate Base, 6 inch  
 59 Ton HMA, 4E3 (TOP COURSE)  
 27 Ton HMA, 4E3 (LEVELING COURSE)  
 41 Ton HMA, 3E3 (BASE COURSE)  
 127 Ft Curb and Gutter, Conc. Det F4  
 227 Ft Underdrain, Subbase, 6 inch  
 10 Ft Underdrain Outlet, 6 inch

SECTION 21  
T27N R11W  
GARFIELD TWP



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

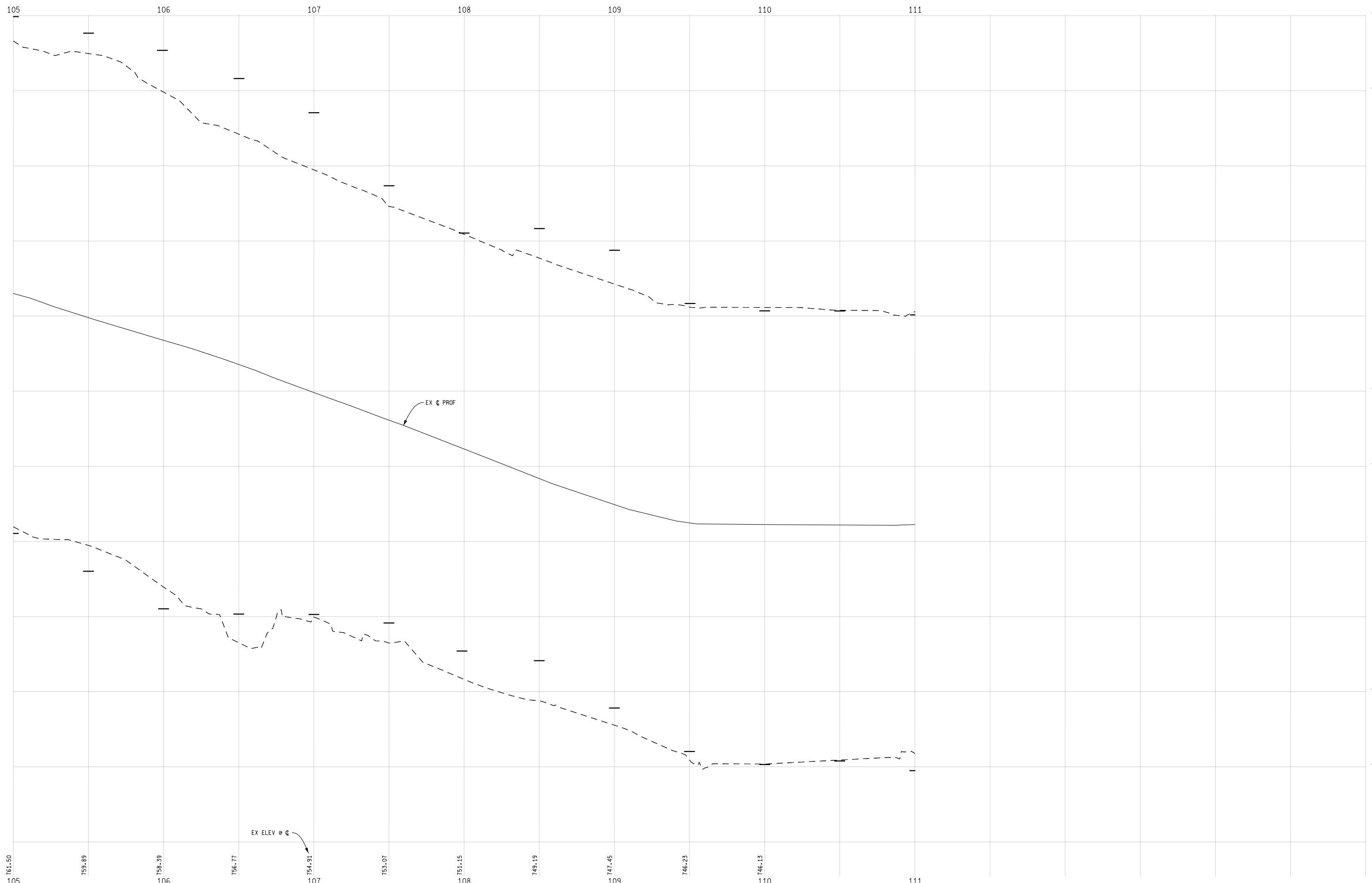
**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 105+00 TO STA 106+27  
 DATE 2/27/2018  
 TOWNSHIP GARFIELD  
 SOUTH AIRPORT RD  
 WEST OF US-31 TO VETERANS DR  
 SHEET NO. 14

CONSTRUCTION SHEET

CONC C&G, 2' BERM, 1:2 BS



SHEET NO. 15		SOUTH AIRPORT ROAD, STA 105+00 TO STA 106+27	
KPM ENGINEERING		CIVIL ENGINEERING CONSULTANTS	
2/27/2018	2/27/2018	SOUTH AIRPORT ROAD	GRAND TRAVERSE CRC
753305 AM	753305 AM		

BENCH MARK  
STA 111+39, 52' RT  
SPIKE IN UTILITY POLE  
ELEV = 744.95

EX 210' RT TURN LANE EX 200' RT TURN LANE TAPER

CONTROL POINT  
STA 113+33, 66'  
N = 515,180.6365  
E = 19,352,839.2

HAZARDOUS OR  
FLAMMABLE MATERIAL

US-31 NORTHEAST QUADRANT REMOVAL QUANTITIES

81	Syd	HMA Surface, Rem
100	Ft	Curb and Gutter, Rem
35	Syd	Sidewalk, Rem

SECTION  
T27N R  
GARFIELD

DRIVE REMOVAL QUANTITIES THIS SHEET

STATION	Curb and Gutter, Rem (Ft)	HMA Surface, Rem (Syd)
112+97 RT	82	91
115+12 LT	86	76
116+70 RT	148	118
TOTALS	316	285

CAUTION - OVERHEAD  
POWER LINES

05-021-015-10  
AIRPORT 31 LLC  
3450 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49686

REMOVE OVERHEAD LANE ASSIGNMENT  
STRUCTURE (INCLUDING CONCRETE  
FOUNDATIONS)

2 Ea Steel Pole, Rem (INCLUDES SIDE)

CONSENT TO  
GRADE DRIVING

05-021-015-00  
GRND TRAVERSE MALL/BROOKFIELD PP L  
3200 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8117

HAZARDOUS OR  
FLAMMABLE MATERIAL

SOUTH AIRPORT RD  
SEGMENT 2  
LIMIT OF RECONSTRUCTION  
111+00

05-021-064-00  
BENSON SCHMUCKAL PROPERTIES L  
2408 N US 31 SOUTH  
TRAVERSE CITY, MI 49684-4508

05-021-064-10  
HOOGLAND KEITH LIMITED PARTNERS  
3375 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-7929

REMOVAL QUANTITIES THIS SHEET  
T354 Syd HMA Surface, Rem  
8.0 Sta Roadway Grading, Type 2  
777 Syd Pavt, Rem

SECTION  
T27N R1  
GARFIELD



3 WORKING DAY  
BEFORE YOU DI  
CALL MISS DIG  
800-482-7171  
OR 811

# GRAND TRAVERSE County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 111+00 TO STA 119+00  
DATE TOWNSHIP SOUTH AIRPORT RD SHEET 1  
2/27/2018 GARFIELD WEST OF US-31 TO VETERANS DR 16

BENCH MARK  
STA 111+39, 52' RT  
SPIKE IN UTILITY POLE  
ELEV = 744.95

CONTROL POINT  
STA 113+33, 66' RT  
N = 515,180.6365  
E = 19,352,839.22

CONSTRUCT SHALLOW SWALE  
EST @ 50' LONG, 6' WIDE (1.5' DEEP),  
1:4 FS & 1:4 BS  
50 Cyd Excavation, Earth

HAZARDOUS OR  
FLAMMABLE MATERIAL

US-31 NORTHEAST QUADRANT RECONSTRUCT QUANTITIES  
53 Ton HMA Approach (7" IN 3 LIFTS)  
62 Ft Curb and Gutter, Conc, Det B2  
15 Ft Curb Ramp Opening, Conc  
10 Ft Detectable Warning Surface  
13 Sft Sidewalk Ramp, Conc, 4 inch  
9 Sft Sidewalk, Conc, 4 inch  
12 Ft Spillway, Conc  
1 Ea Shoulder Gutter, Conc, Det 1

GRADE AND SURFACE DRIVES THIS SHEET

STATION	Approach, CI I, 6 inch (Syd)	HMA Approach (Ton)	Curb and Gutter, Conc, Det B2 (Ft)
112+97 RT	136	32	97
115+12 LT	39	10	234
116+70 RT	177	41	92
TOTALS	352	83	423

SECTION 21  
T27N R11W  
GARFIELD TWP

130' RT TURN LANE TAPER

540' WB THRU LANE SHIFT (FROM 42' LT TO 30' LT)

05-021-015-00  
GRND TRAVERSE MALL/BROOKFIELD PP L  
3200 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8117

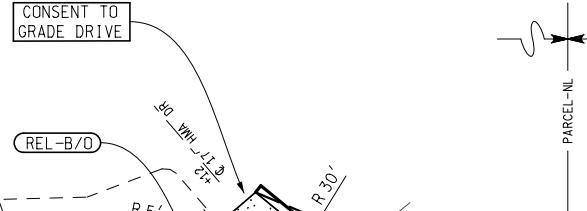
CAUTION - OVERHEAD  
POWER LINES

05-021-015-10  
AIRPORT 31 LLC  
3450 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-4715

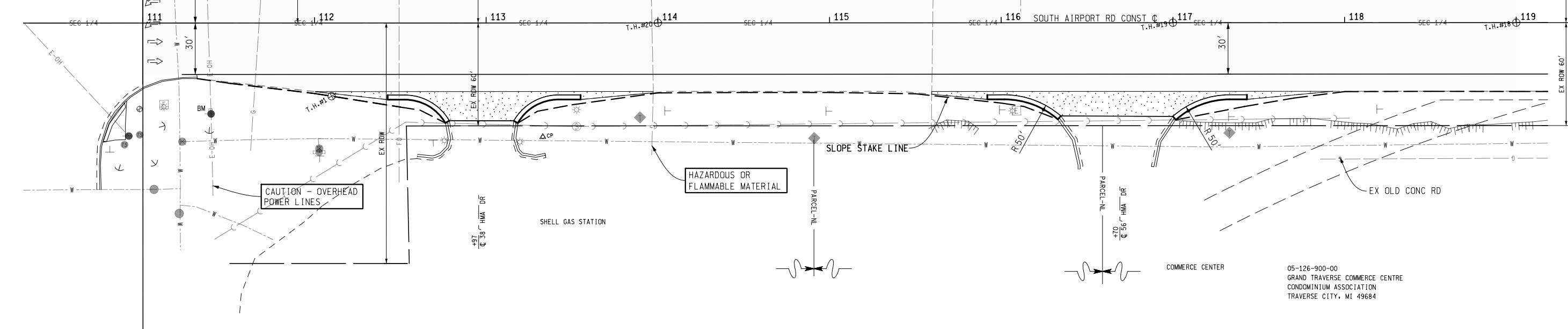
CONSENT TO  
GRADE DRIVE

EXTEND EXISTING UNDERDRAIN  
15 Ft Underdrain Outlet, 6 inch  
1 Ea Underdrain, Outlet Ending, 6 inch

CAUTION - CRITICAL  
UNDERGROUND UTILITY



HAZARDOUS OR  
FLAMMABLE MATERIAL



SOUTH AIRPORT RD  
SEGMENT 2  
LIMIT OF RECONSTRUCTION  
111+00

05-021-064-00  
BENSON SCHMUCKAL PROPERTIES LLC  
2408 N US 31 SOUTH  
TRAVERSE CITY, MI 49684-4508

05-021-064-10  
HOGLAND KEITH LIMITED PARTNERSHIP  
3375 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-7929

SECTION 21  
T27N R11W  
GARFIELD TWP

CONSTRUCTION QUANTITIES THIS SHEET

7237 Syd Aggregate Base, 6 inch  
964 Ton HMA, 4E10, High Stress (TOP COURSE)  
964 Ton HMA, 4E10, High Stress (LEVELING COURSE)  
1254 Ton HMA, 3E10 (BASE COURSE)  
10 Ton Shoulder, CI II  
1112 Syd Shoulder, CI I, 6 inch  
800 Ft Underdrain, Subbase, 6 inch  
30 Ft Underdrain Outlet, 6 inch  
3 Ea Underdrain, Outlet Ending, 6 inch

CONSTRUCTION SHEET

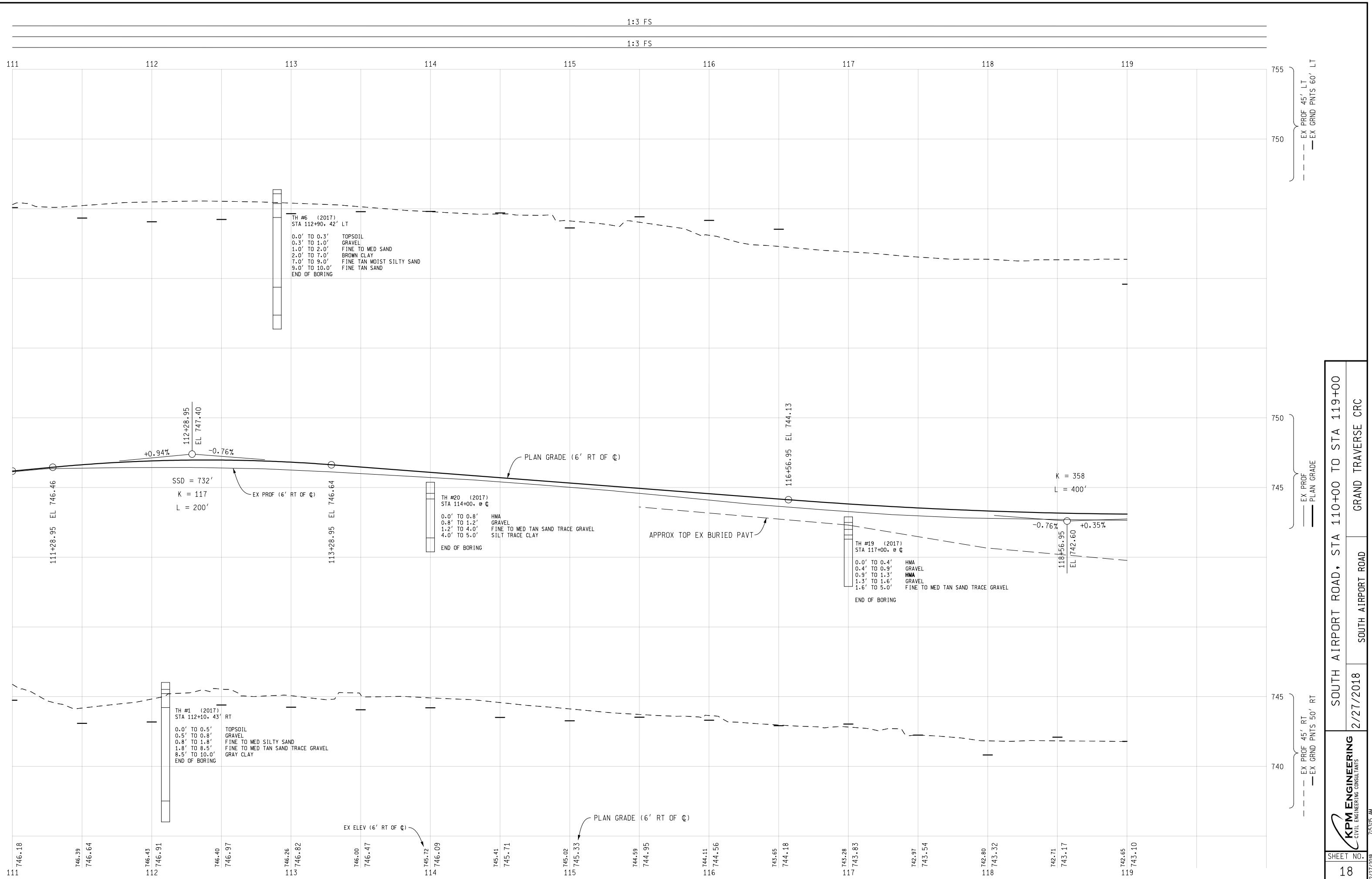


3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 111+00 TO STA 119+00  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 17  
WEST OF US-31 TO VETERANS DR



CONTROL POINT  
STA 119+19, 43' LT  
N = 515.274.42  
E = 19,353,427.89

SECTION 21  
T27N R11W  
GARFIELD TWP

CONTROL POINT  
STA 125+10, 53' RT  
N = 515.162.21  
E = 19,354,015.61

BENCH MARK  
STA 126+64, 61' RT  
TOP OF HYDRANT  
ELEV = 742.60

EX 185' RT TURN LANE

EX 130' RT TURN LANE TAPER

+34  
+19

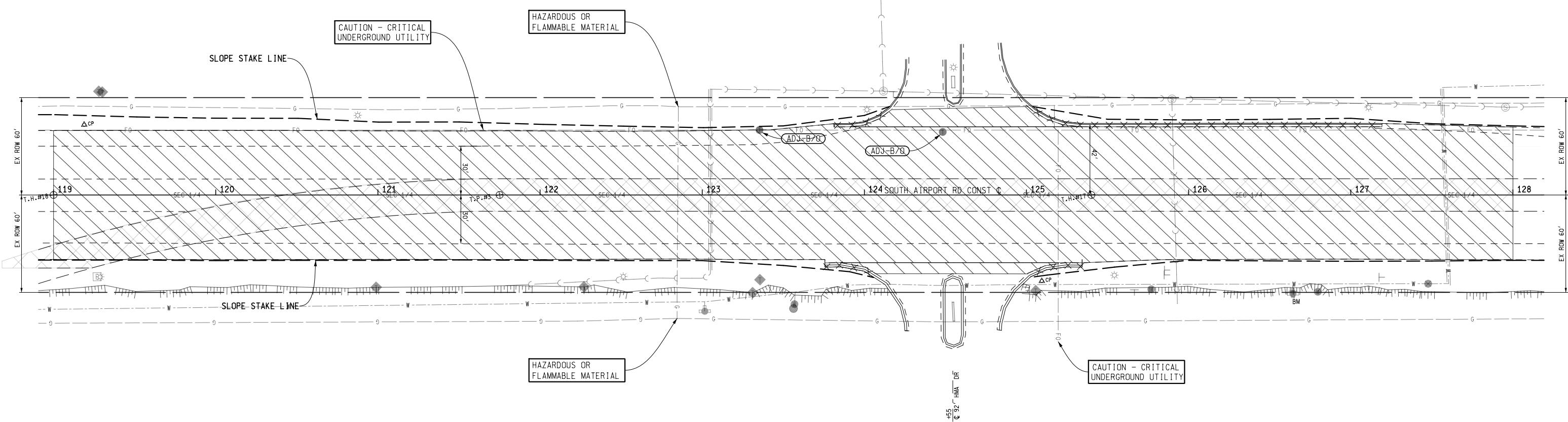
GRAND TRAVERSE MALL

05-021-015-00  
GRND TRAVERSE MALL/BROOKFIELD PP L  
3200 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8117

DRIVE REMOVAL QUANTITIES THIS SHEET

STATION	Curb and Gutter, Rem (Ft)	HMA Surface, Rem (Syd)
124+55 RT	68	84
124+55 LT	260	133
TOTALS	328	217

05-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995



05-126-900-00  
GRAND TRAVERSE COMMERCE CENTRE  
CONDOMINIUM ASSOCIATION  
TRAVERSE CITY, MI 49684

COMMERCE CENTER

SECTION 21  
T27N R11W  
GARFIELD TWP



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 119+00 TO STA 128+00  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 19  
WEST OF US-31 TO VETERANS DR

REMOVAL QUANTITIES THIS SHEET  
8105 Syd HMA Surface, Rem  
9.0 Sta Roadway Grading, Type 2  
2044 Syd Pavt, Rem

REMOVAL SHEET

CONTROL POINT  
STA 119+19, 43' LT  
N = 515.274.42  
E = 19,353,427.89

SECTION 21  
T27N R11W  
GARFIELD TWP

CONTROL POINT  
STA 125+10, 53' RT  
N = 515.162.21  
TOP OF HYDRANT  
E = 19,354,015.61  
ELEV = 742.60

540' WB THRU LANE SHIFT (FROM 42' LT TO 30' LT)

+40

GRAND TRAVERSE MALL

185' RT TURN LANE

130' RT TURN LANE TAPER

+34

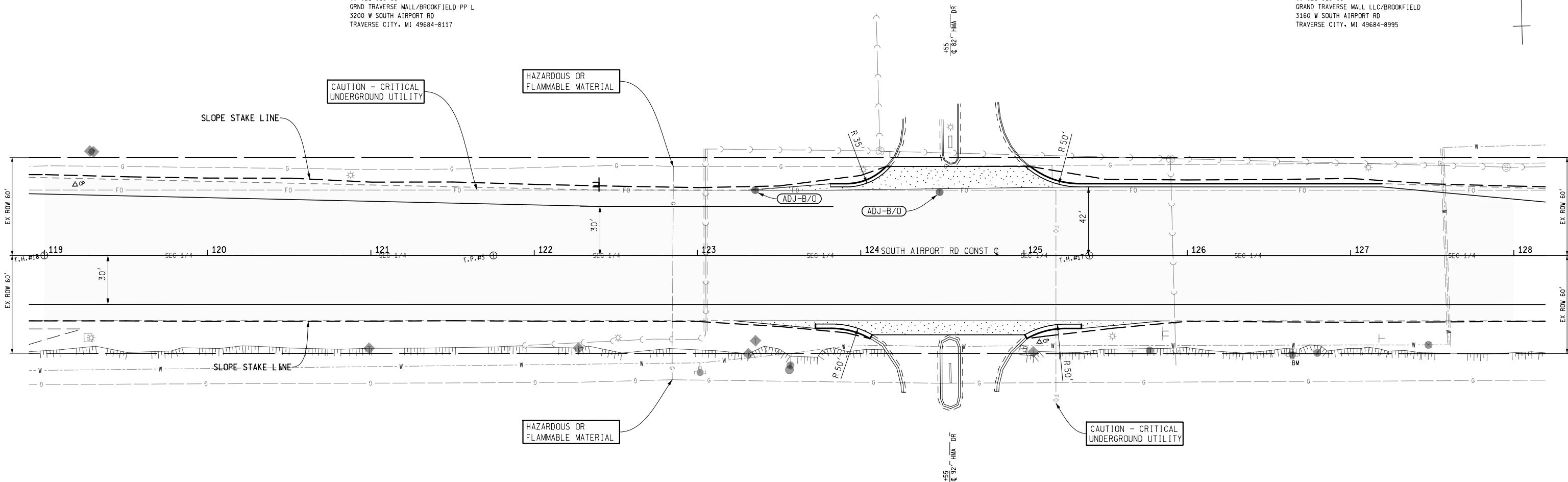
+19

GRADE AND SURFACE DRIVES THIS SHEET

STATION	Approach, CI I, 6 inch (Syd)	HMA Approach (Ton)	Curb and Gutter, Conc, Det F4 (Ft)	Curb and Gutter, Conc, Det B2 (Ft)
124+55 RT	141	33	72	
124+55 LT	168	39	263	
TOTALS	309	72	263	72

05-021-015-00  
GRND TRAVERSE MALL/BROOKFIELD PP L  
3200 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8117

05-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995



05-126-900-00  
GRAND TRAVERSE COMMERCE CENTRE  
CONDOMINIUM ASSOCIATION  
TRAVERSE CITY, MI 49684

COMMERCE CENTER

CONSTRUCTION QUANTITIES THIS SHEET  
6143 Syd Aggregate Base, 6 inch  
951 Ton HMA, 4E10, High Stress (TOP COURSE)  
951 Ton HMA, 4E10, High Stress (LEVELING COURSE)  
1064 Ton HMA, 3E10 (BASE COURSE)  
2083 Syd Shoulder, CI I, 6 inch

SECTION 21  
T27N R11W  
GARFIELD TWP



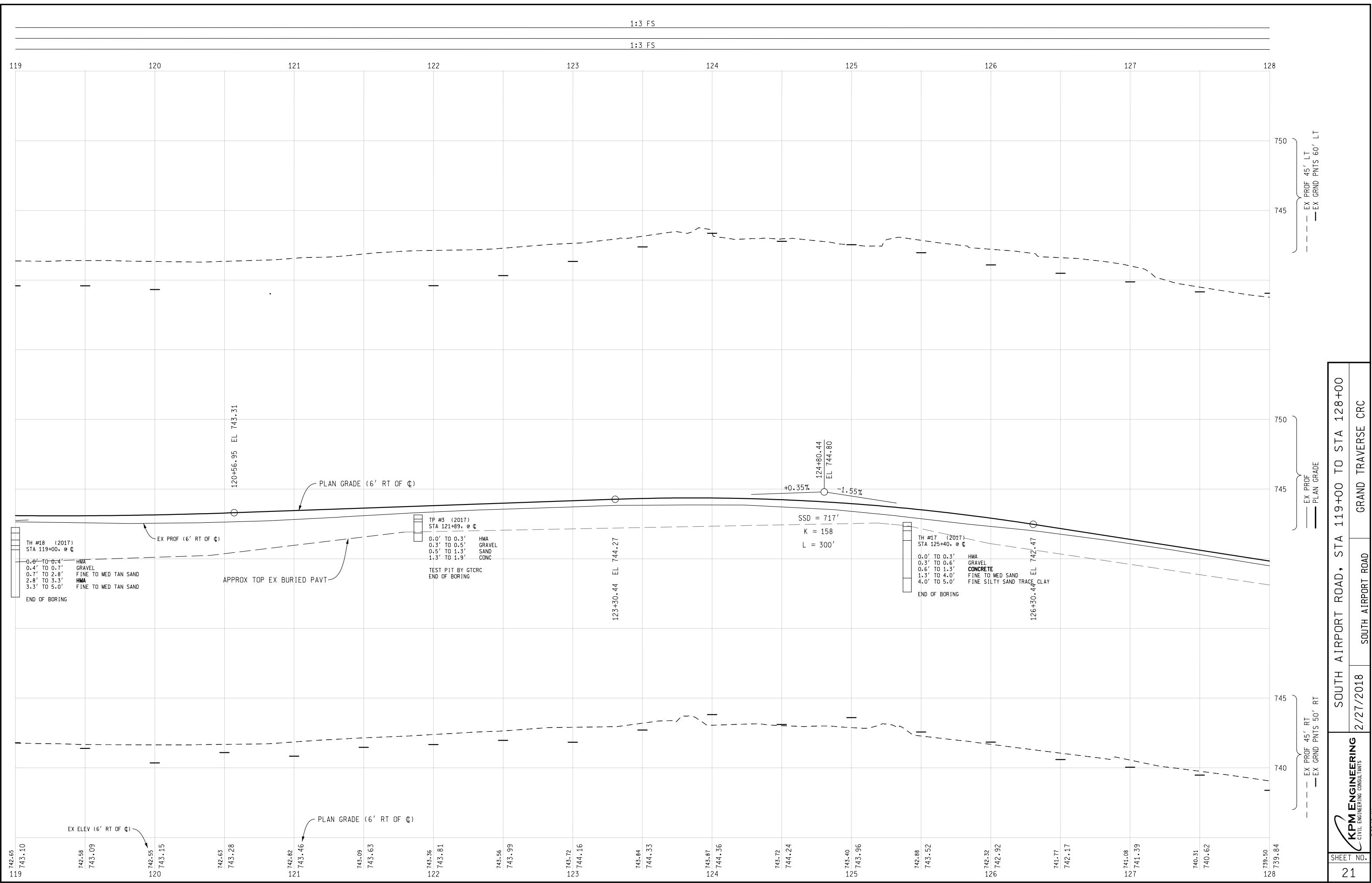
3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

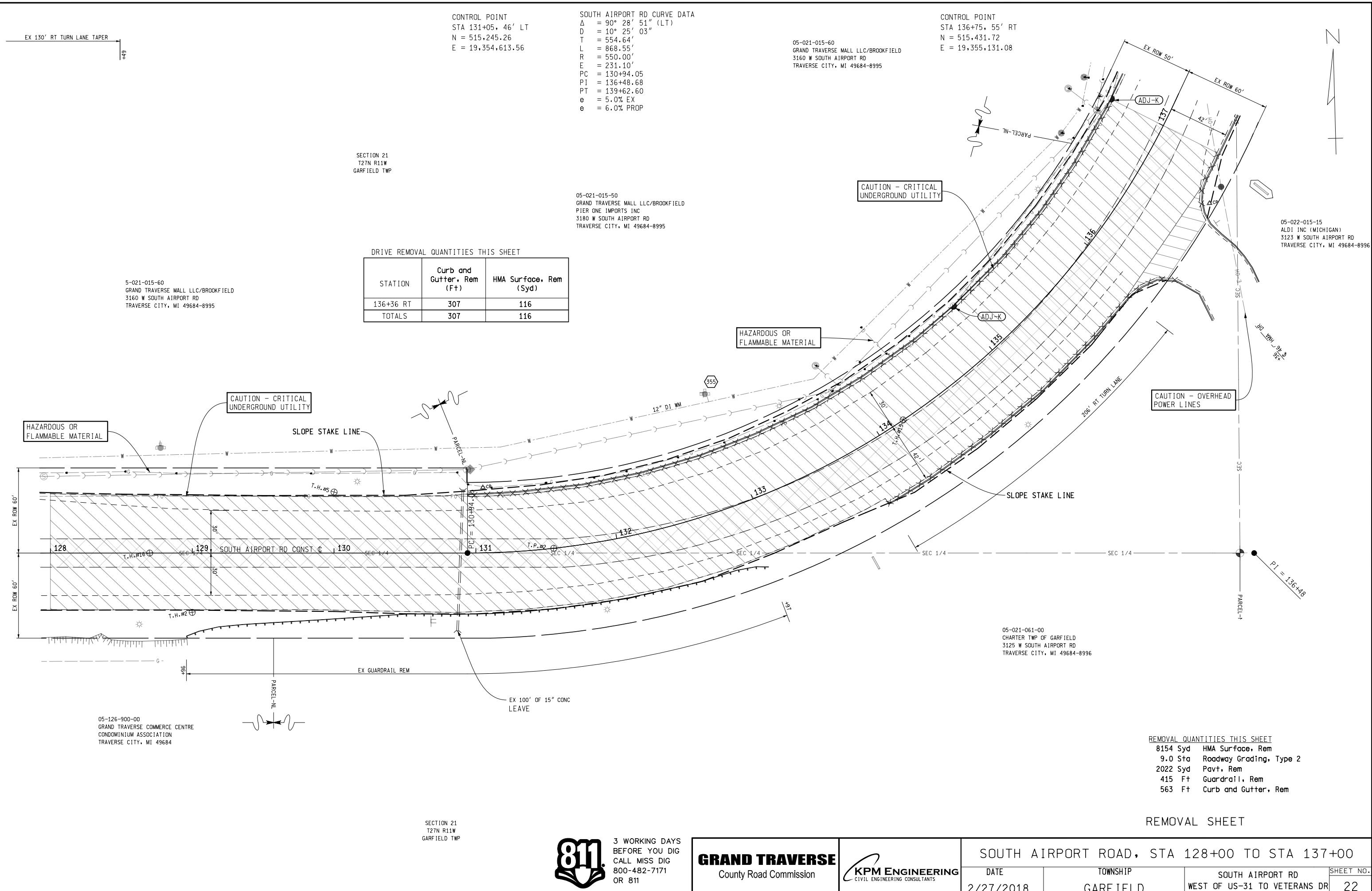
**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 119+00 TO STA 128+00  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 20  
WEST OF US-31 TO VETERANS DR

CONSTRUCTION SHEET





CONTROL POINT  
STA 131+05, 46' E  
N = 515,245.26  
E = 19,354,613.5

SOUTH AIRPORT RD CURVE DATA  
 $\Delta$  = 90° 28' 51" (LT)  
 D = 10° 25' 03"  
 T = 554.64'  
 L = 868.55'  
 R = 550.00'  
 E = 231.10'  
 PC = 130+94.05  
 PI = 136+48.68  
 PT = 139+62.60  
 e = 5.0% EX  
 e = 6.0% PROP

05-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

CONTROL POINT  
STA 136+75, 55' RT  
N = 515,431.72  
E = 19,355,131.08

130' RT TURN LANE TAPER

SECTION 21  
T27N R11W  
GARFIELD TW

05-021-015-50  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
PIER ONE IMPORTS INC  
3180 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

5-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

## GRADE AND SURFACE DRIVES THIS SHEET

STATION	Approach, Cl I, 6 inch (Syd)	HMA Approach (Ton)	Curb and Gutter Conc. Det F (Ft)
136+36 RT	118	28	309
TOTALS	118	28	309

05-022-015-15  
ALDI INC (MICHIGAN)  
3123 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8996

HAZARDOUS OR FLAMMABLE MATERI.

EX ROW 60'

128

EX ROW 60'

05-126-900-00  
GRAND TRAVERSE COMMERCE CENTRE  
CONDOMINIUM ASSOCIATION  
TRAVERSE CITY, MI 49684

1B APP TERM 125' GUARDRAIL TYPE B (1:14 FLARE)

262.5' GUARDRAIL TYPE B (42.5')

SECTION 2  
T27N R11E  
GARFIELD T

81

3 WORKING DAY  
BEFORE YOU DI  
CALL MISS DIG  
800-482-7171  
OR 811

3 WORKING DAY  
BEFORE YOU DI  
CALL MISS DIG  
800-482-7171  
OR 811

# **GRAND TRAVERSE**

County Road Commission

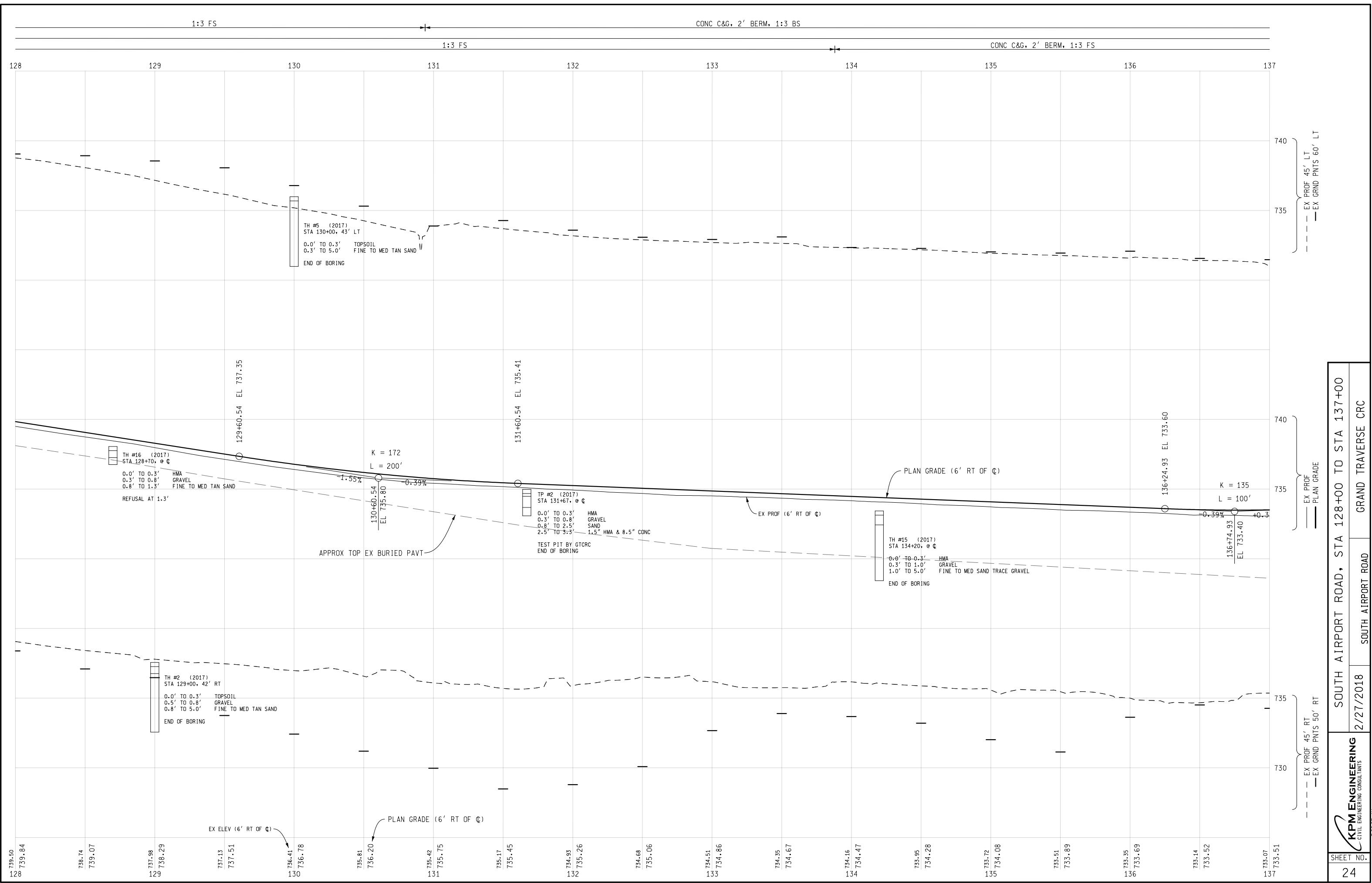
 **KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 128+00 TO STA 137+00

DATE	TOWNSHIP	SOUTH AIRPORT RD	SHEET NO
2/28/2018	GARFIELD	WEST OF US-31 TO VETERANS DR	23

## CONSTRUCTION SHEET

22/28/2018 12:06:08 PM



BENCH MARK  
STA 137+70, 50' LT  
TOP OF HYDRANT  
ELEV = 733.73

SOUTH AIRPORT RD  
STATION EQUATION  
139+62.62 BACK =  
139+72.03 AHEAD

CONTROL POINT  
STA 142+12, 83' LT  
N = 515,980.18  
E = 19,355,087.64

SECTION 21  
T27N R11W  
GARFIELD TWP

FROM STA 131+50 TO STA 142+00  
REMOVE EXISTING UNDERLYING CONCRETE ROADWAY  
AT NIGHT AND PLACE TEMPORARY AGG AND HMA.

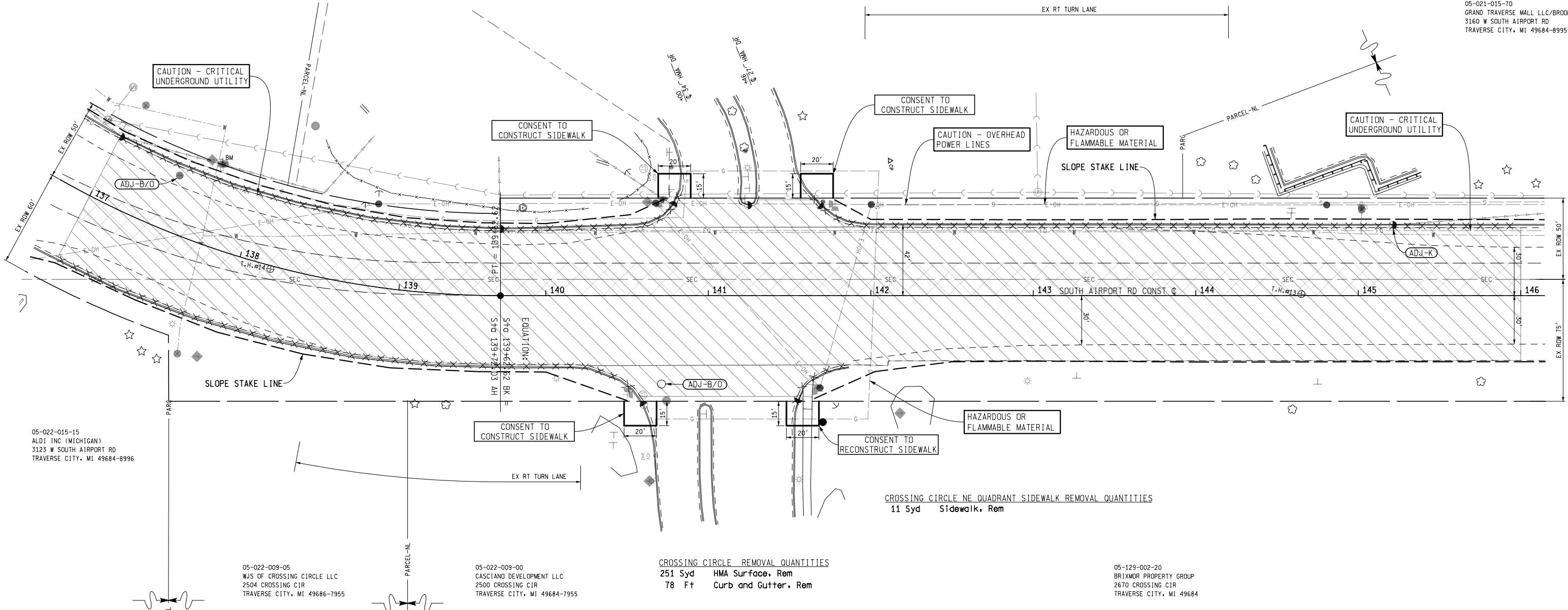
449 Ton HMA, 13A EST @ 2.5" & 28' WIDE  
3267 Syd Aggregate Base, 4 inch

05-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

05-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

05-021-015-40  
TARGET CORPORATION  
3100 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

05-021-015-70  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995



### CROSSING CIRCLE

SECTION 22  
T27N R11W  
GARFIELD TWP



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 137+00 TO STA 146+00  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 25  
WEST OF US-31 TO VETERANS DR

BENCH MARK  
STA 137+70, 50' LT  
TOP OF HYDRANT  
ELEV = 733.73

SOUTH AIRPORT F  
STATION EQUATION  
139+62.62 BACK  
139+72.03 AHEAD

CONTROL POINT  
STA 142+12, 83' L  
N = 515,980.18  
E = 19,355,087.64

SECTION 21  
T27N R11W  
GARFIELD TWP

#### CROSSING CIRCLE SW QUADRANT SIDEWALK QUANTITIES

05-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

05-021-015-60  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

GRADE AND RESURFACE PRIVATE ROAD TO 60'

PROP RT TURN LA

CROSSING CIRCLE SW QUADRANT SIDEWALK QUARTER  
22 Ft Curb and Gutter, Conc. Det F4  
21 Ft Curb Ramp Opening, Conc  
20 Ft Detectable Warning Surface  
92 Sft Sidewalk Ramp, Conc, 4 inch  
92 Sft Sidewalk, Conc, 4 inch  
1 Eg Dr Structure Cover, ADA Compliant

05-021-015-40  
TARGET CORPORATION  
3100 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8

05-021-015-70  
GRAND TRAVERSE MALL LLC/BROOKFIELD  
3160 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8995

CROSSING CIRCLE NW QUADRANT SIDEWALK QUANTIT

30 Ft	Curb and Gutter, Conc, Det F4
15 Ft	Curb Ramp Opening, Conc
14 Ft	Detectable Warning Surface
100 Stft	Sidewalk Ramp, Conc, 4 inch
68 Stft	Sidewalk, Conc, 4 inch
1 Ea	Dr Structure Cover, ADA Compliant

CONSTRUCTION QUANTITIES THIS SHEET

5937	Syd	Aggregate Base, 6 inch
940	Ton	HMA, 4E10, High Stress (TOP COURSE)
940	Ton	HMA, 4E10, High Stress (LEVELING COURSE)
1029	Ton	HMA, 3E10 (BASE COURSE)
2203	Syd	Shoulder, Cl I, 6 inch
1	Ea	Dr Structure Cover, Adj, Case 1
1	Ea	Dr Structure Cover, Type K
1056	Ft	Curb and Gutter, Conc, Det F4

## CROSSING CIRCLE

SECTION 2  
T27N R11W  
GARFIELD T.

CROSSING CIRCLE SE QUADRANT SIDEWALK QUANTITIES

43 Ft	Curb and Gutter, Conc, Det F4
13 Ft	Curb Ramp Opening, Conc
13 Ft	Detectable Warning Surface
100 Sft	Sidewalk Ramp, Conc, 4 inch
60 Sft	Sidewalk, Conc, 4 inch

05-022-009-05  
WJS OF CROSSING CIRCLE LLC  
2504 CROSSING CIR  
TRAVERSE CITY, MI 49686-7955

GRADE AND RESURFACE CROSSING CIRCLE TO 62' F  
283 Syd Approach, CI I, 6 inch  
65 Top HMA Approach

129-002-20  
XMOR PROPERTY GROUP  
10 CROSSING CIR  
MERCE CITY, MI 48034

## CONSTRUCTION SHEET



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

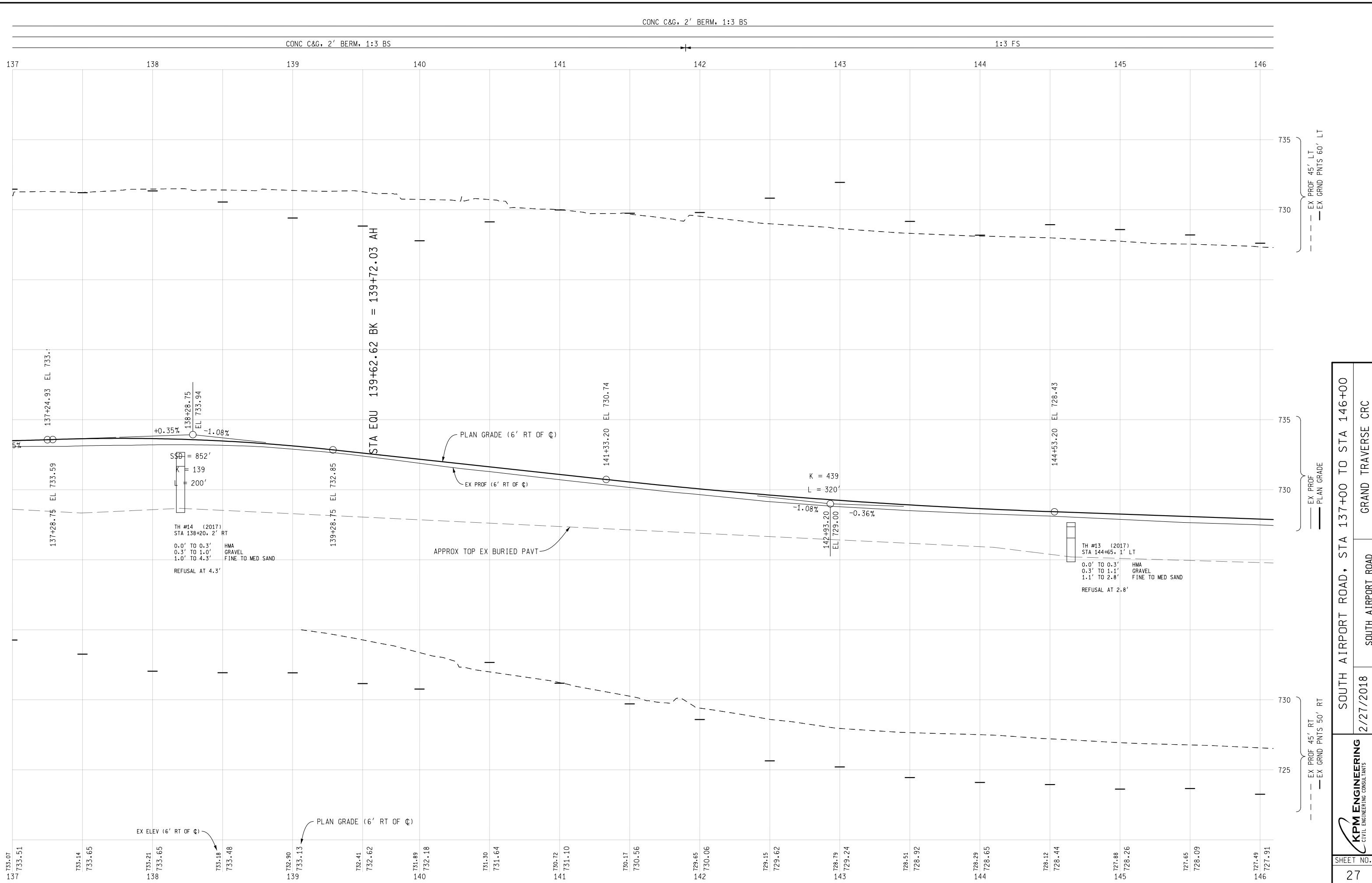
# **GRAND TRAVERSE**

County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 137+00 TO STA 146+00

DATE	TOWNSHIP	SOUTH AIRPORT RD	SHEET
2/28/2018	GARFIELD	WEST OF US-31 TO VETERANS DR	26



CONTROL POINT  
STA 147+44, 45' RT  
N = 516,510.34  
E = 19,355,224.84

BENCH MARK  
STA 149+90, 62' LT  
TOP OF HYDRANT  
ELEV = 727.51

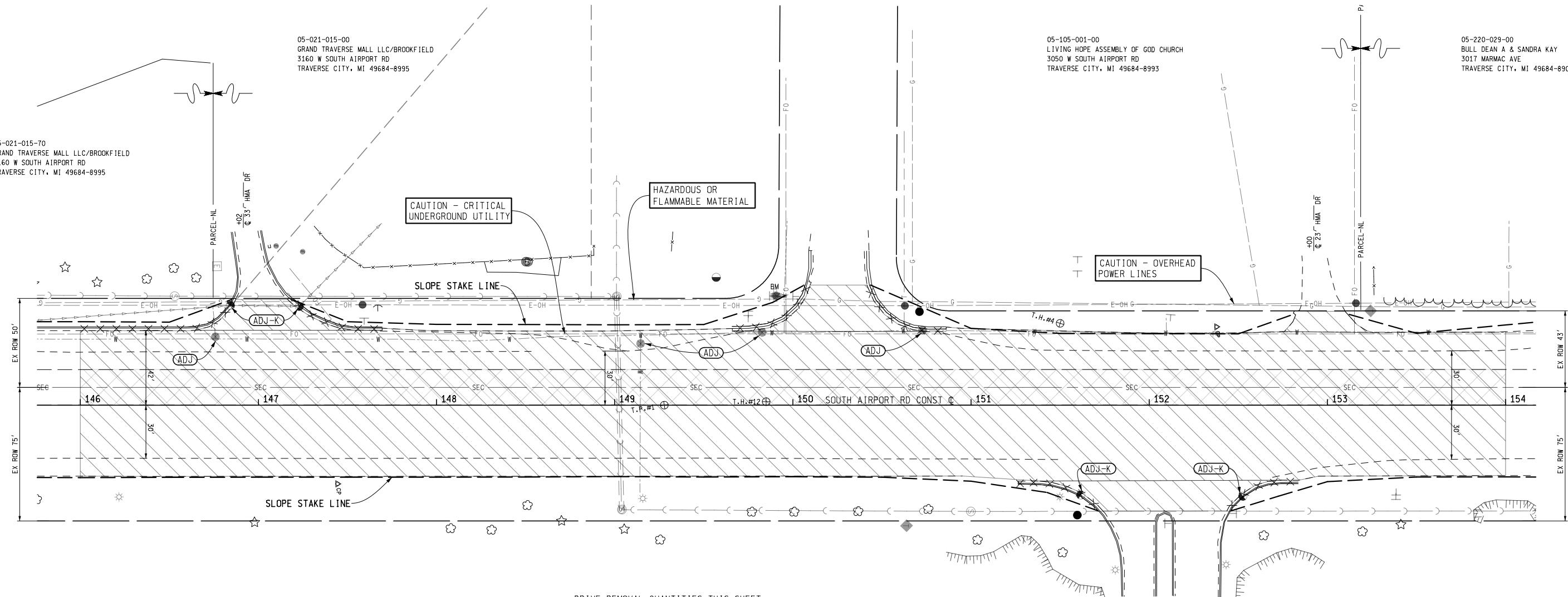
## DAY DRIVE

CONTROL POINT  
STA 152+38, 45' LT  
N = 517,005.29  
E = 19,355,145.85

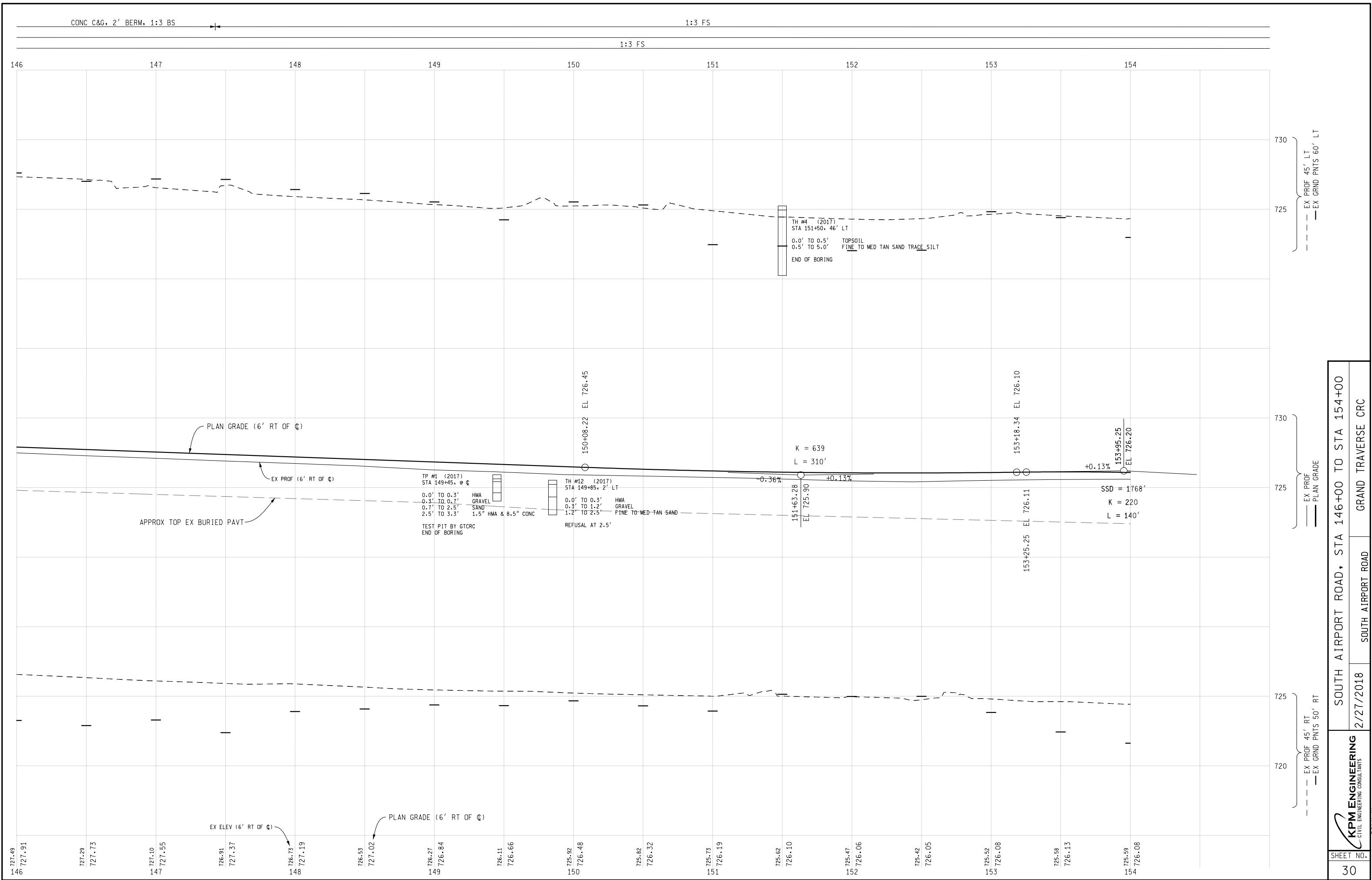
DAY SUBDIVISION

MACKEY'S SUBDIVISION

LOT 29







## MARMA CAVE

SOUTH AIRPORT RD CUR  
 $\Delta$  =  $60^{\circ} 37' 01''$  (R)  
 D =  $6^{\circ} 21' 58''$   
 T =  $526.10'$   
 L =  $952.17'$   
 R =  $900.00'$   
 E =  $142.49'$   
 PC =  $158+32.59$   
 PI =  $163+58.68$   
 PT =  $167+84.76$   
 e = 4.0% EX  
 e = 5.6% PROP

CONTROL POINT  
STA 158+29, 42' L  
N = 517,596.29  
E = 19,355,159.30

SECTION 2  
T27N R11  
GARFIELD

DRIVE REMOVAL QUANTITIES THIS SHEET

STATION	HMA Surface, Rem (Syd)
157+30 LT	
159+90 LT	78
160+72 LT	81
TOTALS	159

	MARMA CAVE	REMOVAL QUANTITIES
LOT 29	148	Syd HMA Surface, Rem
	102	Ft Curb and Gutter, Rem

LOT

LOT 2

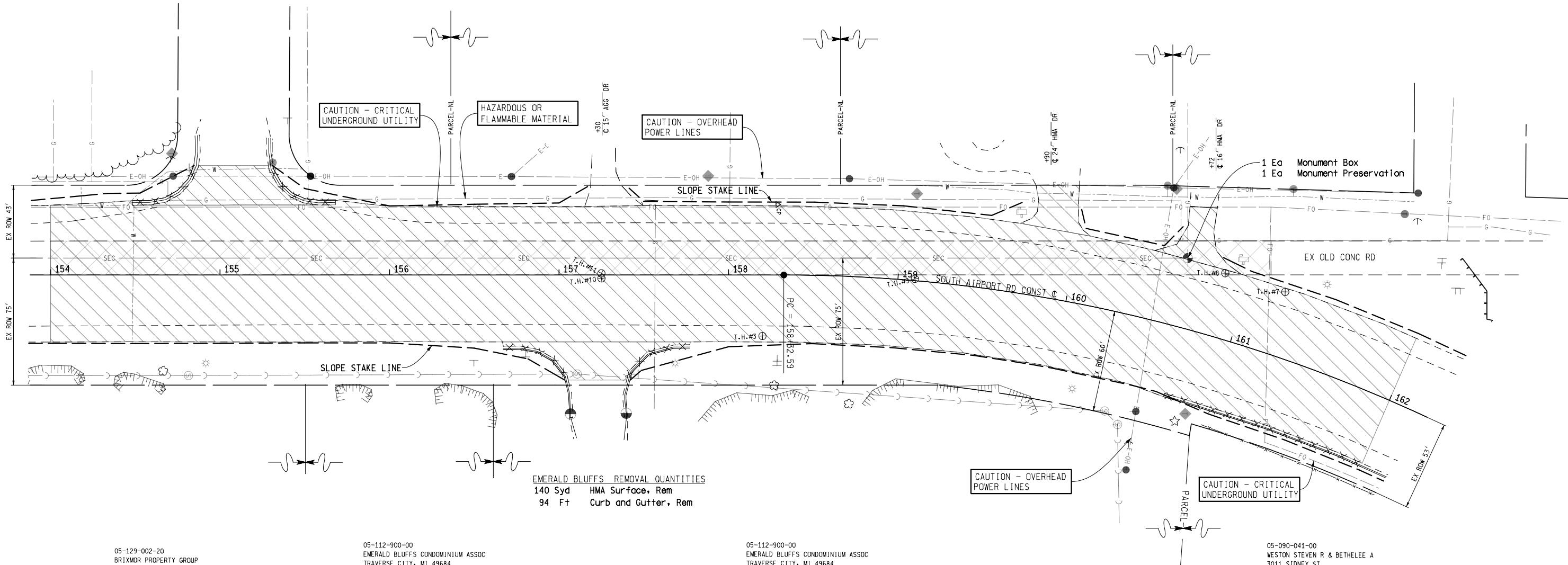
L

05-220-029-00  
BULL DEAN A & SANDRA KAY  
3017 MARMAC AVE  
TRAVERSE CITY, MI 49684-8903

05-220-003-00  
D'ERCOLE VICTOR F SR  
3028 MARMAC AVE  
TRAVERSE CITY, MI 49684-8100

05-220-002-00  
D'ERCOLE VICTOR F SR  
3024 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-89

05-016-042-00  
ROEBKE PATRICIA ANN  
3002 W SOUTH AIRPORT RD  
TRVERSE CITY, MI 49684-8992



## EMERALD BLUFFS

REMOVAL QUANTITIES THIS SHEET  
7159 Syd HMA Surface, Rem  
8.0 Sta Roadway Grading, Type 2  
1600 Syd Pav. Rem  
124 Ft Curb and Gutter, Rem

SECTION 22  
T27N R11W  
CAREFIELD TWP

# **GRAND TRAVERSE**

County Road Commission

811.

3 WORKING DAY  
BEFORE YOU DI  
CALL MISS DIG  
800-482-7171  
OR 811

# **GRAND TRAVERSE**

County Road Commission

SOUTH AIRPORT ROAD, STA 154+00 TO STA 162+00			
DATE	TOWNSHIP	SOUTH AIRPORT RD WEST OF US-31 TO VETERANS DR	SHEET NO 31

## MARMA CAVE

SOUTH AIRPORT RD CURVE DATA  
 $\Delta = 60^\circ 37' 01''$  (RT)  
 $D = 6^\circ 21' 58''$   
 $T = 526.10'$   
 $L = 952.17'$   
 $R = 900.00'$   
 $E = 142.49'$   
 $PC = 158+32.59$   
 $PI = 163+58.68$   
 $PT = 167+84.76$   
 $e = 4.0\% EX$   
 $e = 5.6\% PROP$

CONTROL POINT  
STA 158+29, 42' LT  
N = 517,596.29  
E = 19,355,159.30

SECTION 21  
T27N R11W  
GARFIELD TWP

GRADE AND SURFACE DRIVES THIS SHEET

STATION	Approach, CI II (Ton)	Approach, CI I, 6 inch (Syd)	HMA Approach (Ton)
157+30 LT	8		
159+90 LT		81	19
160+72 LT		81	19
TOTALS	8	162	38

GRADE AND RESURFACE DAY DRIVE TO 64' LT

LOT 29 167 Syd Approach, CI I, 6 inch  
39 Ton HMA Approach  
100 Ft Curb and Gutter, Conc. Det B2

LOT 3

MACKEY'S SUBDIVISION

LOT 2

LOT 1

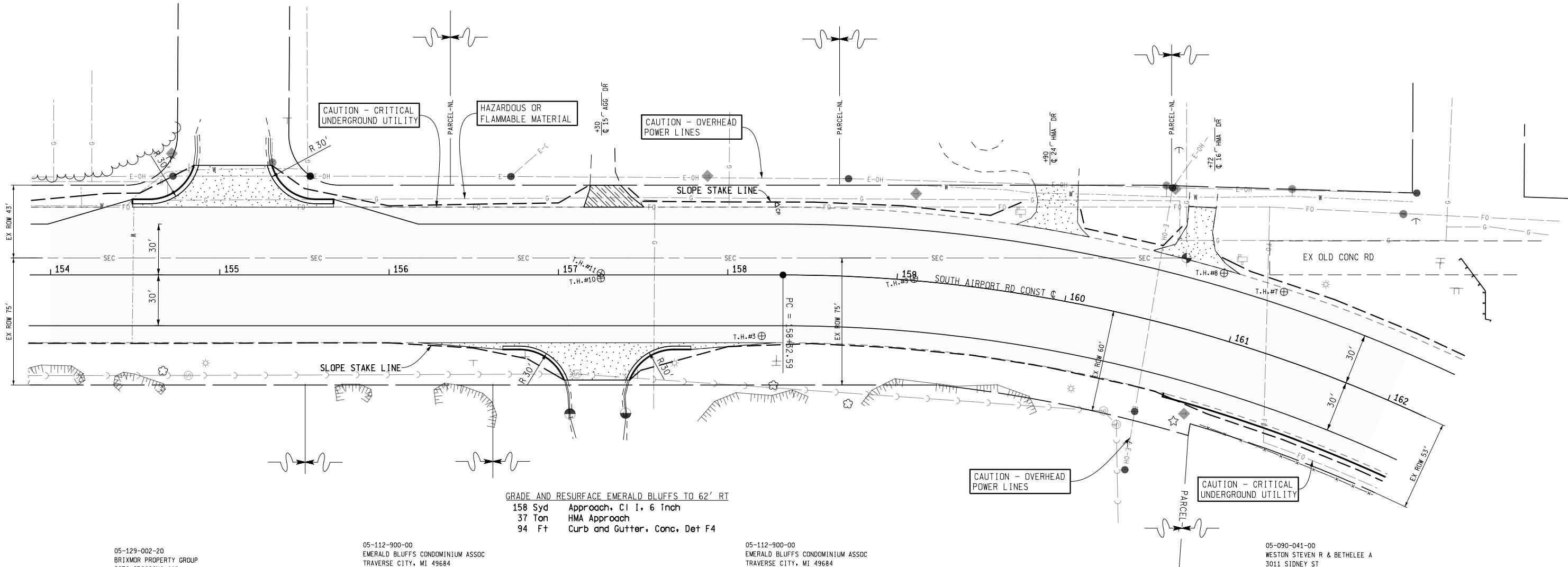
05-220-029-00  
BULL DEAN A & SANDRA KAY  
3017 MARMAC AVE  
TRAVERSE CITY, MI 49684-8903

05-220-003-00  
D'ERCOLE VICTOR F SR  
3028 MARMAC AVE  
TRAVERSE CITY, MI 49684-8903

05-220-002-00  
D'ERCOLE VICTOR F SR  
3024 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8994

05-220-001-00  
CHAPIN MARK A & WENDY A  
3008 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8991

05-016-042-00  
ROEBKE PATRICIA ANN  
3002 W SOUTH AIRPORT RD  
TRAVERSE CITY, MI 49684-8992



## EMERALD BLUFFS

SECTION 22  
T27N R11W  
GARFIELD TWP

CONSTRUCTION QUANTITIES THIS SHEET  
5333 Syd Aggregate Base, 6 inch  
821 Ton HMA, 4E10, High Stress (TOP COURSE)  
821 Ton HMA, 4E10, High Stress (LEVELING COURSE)  
924 Ton HMA, 3E10 (BASE COURSE)  
1778 Syd Shoulder, CI I, 6 inch  
124 Ft Curb and Gutter, Conc. Det F4

## CONSTRUCTION SHEET

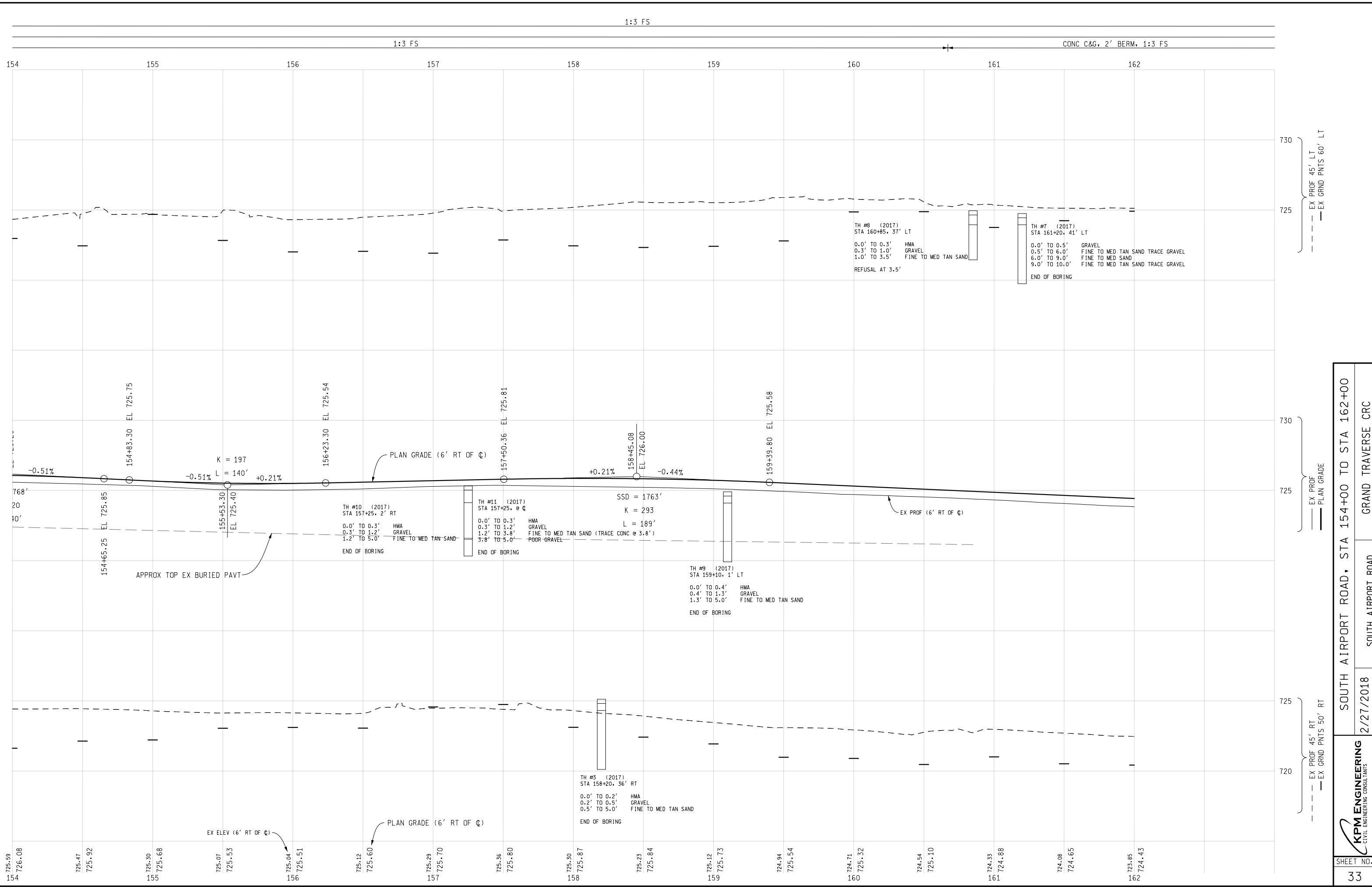


3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

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CIVIL ENGINEERING CONSULTANTS

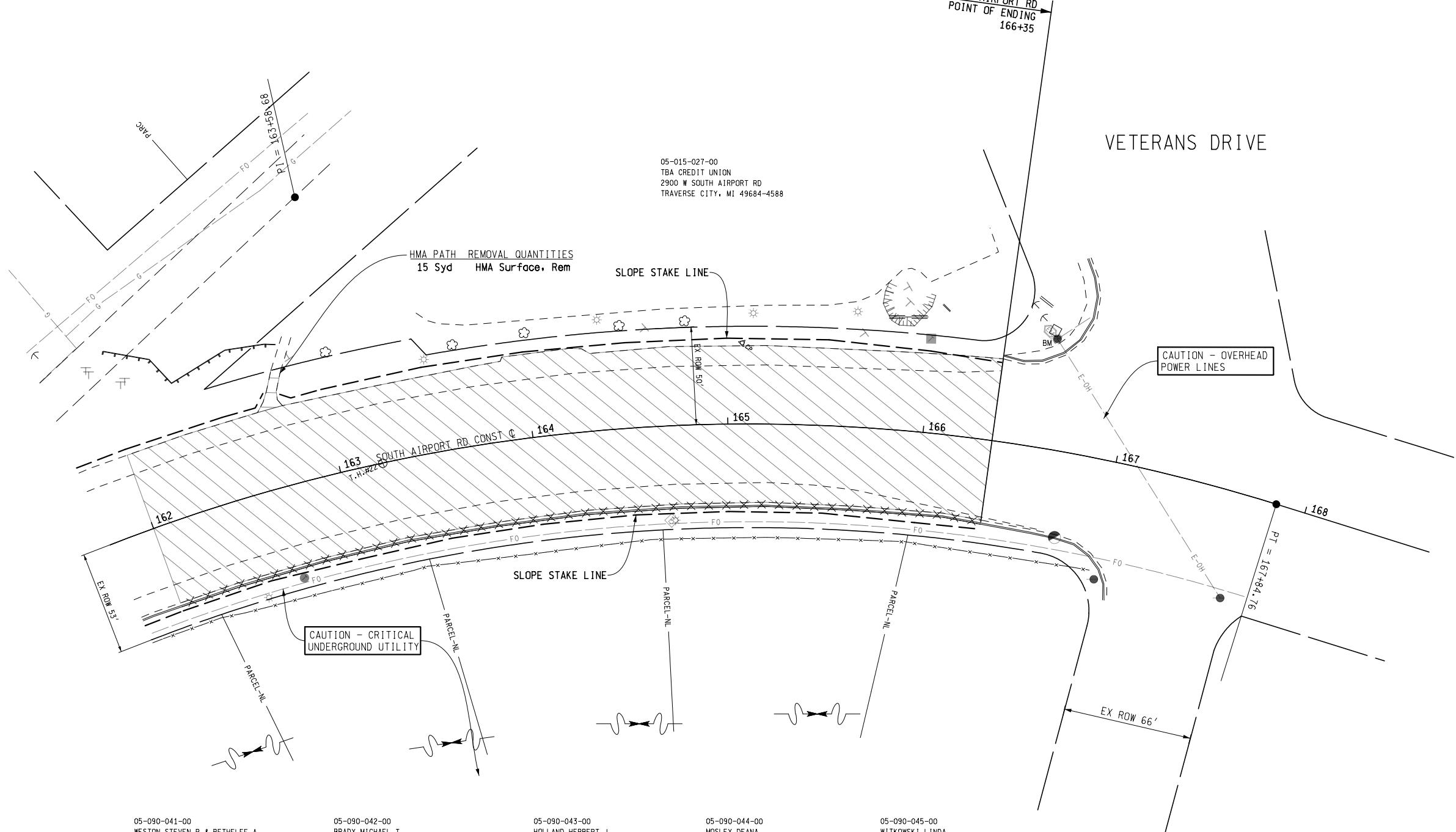
SOUTH AIRPORT ROAD, STA 154+00 TO STA 162+00  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 32  
WEST OF US-31 TO VETERANS DR



CONTROL POINT  
STA 165+08, 42' LT  
N = 518,236.86  
E = 19,355,423.98

BENCH MARK  
STA 166+60, 57' LT  
SPIKE IN POLE  
ELEV = 724.76

SECTION 21  
T27N R11W  
GARFIELD TWP



REMOVAL QUANTITIES THIS SHEET  
3911 Syd HMA Surface, Rem  
4.4 Sta Roadway Grading, Type 2  
416 Ft Curb and Gutter, Rem

### VICTORIA DRIVE

SECTION 22  
T27N R11W  
GARFIELD TWP



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

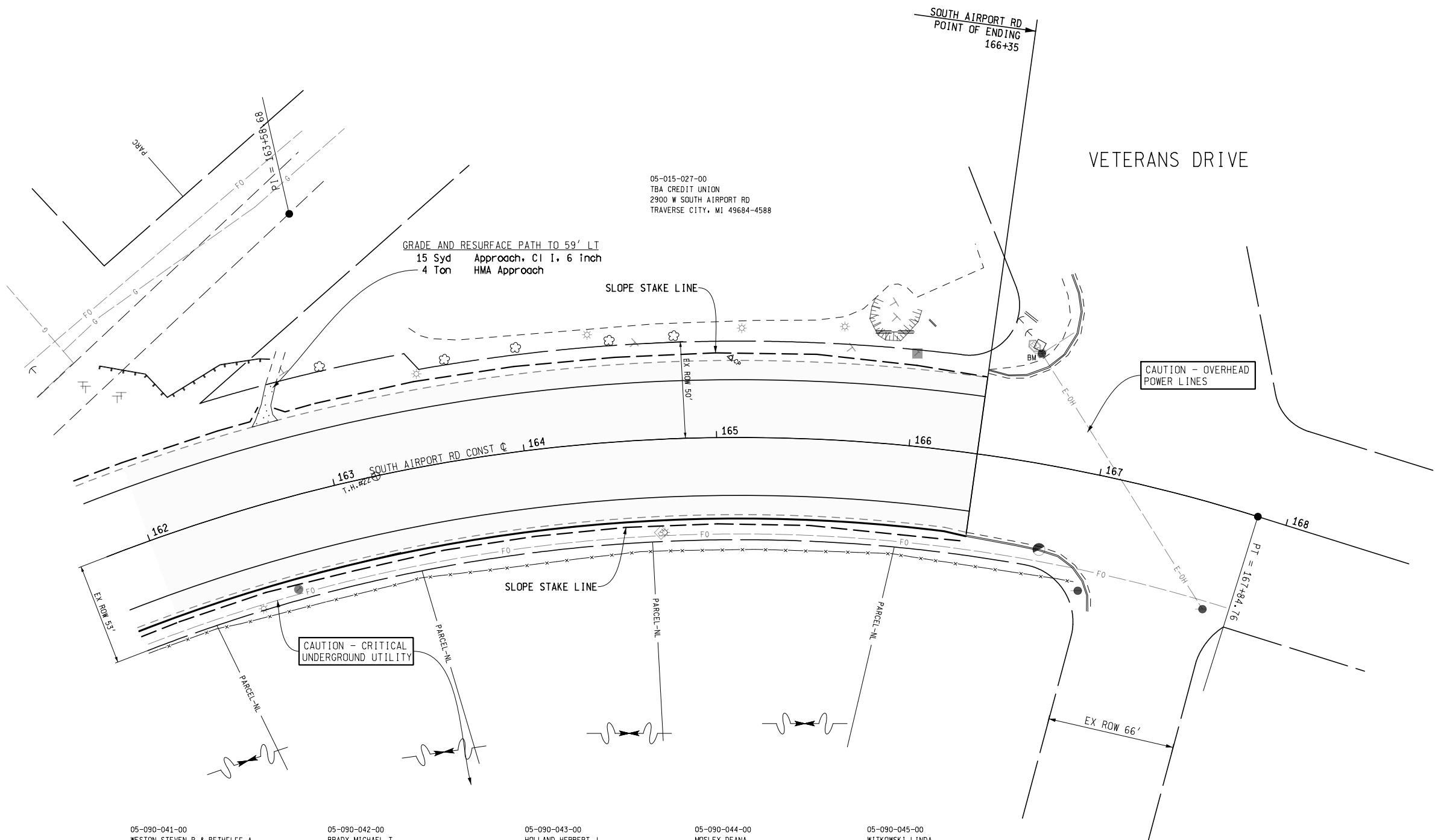
**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 162+00 TO POE STA 166+35  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 34  
WEST OF US-31 TO VETERANS DR  
2/27/2018

CONTROL POINT  
STA 165+08, 42' LT  
N = 518,236.86  
E = 19,355,423.98

BENCH MARK  
STA 166+60, 57' LT  
SPIKE IN POLE  
ELEV = 724.76

SECTION 21  
T27N R11W  
GARFIELD TWP



05-090-041-00  
WESTON STEVEN R & BETHELEE A  
3011 SIDNEY ST  
TRVERSE CITY, MI 49684-8806

05-090-042-00  
BRADY MICHAEL T  
3027 SIDNEY ST  
TRVERSE CITY, MI 49684-8806

05-090-043-00  
HOLLAND HERBERT J  
3039 SIDNEY ST  
TRVERSE CITY, MI 49684-8806

05-090-044-00  
MOSLEY DEANA  
3055 SIDNEY ST  
TRVERSE CITY, MI 49684-8806

05-090-045-00  
WITKOWSKI LINDA  
2901 VICTORIA DR  
TRVERSE CITY, MI 49684-8805

CONSTRUCTION QUANTITIES THIS SHEET  
2903 Syd Aggregate Base, 6 inch  
447 Ton HMA, 4E10, High Stress (TOP COURSE)  
447 Ton HMA, 4E10, High Stress (LEVELING COURSE)  
503 Ton HMA, 3E10 (BASE COURSE)  
968 Syd Shoulder, CI I, 6 inch  
416 Ft Curb and Gutter, Conc. Det F4

### VICTORIA DRIVE

### CONSTRUCTION SHEET

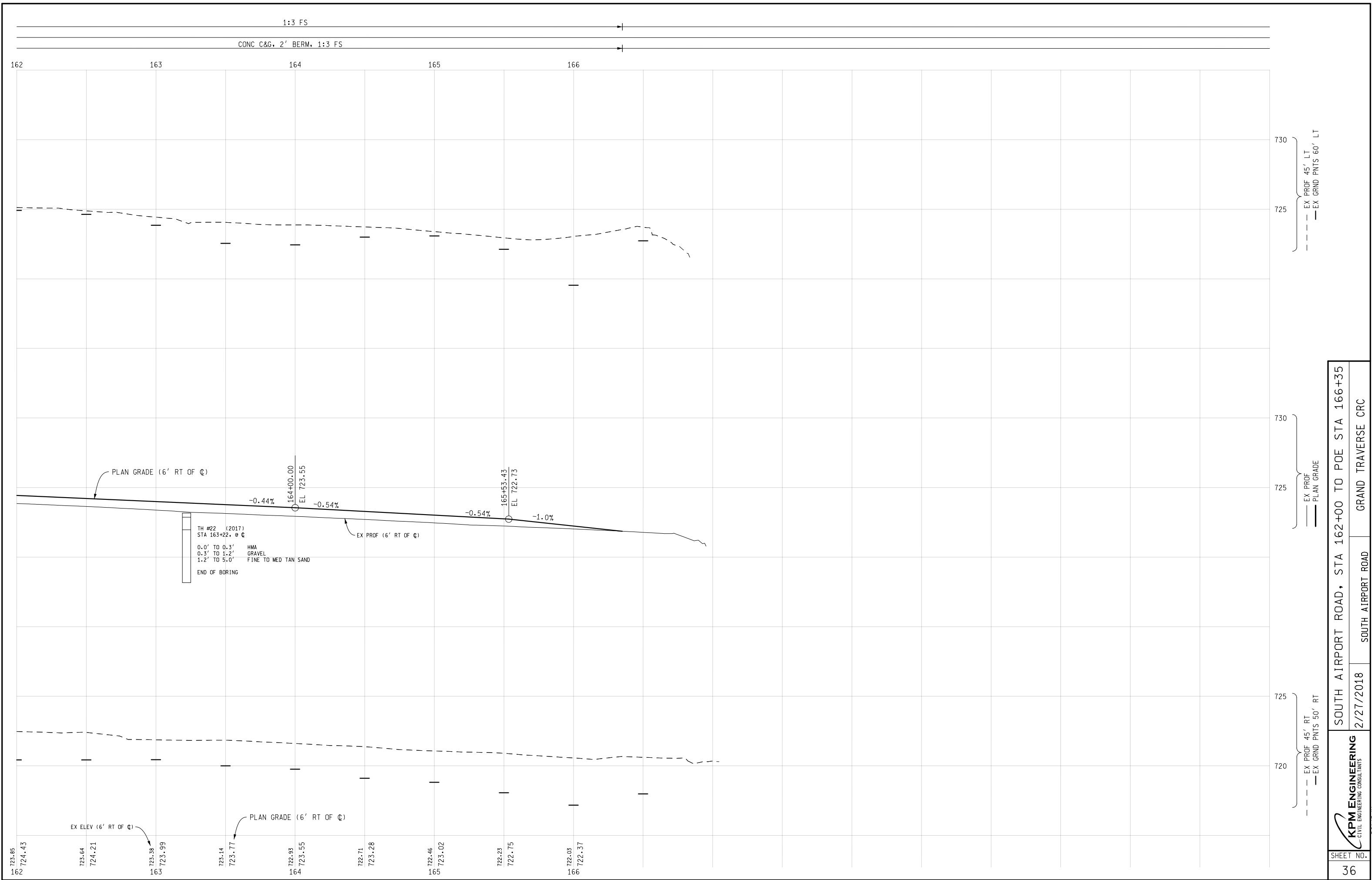


3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

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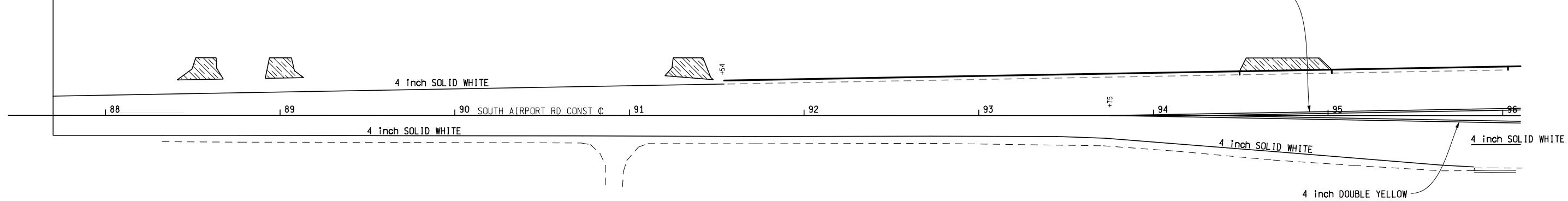
SOUTH AIRPORT ROAD, STA 162+00 TO POE STA 166+35  
DATE 2/27/2018  
TOWNSHIP GARFIELD  
SHEET NO. 35  
WEST OF US-31 TO VETERANS DR



SOUTH AIRPORT RD  
POINT OF BEGINNING  
87+70



SECTION 21  
T27N R11W  
GARFIELD TWP



PAVEMENT MARKING QUANTITIES THIS SHEET  
1218 Ft Pavt Mrkg, Polyurea, 4 inch, White  
900 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow

PERMANENT SIGNING AND PAVT MRKGS



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

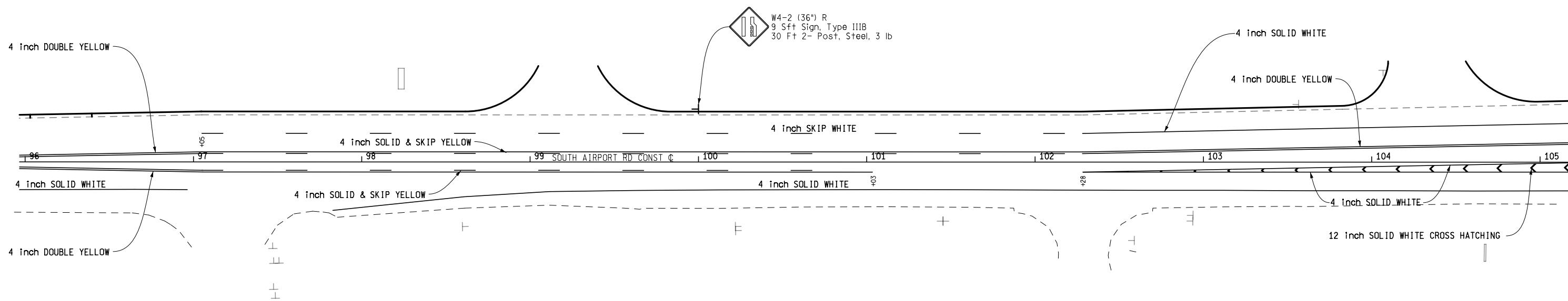
**GRAND TRAVERSE**  
County Road Commission

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CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, POB STA 87+70 TO STA 96+00	
DATE	TOWNSHIP
2/27/2018	GARFIELD
SHEET NO. 37	
WEST OF US-31 TO VETERANS DR	

SECTION 21  
T27N R11W  
GARFIELD TWP

N



SECTION 21  
T27N R11W  
GARFIELD TWP

SIGNING QUANTITIES THIS SHEET  
30 Ft Post, Steel, 3 lb  
9 Sft Sign, Type IIIB

PAVEMENT MARKING QUANTITIES THIS SHEET  
1762 Ft Pavt Mrkg, Polyurea, 4 inch, White  
2115 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow  
52 Ft Pavt Mrkg, Polyurea, 12 inch Cross Hatching, White

PERMANENT SIGNING AND PAVT MRKGS



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

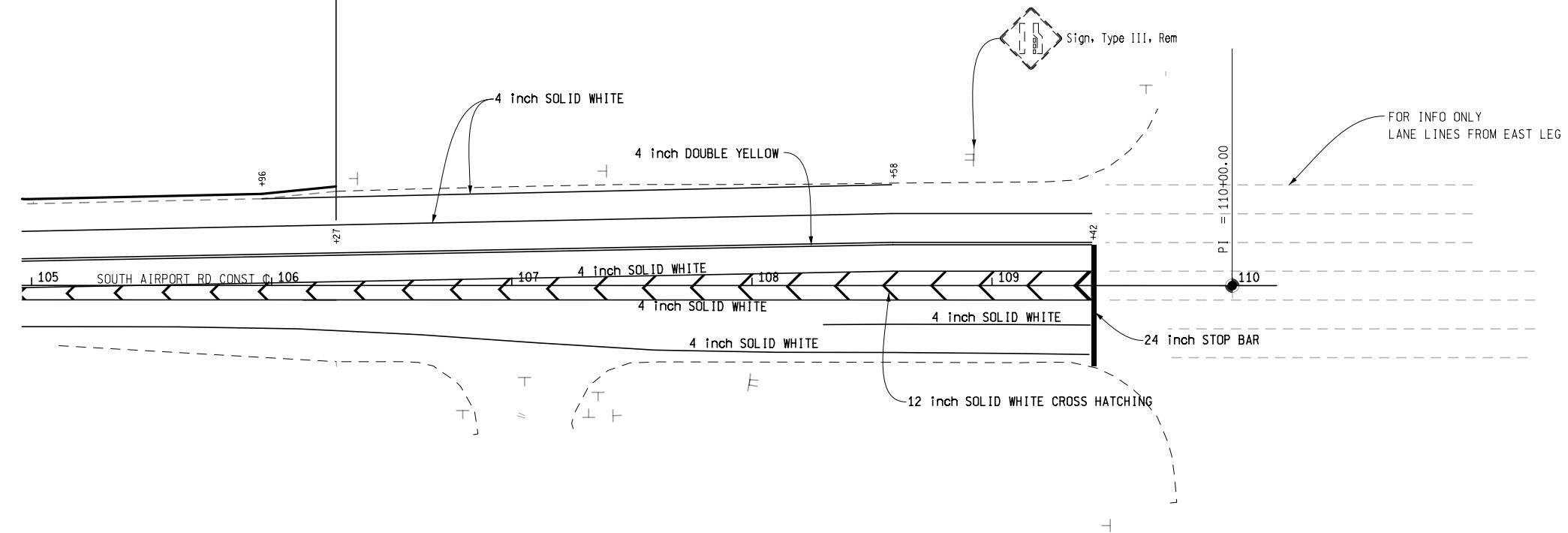
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CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 96+00 TO STA 105+00  
DATE 2/27/2018 TOWNSHIP GARFIELD  
SHEET NO. 38  
WEST OF US-31 TO VETERANS DR

SOUTH AIRPORT RD  
SEGMENT 1  
LIMIT OF CONSTRUCTION  
106+27

SECTION 21  
T27N R11W  
GARFIELD TWP

US-31



US-31

SECTION 21  
T27N R11W  
GARFIELD TWP

SIGNING QUANTITIES THIS SHEET  
1 Ea Sign, Type III, Rem

PAVEMENT MARKING QUANTITIES THIS SHEET  
2140 Ft Pavt Mrkg, Polyurea, 4 inch, White  
884 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow  
270 Ft Pavt Mrkg, Polyurea, 12 inch Cross Hatching, White  
50 Ft Pavt Mrkg, Polyurea, 24 inch, Stop Bar



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

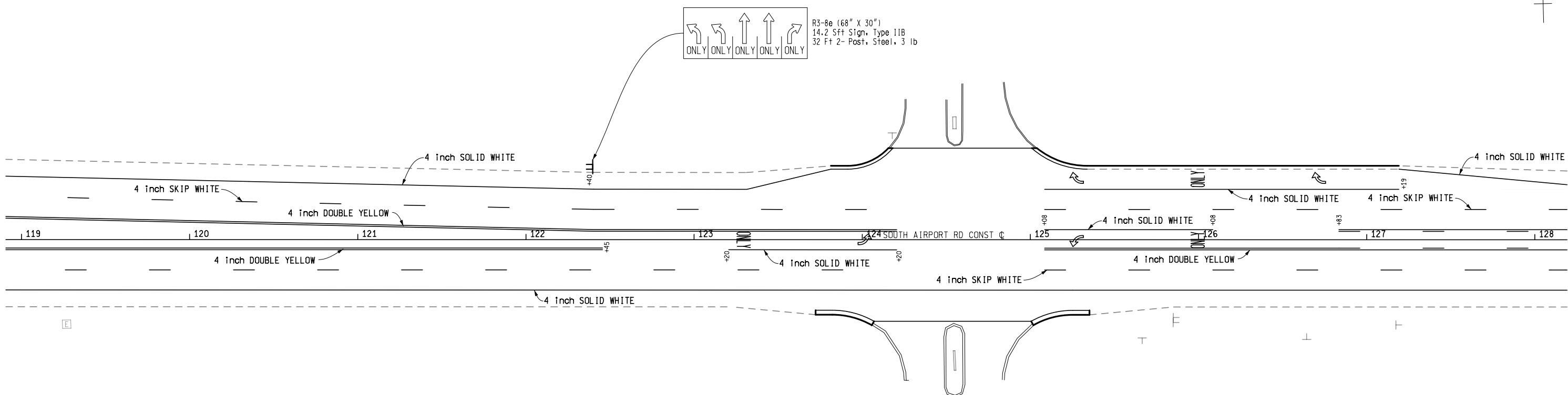
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CIVIL ENGINEERING CONSULTANTS

PERMANENT SIGNING AND PAVT MRKGS

SOUTH AIRPORT ROAD, STA 105+00 TO STA 106+27	
DATE	TOWNSHIP
2/27/2018	GARFIELD
SHEET NO. 39	



SECTION 21  
T27N R11W  
GARFIELD TWP



SIGNING QUANTITIES THIS SHEET  
32 Ft Post, Steel, 3 lb  
15 Sft Sign, Type IIB

PAVEMENT MARKING QUANTITIES THIS SHEET  
1383 Ft Pavt Mrkg, Polyurea, 4 inch, White  
2377 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow  
2 Ea Pavt Mrkg, Polyurea, Lt Turn Arrow Sym  
3 Ea Pavt Mrkg, Polyurea, Only  
2 Ea Pavt Mrkg, Polyurea, Rt Turn Arrow Sym  
3759 Ft Recessing Pavement Markings, Longit

SECTION 21  
T27N R11W  
GARFIELD TWP

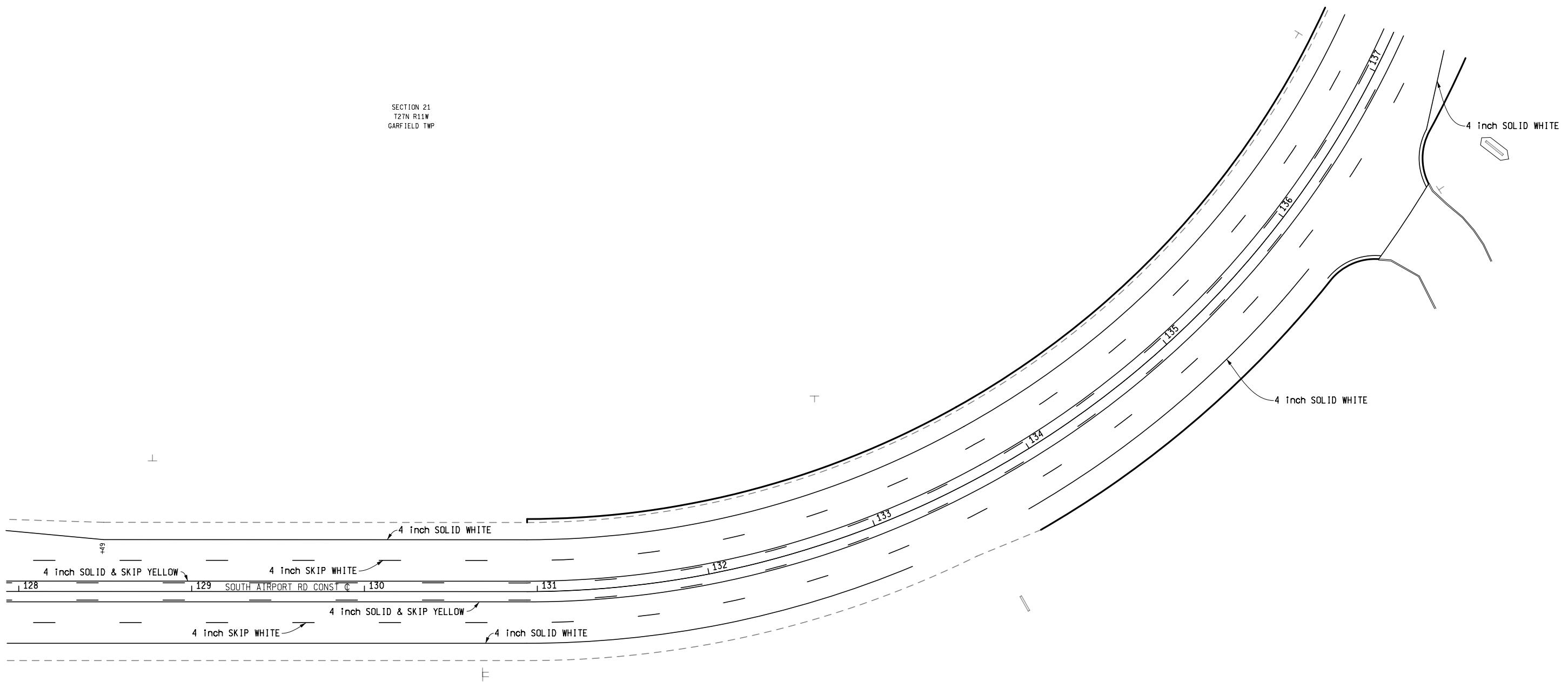


3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
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County Road Commission

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PERMANENT SIGNING AND PAVT MRKGS  
SOUTH AIRPORT ROAD, STA 119+00 TO STA 128+00  
DATE 2/28/2018 TOWNSHIP GARFIELD SHEET NO. 41  
WEST OF US-31 TO VETERANS DR 2/28/2018



PAVEMENT MARKING QUANTITIES THIS SHEET  
 1779 Ft Pavt Mrkg, Polyurea, 4 inch, White  
 2251 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow  
 4030 Ft Recessing Pavement Markings, Longit

SECTION 21  
T27N R11W  
GARFIELD TWP



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

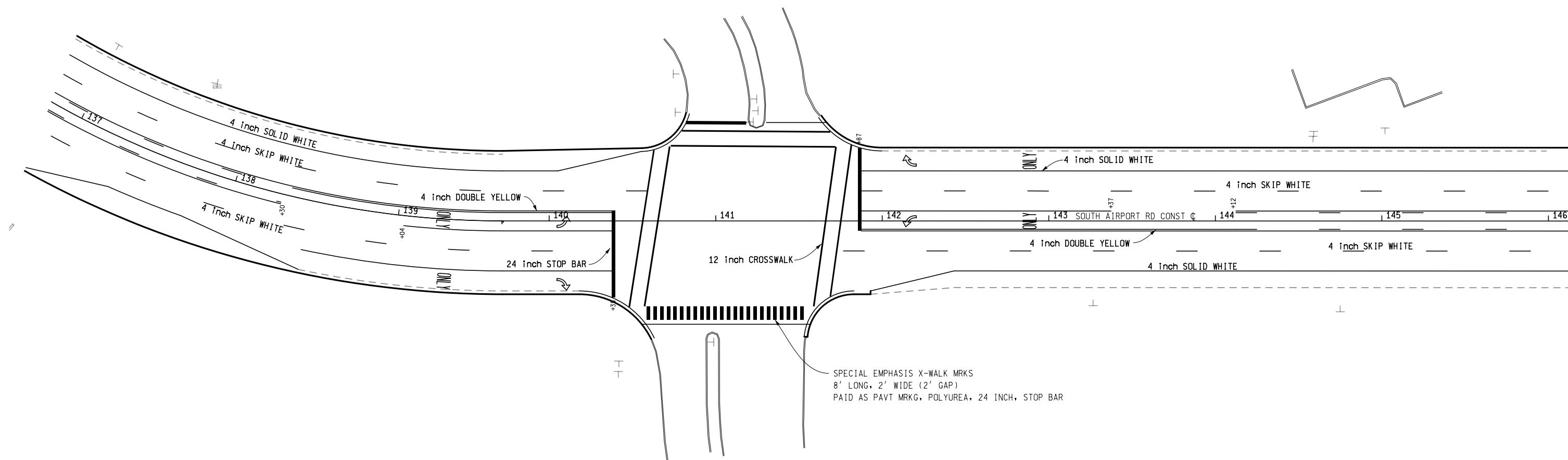
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CIVIL ENGINEERING CONSULTANTS

PERMANENT SIGNING AND PAVT MRKGS

SOUTH AIRPORT ROAD, STA 128+00 TO STA 137+00		
DATE	TOWNSHIP	SHEET NO.
2/27/2018	GARFIELD	WEST OF US-31 TO VETERANS DR

SECTION 21  
T27N R11W  
GARFIELD TWP

Z



CROSSING CIRCLE

SECTION 22  
T27N R11W  
GARFIELD TWP

PAVEMENT MARKING QUANTITIES THIS SHEET

2052	Ft	Pavt Mrkg, Polyurea, 4 inch, White
1632	Ft	Pavt Mrkg, Polyurea, 4 inch, Yellow
570	Ft	Pavt Mrkg, Polyurea, 12 inch, Crosswalk
330	Ft	Pavt Mrkg, Polyurea, 24 inch, Stop Bar
2	Ea	Pavt Mrkg, Polyurea, Lt Turn Arrow Sym
4	Ea	Pavt Mrkg, Polyurea, Only
2	Ea	Pavt Mrkg, Polyurea, Rt Turn Arrow Sym
3685	Ft	Recessing Pavement Markings, Longit



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

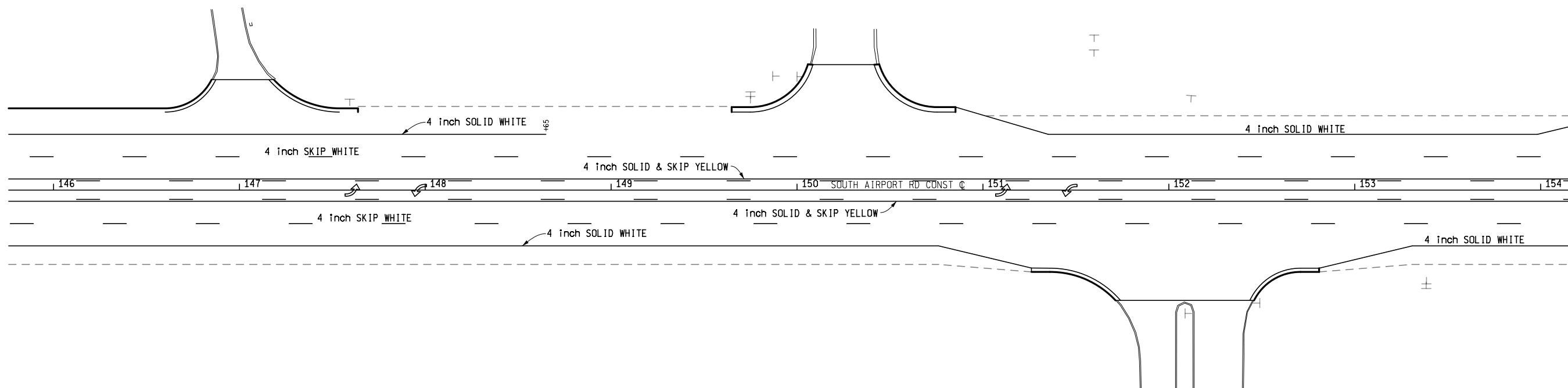
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CIVIL ENGINEERING CONSULTANTS

PERMANENT SIGNING AND PAVT MRKGS  
SOUTH AIRPORT ROAD, STA 137+00 TO STA 146+00  
DATE 2/27/2018 TOWNSHIP GARFIELD SHEET NO. 43  
WEST OF US-31 TO VETERANS DR

DAY DRIVE

+

SECTION 21  
T27N R11W  
GARFIELD TWP



CROSSING CIRCLE

PAVEMENT MARKING QUANTITIES THIS SHEET  
 1579 Ft Pavt Mrkg, Polyurea, 4 inch, White  
 2000 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow  
 4 Ea Pavt Mrkg, Polyurea, Lt Turn Arrow Sym  
 3579 Ft Recessing Pavement Markings, Longit

SECTION 21  
T27N R11W  
GARFIELD TWP

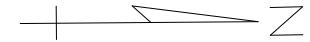


3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

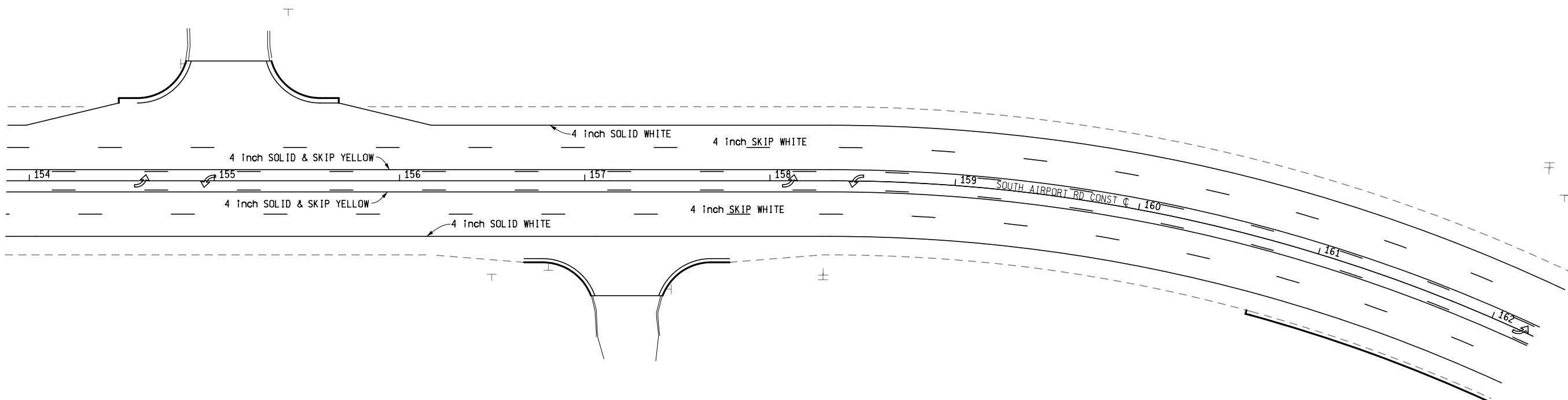
**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

PERMANENT SIGNING AND PAVT MRKGS  
 SOUTH AIRPORT ROAD, STA 146+00 TO STA 154+00  
 DATE 2/27/2018 TOWNSHIP GARFIELD SHEET NO. 44  
 WEST OF US-31 TO VETERANS DR



## MARMA CAVE

MACKEY'S SUBDIVISION



PAVEMENT MARKING QUANTITIES THIS SHEET  
1884 Ft Pavt Mrkg, Polyurea, 4 inch, White  
1461 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow  
4 Ea Pavt Mrkg, Polyurea, Lt Turn Arrow Sym  
3345 Ft Recessing Pavement Markings, Longit

## EMERALD BLUFFS

## PERMANENT SIGNING AND PAVT MRKGS



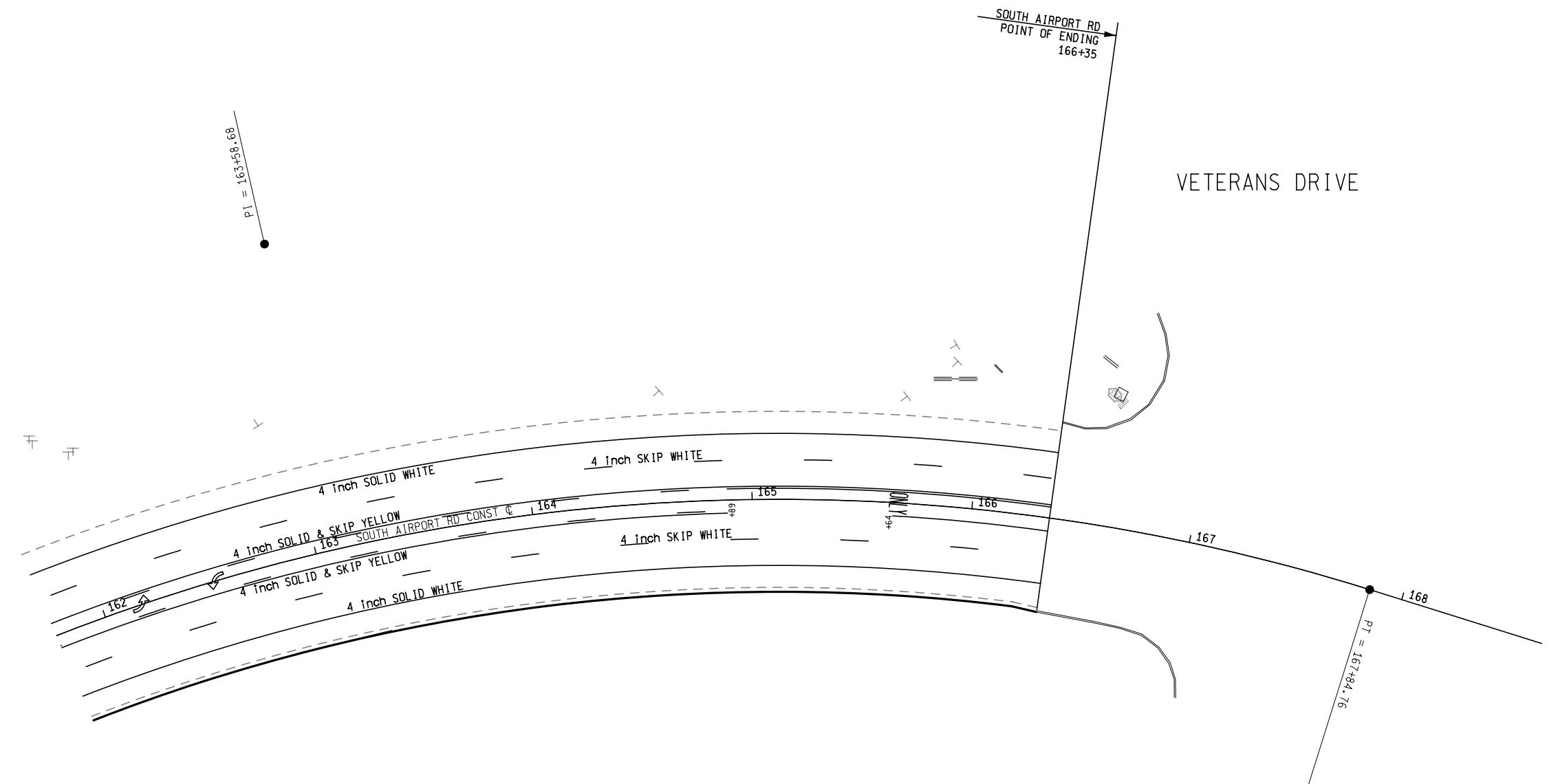
3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
800-482-7171  
OR 811

**GRAND TRAVERSE**  
County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 154+00 TO STA 162+00  
DATE 2/27/2018 TOWNSHIP GARFIELD SHEET NO. 45  
WEST OF US-31 TO VETERANS DR

SECTION 21  
T27N R11W  
GARFIELD TWP



PAVEMENT MARKING QUANTITIES THIS SHEET  
1160 Ft Pavt Mrkg, Polyurea, 4 inch, White  
1017 Ft Pavt Mrkg, Polyurea, 4 inch, Yellow  
2 Ea Pavt Mrkg, Polyurea, Lt Turn Arrow Sym  
1 Ea Pavt Mrkg, Polyurea, Only  
2177 Ft Recessing Pavement Markings, Longit

SECTION 22  
T27N R11W  
GARFIELD TWP

VICTORIA DRIVE

PERMANENT SIGNING AND PAVT MRKGS



3 WORKING DAYS  
BEFORE YOU DIG  
CALL MISS DIG  
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OR 811

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County Road Commission

**KPM ENGINEERING**  
CIVIL ENGINEERING CONSULTANTS

SOUTH AIRPORT ROAD, STA 162+00 TO POE STA 166+35		
DATE	TOWNSHIP	SHEET NO.
2/28/2018	GARFIELD	SOUTH AIRPORT RD WEST OF US-31 TO VETERANS DR
		46

**PROGRESS CLAUSE:** Submit a complete, detailed and signed MDOT Form 1130, Progress Schedule, to the Engineer within 7 calendar days after award and prior to starting work.

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 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 progress schedule.

After receiving Notice of Award, start work on the date approved by the Engineer, which date must be no earlier than **May 21, 2018**. In no case, may any work be commenced prior to receipt of formal notice of award by the Department.

All lanes of traffic in Segments One and Two must be paved through top course and the road fully open to traffic no later than the interim completion date of **June 29, 2018**.

**No work will be allowed on the project during the period June 29, 2018 through July 15, 2018.**

The entire project must be completed on or before the final project completion date of **August 30, 2018**.

Failure by the Contractor to meet interim, final and/or any open to traffic and stage completion dates will result in the assessment of liquidated damages in accordance with subsection 108.10.C.1 of the Standard Specifications for Construction. Liquidated damages will be assessed separately, simultaneously, and concurrently 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 into or beyond the normal seasonal suspension period as 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.

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.

**PROGRESS CLAUSE: Alternate 1**

Submit a complete, detailed and signed MDOT Form 1130, Progress Schedule, to the Engineer within 7 calendar days after award and prior to starting work.

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 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 progress schedule.

After receiving Notice of Award, start work on the date approved by the Engineer, which date must be no earlier than **April 9, 2018**. In no case, may any work be commenced prior to receipt of formal notice of award by the Department.

The entire project must be completed on or before the final project completion date of **June 29, 2018**.

Failure by the Contractor to meet interim, final and/or any open to traffic and stage completion dates will result in the assessment of liquidated damages in accordance with subsection 108.10.C.1 of the Standard Specifications for Construction. Liquidated damages will be assessed separately, simultaneously, and concurrently 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 into or beyond the normal seasonal suspension period as 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.

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.

## GRAND TRAVERSE COUNTY ROAD COMMISSION

### NOTICE TO BIDDERS UTILITY COORDINATION

KPM:PJM

Page 1 of 1

2-28-18  
S. Airport Rd

The contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Section 104.08 of the 2012 MDOT 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 108.09 and 109.05 of the 2012 MDOT Standard Specifications for Construction.

For protection of underground utilities and in conformance with Public Acts 174 of 2013, the contractor shall dial 1-800-482-7171 or 811 a minimum of three full working days, excluding Saturdays, Sundays, and holidays prior to beginning each excavation in areas where public utilities have not been previously located. Members will thus be routinely notified. This does not relieve the contractor of the responsibility of notifying utility owners who may not be a part of the MISS DIG alert system.

#### **Public Utilities:**

The following Public Utilities have facilities located within the Right-of-Way:

<b>Telephone</b>	<b>Gas</b>	<b>Water/Sewer</b>
AT&T 142 East State Street, FL 2W Traverse City, MI 49686 231-941-2707 Contact: Kathy Dohm-Beiser	DTE Energy 609 Bjornson St Big Rapids, MI 49307 (231) 592-3244 Contact: Larry Bourke	Grand Traverse DPW 2650 LaFranier Road Traverse City, MI 49686 231-995-6039 Contact: Sam Tyson
<b>Telecom</b> Charter Communications 1392 Trade Centre Dr Traverse City, MI 49684 231-941-3727 Contact: James Lucas	<b>Electric</b> Consumers Energy 821 Hastings Street Traverse City, MI 49686 231-929-6265 Contact: Curtis Hansen	

The owners of existing service facilities that are within grading or structure limits will move them to locations designated by the Engineer or will remove them entirely from the highway Right-of-Way, when feasible. Owners of Public Utilities will not be required by the County to move additional poles or structures in order to facilitate the operation of construction equipment unless it is determined by the Engineer that such poles or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operations.

# GRAND TRAVERSE COUNTY ROAD COMMISSION

## SPECIAL PROVISION FOR MAINTAINING TRAFFIC

KPM:GLK

Page 1 of 7

02/27/18  
S.Airport Rd

**a. General.** Traffic will be maintained in accordance with the 2012 Standard Specifications for Construction, including any supplemental specifications, and as herein specified. All traffic control devices and their usage shall comply with the 2011 edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

The Grand Traverse County Road Commission (GTCRC) may perform maintenance work within or adjacent to the Construction Influence Area (CIA). GTCRC will coordinate their operations to minimize the interference to the Contractor. No additional payment will be made to the Contractor for the joint use of the traffic control items.

The Contractor shall submit a written maintaining traffic plan prior to beginning work and subsequent updates of the plans to the Engineer for approval prior to putting changes into effect. The Contractor shall notify the Engineer a minimum of 72 business hours prior to implementation of any lane closures and major traffic shifts.

**b. Construction Influence Area (CIA).** The CIA limits shall include the area within the right-of-way for South Airport Road in Garfield Township from 2,200' west of US-31/M-37 easterly to Veterans Drive, plus a distance in advance as required for the advanced construction signing and traffic control devices. The CIA shall also extend down all intersecting roadways a minimum distance of 550 feet.

### **c. Traffic Restrictions.**

#### GENERAL

1. No work shall be permitted on the project during the period from June 29, 2018 through July 15, 2018. All lanes shall be open to traffic during this period.
2. No work shall be permitted on Holidays. Holidays periods are defined as:

Memorial Day – 3:00 pm, Friday, 05/25/18 to 6:00 am, Tuesday 05/29/18.  
Labor Day – 3:00 pm, Friday, 08/31/18 to 6:00 am, Tuesday, 09/04/18.

3. Access to all side streets and driveways shall be provided for local traffic.
4. Undercuts or excavations immediately adjacent to active traffic lanes shall have a minimum 1 on 4 slope from the edge of the roadway at the end of the workday, unless otherwise approved by the Engineer.
5. Access shall be provided for pedestrians at all times as directed by the Engineer.
6. The location and duration of equipment and materials stored within the right of way, public or private, shall be approved by the Engineer.

**SEGMENT ONE (S.AIRPORT ROAD WORK WEST OF US-31/M-37)**

1. A minimum of one lane of traffic shall be maintained at all times.
2. All work shall be performed between sunrise and sunset local time. "Work" is defined as any activity on the project, including set up and take down of traffic control devices.
3. From Station 87+70 to 96+00, traffic shall be maintained with traffic regulator control in accordance with Maintaining Traffic Typicals M0020a and M0150a.
4. From Station 96+00 to 106+27, traffic shall be maintained utilizing a day-time traffic shift in accordance with Maintaining Traffic Typical M0231a.
5. All milled surfaces shall be paved daily.
6. A shoulder closure, utilizing Maintaining Traffic Typical M0110a, may be used where allowed by the Engineer.

**SEGMENT TWO & THREE (S.AIRPORT ROAD WORK EAST OF US-31/M-37)**

1. A minimum of one lane of traffic in both directions shall be maintained at all times.
2. Night work (between 7:00 p.m. and 7:00 a.m.) will be required for several work operations as indicated in the Stage Construction section below. The Contractor also has the option to work 24 hours per day during Segments Two and Three, provided the Contractor submits a work schedule that meets the approval of the Engineer. All costs for night work shall be included in the associated items of work.
3. When a lane is closed, the speed limit shall be reduced from 45 mph to 35 mph with R2-1 signing placed as shown in the applicable maintaining traffic typical.
4. Any surface street turn lanes dedicated to closed acceptance lanes shall be closed with appropriate traffic control devices. This shall apply at the north leg of the US-31/M-37 intersection.
5. Traffic shall be maintained with lane closures and traffic shifts in accordance with Signing Typicals M0020a (Tables for 'L', 'D', and 'B' Values), M0250a (One-Lane Closure on Multi-Lane Roadway Using a Single Step Down in Speed Limit), M0410a (One-Lane Closure of a 5-lane, Maintain 2 lanes each direction Using a Single Step Down in Speed Limit), M0440a (Close Two Adjacent Lanes of a 5-lane Using a Single Step Down in Speed Limit), M0500a (Close 3 lanes of a 5-lane Using a Single Step Down in Speed Limit).
6. When traffic is shifted through a signalized intersection, signal indications (heads and case signs) that are in conflict with the temporary lane assignments shall be covered or removed as directed by the Engineer.
7. No lane closures will be allowed where the Contractor can accomplish the work utilizing a shoulder closure. When utilizing a shoulder closure, the Contractor's personnel and equipment shall not occupy any part of an active traffic lane. If this situation cannot be avoided, then a lane closure sequence shall be used.

**d. Stage Construction.** The traffic control required by this special provision is based on the attached staging plans and suggested sequence of operations described below. An alternate traffic control plan may be used by the Contractor, subject to review and approval by the Engineer.

**Segment 1 – Applies from POB Sta 87+70 to Sta 106+27 (S.Airport Rd, West of US-31/M-37)**

Utilizing a day time traffic shift, construct the widening along the north side of South Airport Road. A lane closure, utilizing Traffic Regulator Control, will be necessary from Station 87+70 to 96+00. All trenches and excavations adjacent to active lanes shall be graded to a safe cross section (1 on 4 or flatter) at the end of the work day. Cold mill the existing HMA pavement (left of existing centerline) and place HMA top course. The newly constructed widening shall remain closed to traffic, using plastic drums, until subsequent Segment 2 is completed and opened to traffic.

**Segment 2 – Applies from Sta 111+00 to 127+00 (S.Airport Rd, from US-31/M-37 to E/Mall Driveway)**

Segment 2 shall not begin until after completion of Segment 1 unless approved by the Engineer.

1. **Pre-Stage 1:** Perform any needed repair work to the southerly HMA shoulder as directed by the Engineer. Close the southbound inside left turn lane on US-31/M-37 using plastic drums and remove all white turning guide lines within the intersection. Perform temporary traffic signal modifications. Remove existing pavement markings as needed and place temporary pavement markings and temporary signing in accordance with the Staging Plans for Segment 2 – Stage 1.
2. **Stage 1:** Shift South Airport Road traffic onto the southerly lane and shoulder, maintaining a minimum of one lane of traffic in each direction (left turn lanes provided at signalized intersections). Remove buried HMA/Concrete pavement from Station 115+/-50 to 127+00. Construct northerly three lanes (plus additional WB lanes approaching US-31/M-37 per plans) through HMA leveling course.
3. **Post Stage-1/Pre-Stage 2:** Remove pavement markings as needed and place temporary pavement markings and temporary signing in accordance with the Staging Plans for Segment 2 – Stage 2. Perform temporary traffic signal modifications.
4. **Stage 2:** Shift South Airport Road Traffic onto the pavement constructed during Stage 1. Remove the short section of remaining buried concrete pavement from approximately Station 119+00 to 121+00. Construct southerly two lanes and shoulder through HMA top course.
5. **Stage 3:** Place HMA top course on pavement constructed during Stage 1. This work shall be performed at night between the hours of 7:00 p.m. and 7:00 a.m. using lane closures and traffic shifts. Place temporary pavement markings. Open Segments 1 & 2 to traffic.
6. Traffic signal work, permanent pavement markings, and permanent signing shall be done concurrently with the finalizing of other staged work.

**Segment 3 – Applies from Sta 127+00 to POE Sta 166+35 (S.Airport Rd, from E/Mall Driveway to Veterans Drive)**

Segment 3 shall not begin until after completion of Segment 2.

1. **Pre-Stage 1:** Remove buried concrete pavement between Station 131+50 and 142+00. This work shall be performed at night between the hours of 7:00 p.m. and 7:00 a.m. using lane closures and traffic shifts. Excavated areas shall be surfaced with temporary aggregate base and temporary HMA surfacing prior to opening to traffic the following morning.

Perform temporary traffic signal modifications at Circle Crossing and Veterans Drive. Remove existing pavement markings as needed and place temporary pavement markings and temporary signing in accordance with the Staging Plans for Segment 3 – Stage 1.

2. **Stage 1:** Shift South Airport Road traffic onto the southerly/easterly lane and shoulder, maintaining a minimum of one lane of traffic in each direction (left turn lanes provided at signalized intersections). Remove buried HMA/Concrete pavement from Station 127+00 to 131+50 and Station 142+00 to 161+00. Construct northerly/westerly three lanes through HMA leveling course.
3. **Post Stage-1/Pre-Stage 2:** Remove pavement markings as needed and place temporary pavement markings and temporary signing in accordance with the Staging Plans for Segment 3 – Stage 2. Perform temporary traffic signal modifications.
4. **Stage 2:** Shift South Airport Road Traffic onto the northerly/westerly portion of pavement constructed during Stage 1. Construct southerly two lanes and shoulder through HMA top course.
5. **Stage 3:** Place HMA top course on pavement constructed during Stage 1. This work shall be performed at night between the hours of 7:00 p.m. and 7:00 a.m. using lane closures and traffic shifts. Place temporary pavement markings. Open Segments 3 to traffic.
6. Traffic signal work, permanent pavement markings, and permanent signing shall be done concurrently with the finalizing of other staged work.

#### e. Traffic Control Devices.

1. General
  - A. Temporary Traffic Control Devices shall conform to WZD-125-E.
2. Temporary Signs
  - A. All warning signs shall be 48" x 48" mounted at 5 ft minimum bottom height in uncurbed areas and 7 ft minimum bottom height in curbed or pedestrian areas.
  - B. All construction signs left in place for a duration exceeding 14 days will be on driven posts as per WZD-100-A.
  - C. Refer to the attached Maintaining Traffic Typical M0020a for device spacing, taper/shift lengths, and buffer zones.
  - D. Refer to the applicable Maintaining Traffic Typical for temporary signing layout.

- E. Quantities for Four (4) W20-1 signs have been included for use on intersecting roads as directed by The Engineer.
- F. W20-1 signs with "ON S.AIRPORT RD" plaques shall be placed on US-31/M-37 north and south of the South Airport Road for the duration of the project.
- G. Six of the following signs shall be furnished and operated during the duration of the project:

**CONSTRUCTION ON  
S.AIRPORT RD  
EXPECT DELAYS**

**R11-VAR1  
36" X 84"  
4" "C" LETTERS  
BLACK ON ORANGE**

One each shall be placed on US-31/M-37, south of Chums Corners; US-31/M-37, west of Chums Corners; and on US-31/M-37, south of W.Silver Lake Rd. Three miscellaneous additional signs shall be provided for use where directed by the Engineer.

### 3. Channelizing Devices

- A. Channelizing devices shall be Plastic Drum, High Intensity, Furn & Oper. The maximum distance between channelizing devices should be 25 feet in tapers and 50' in parallel areas, unless otherwise directed by the Engineer.
- B. When a lane is closed, channelizing devices at cross streets and major drives shall be used to clearly define the closed lane to the entering vehicles.
- C. A miscellaneous quantity of 100 each of Plastic Drum, High Intensity, Furn & Oper are included to be used at the discretion of the Engineer.
- D. Placement of Type III Barricades shall be as shown in the Maintaining Traffic Typicals, staging plans, and as directed by the Engineer. Stripes on the barricade rails shall be oriented as prescribed in the most current version of the Michigan Manual on Uniform Traffic Control Devices.

### 4. Portable Changeable Message Signs (PCMS)

- A. PCMs shall be used during the life of this project. The PCMs shall be used to inform traffic of upcoming work and changing traffic control during the life of the project and as directed by the Engineer. They shall be installed off the shoulder where possible with the wheels blocked up, and operated a minimum of 7 calendar days prior to start of work. Each PCMS shall be delineated with three Plastic Drums, High Intensity. The drums shall be placed on the shoulder at an offset and alignment as directed by the Engineer.
- B. Moving the PCMSs to multiple locations and displaying different messages will be

expected through the life of the project. All messages and locations of the signs shall have the approval of the Engineer prior to displaying the message. All PCMS shall have the ability to change/update the message from a remote location. PCMS shall be turned off and removed from the roadway when not being used to display a message approved by the Engineer. Turning the sign parallel to traffic is not acceptable.

C. Two PCMs shall be placed on South Airport Road for the duration of the project. One shall be placed immediately east of West Silver Lake Road and one east of Cass Road. Sample messages for these boards include, but are not limited to:

<b>Sequence 1</b>
<b>ROADWORK</b>
<b>BEGINS</b>
<b>MON X/XX</b>

<b>Sequence 2</b>
<b>US-31/M-37</b>
<b>TO</b>
<b>VETERANS</b>

(Use for 2 weeks prior to start of work)

<b>Sequence 1</b>
<b>TRAFFIC</b>
<b>SHIFTS</b>
<b>AHEAD</b>

<b>Sequence 2</b>
<b>EXPECT</b>
<b>TRAFFIC</b>
<b>BACKUPS</b>

(Use During Construction)

D. Two additional PCMs shall be placed on US-31/M-37, north and south of the project. Location and messages shall be as directed by the Engineer.

## 5. Temporary Pavement Markings

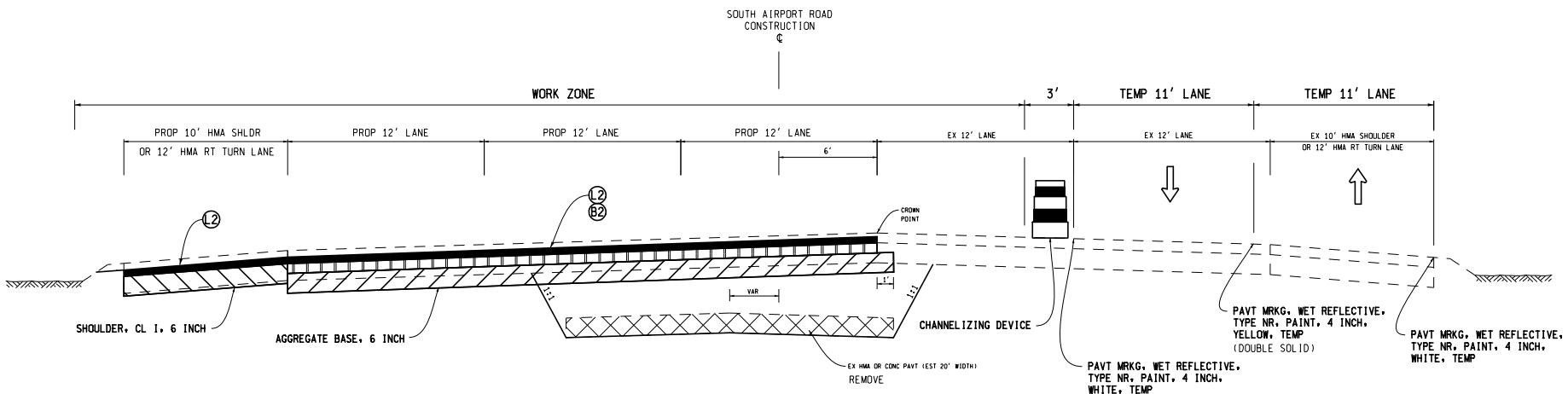
A. Temporary Pavement Markings shall consist of

Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, White, Temp  
Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, Yellow, Temp  
Pavt Mrkg, Type NR, Tape, 4 inch, White, Temp  
Pavt Mrkg, Type NR, Tape, 4 inch, Yellow, Temp  
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp  
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp

B. Temporary Special Pavement Markings shall consist of

Pavt Mrkg, Type NR, Paint, 24 inch, Stop Bar  
Pavt Mrkg, Type NR, Paint, Rt Turn Arrow  
Pavt Mrkg, Type NR, Paint, Lt Turn Arrow  
Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch, Stop Bar  
Pavt Mrkg, Wet Reflective, Type R, Tape, Rt Turn Arrow  
Pavt Mrkg, Wet Reflective, Type R, Tape, Lt Turn Arrow

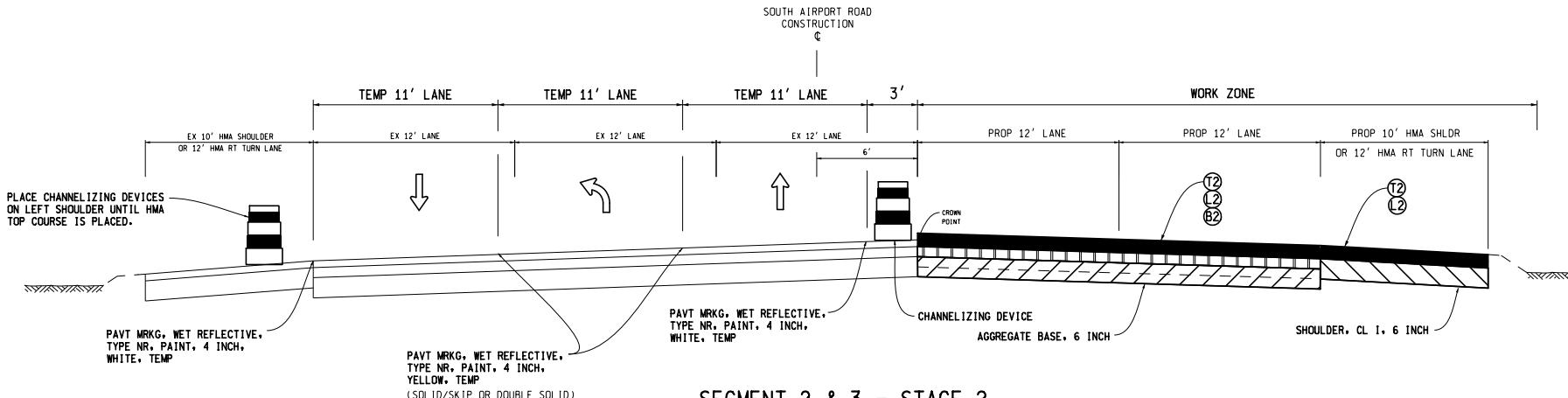
**f. Measurement and Payment.** Payment for traffic control devices will be based on the maximum square feet of the signs in place at any one time. The square feet of all non-standard specially fabricated signs and all signs used at a different time uncommon to the sequences used in determining the maximum square feet will also be paid for separately. Payment will be in accordance with section 812.04 of the 2012 Standard Specifications.



### SEGMENT 2 & 3 - STAGE 1

NOTES:

EXACT LOCATION OF TEMPORARY LANES WILL VARY AT SIGNALIZED INTERSECTIONS WHERE TEMPORARY LEFT TURN LANES ARE PROVIDED. SEE STAGING PLAN SHEETS.



### SEGMENT 2 & 3 - STAGE 2

STAGE 3

PLACE HMA TOP COURSE (IDENT T2) ON HMA PAVEMENT CONSTRUCTED IN STAGE 1. MAINTAIN TRAFFIC UTILIZING NIGHT TIME TRAFFIC SHIFTS.

NO SCALE

 KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING  
TYPICAL SECTION

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686

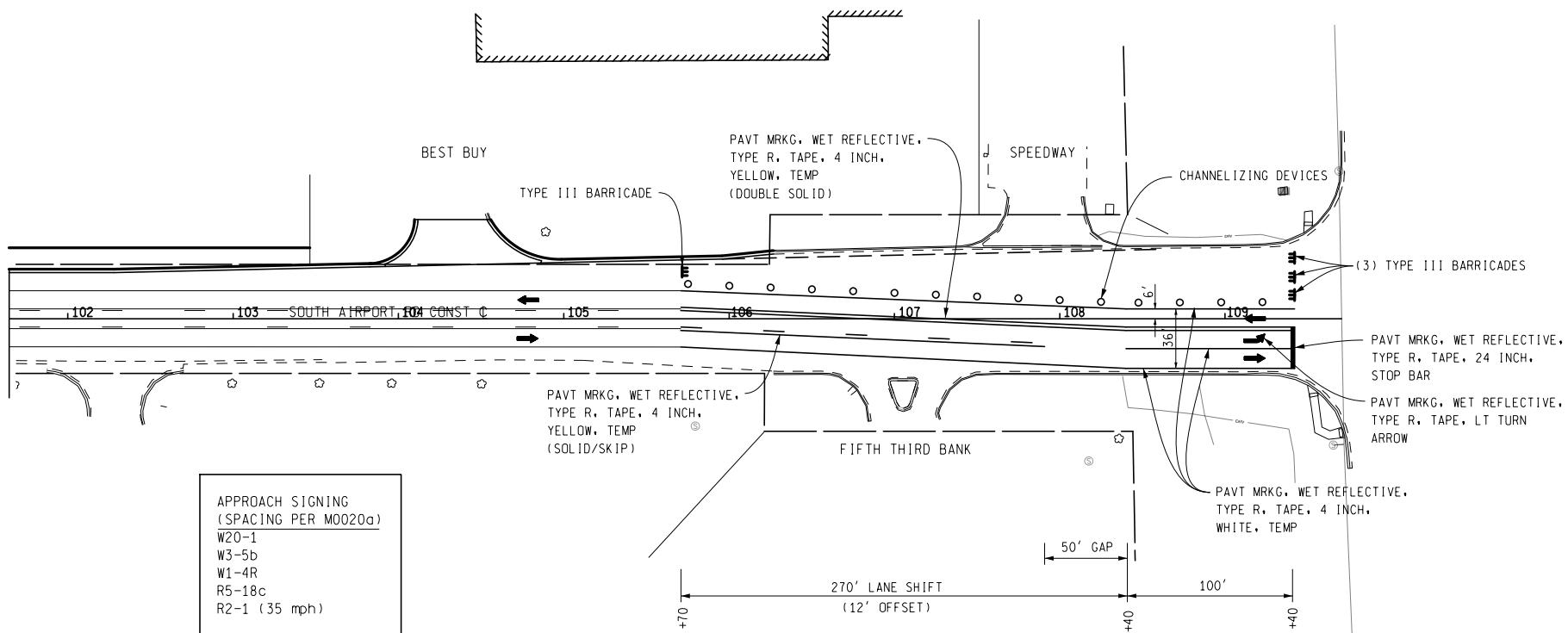
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GLK | 1

US-31/M-37

PRIOR TO SHIFTING TRAFFIC:

- REMOVE ALL WHITE TURNING GUIDE LINES WITHIN THE US-31 INTERSECTION
- CLOSE SB INSIDE LEFT TURN LANE ON US-31 WITH CHANNELIZING DEVICES
- REMOVE EX PAVT MARKINGS FROM STA 105+70 TO 109+40

N



US-31/M-37

TEMP PAVT MARKINGS FOR  
WEST APPROACH TO  
SEGMENT 2 - STAGE 1

**LEGEND**

- TYPE III BARRICADE
- CHANNELIZING DEVICE
- TEMP SIGN
- DIRECTION OF TRAVEL
- WORK AREA

NO SCALE

KPM Engineering

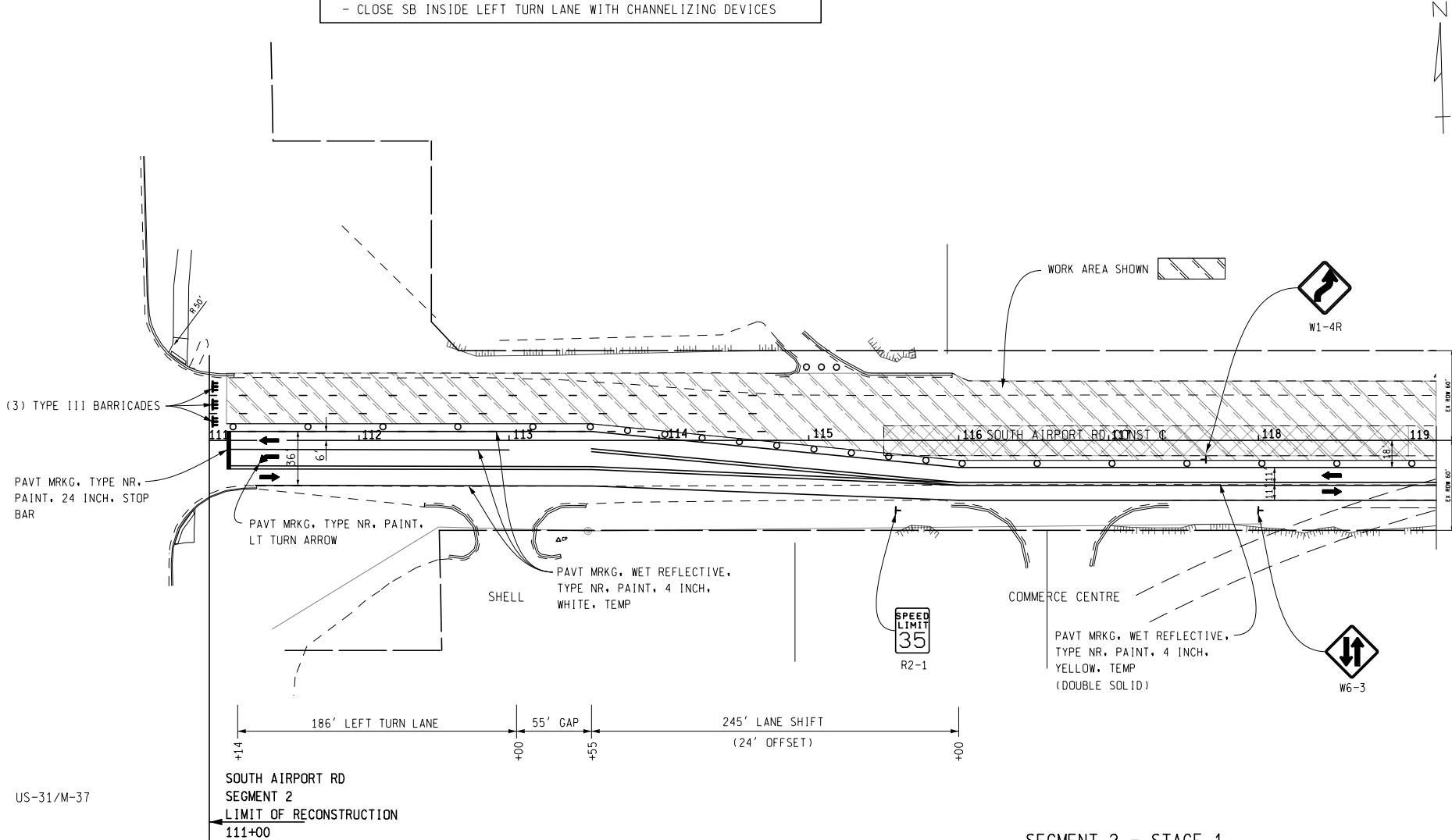
SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686

US-31/M-37

PRIOR TO SHIFTING TRAFFIC:

- REMOVE ALL WHITE TURNING GUIDE LINES WITHIN THE INTERSECTION
- CLOSE SB INSIDE LEFT TURN LANE WITH CHANNELIZING DEVICES



US-31/M-37

## LEGEND

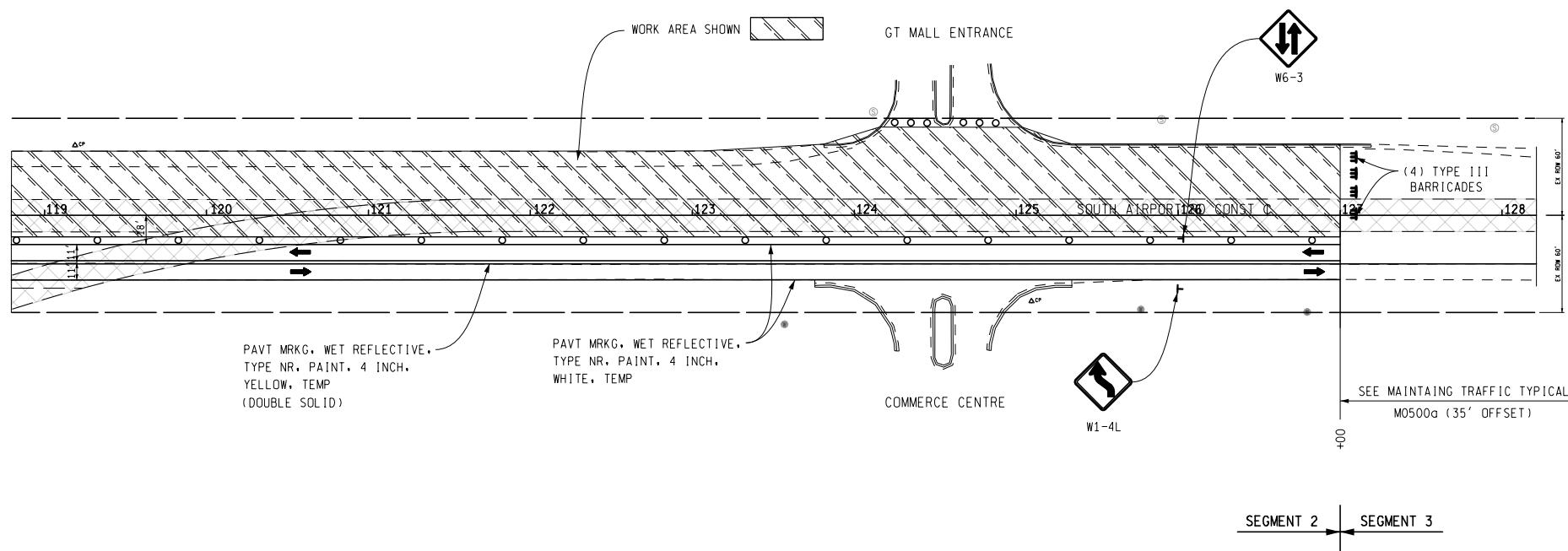
- TYPE III BARRICADE
- ○ ○ CHANNELIZING DEVICE
- ↑ TEMP SIGN
- DIRECTION OF TRAVEL
- WORK AREA

NO SCALE

KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD



SEGMENT 2 - STAGE 1

LEGEND

- TYPE III BARRICADE
- ○ ○ CHANNELIZING DEVICE
- TEMP SIGN
- DIRECTION OF TRAVEL
- WORK AREA

NO SCALE

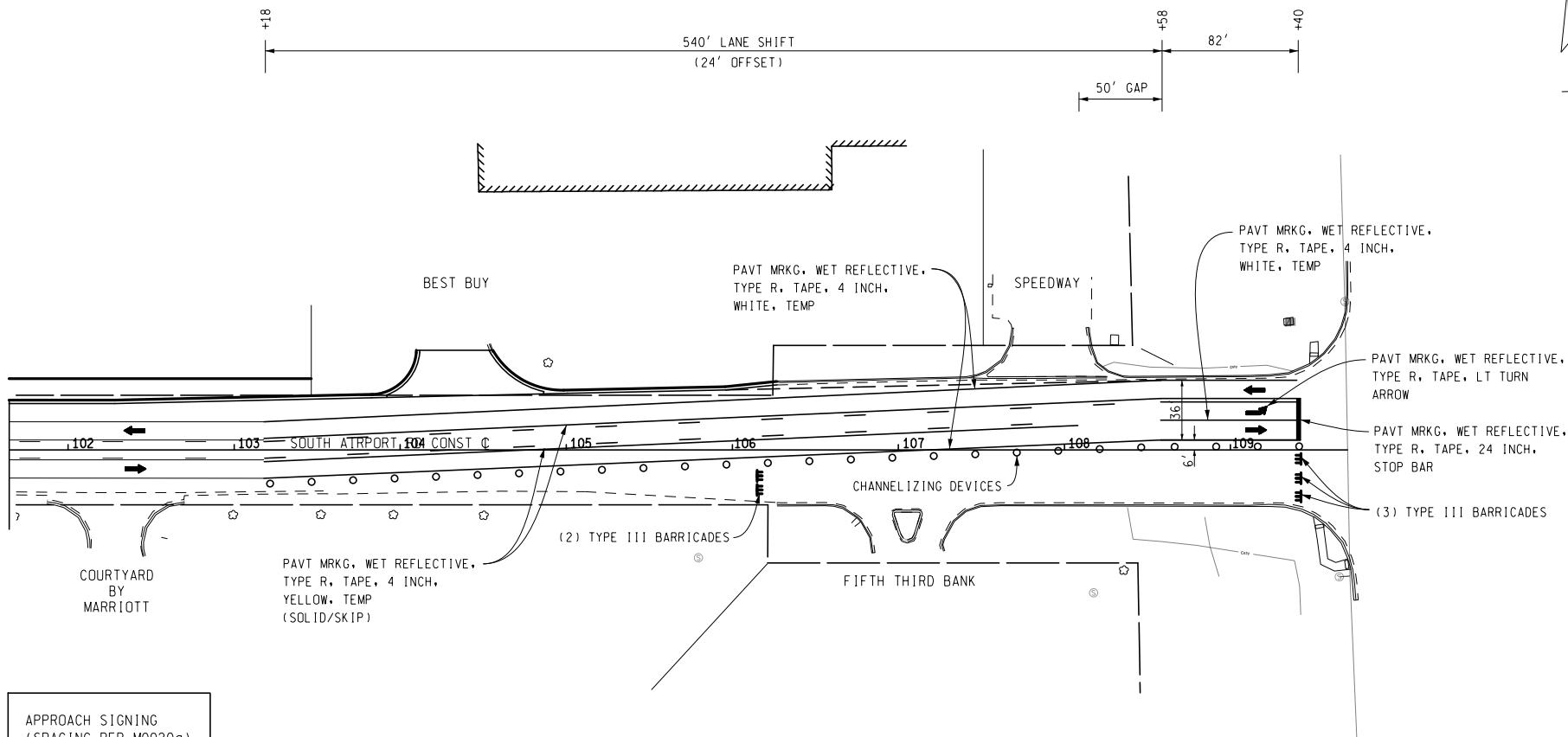
KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY ROAD COMMISSION 1881 LAFRANIER ROAD TRAVERSE CITY, MI 49686	
DRAWN BY	SHEET NO.
GLK	4

DATE: 2/26/2018

US-31/M-37



APPROACH SIGNING  
(SPACING PER M0020a)  
W20-1  
W3-5b  
W1-4L  
R5-18c  
R2-1 (35 mph)

US-31/M-37

TEMP PAVT MARKINGS FOR  
WEST APPROACH TO  
SEGMENT 2 - STAGE 2

LEGEND  
■ TYPE III BARRICADE  
○ ○ ○ CHANNELIZING DEVICE  
→ TEMP SIGN  
→ DIRECTION OF TRAVEL  
■ WORK AREA

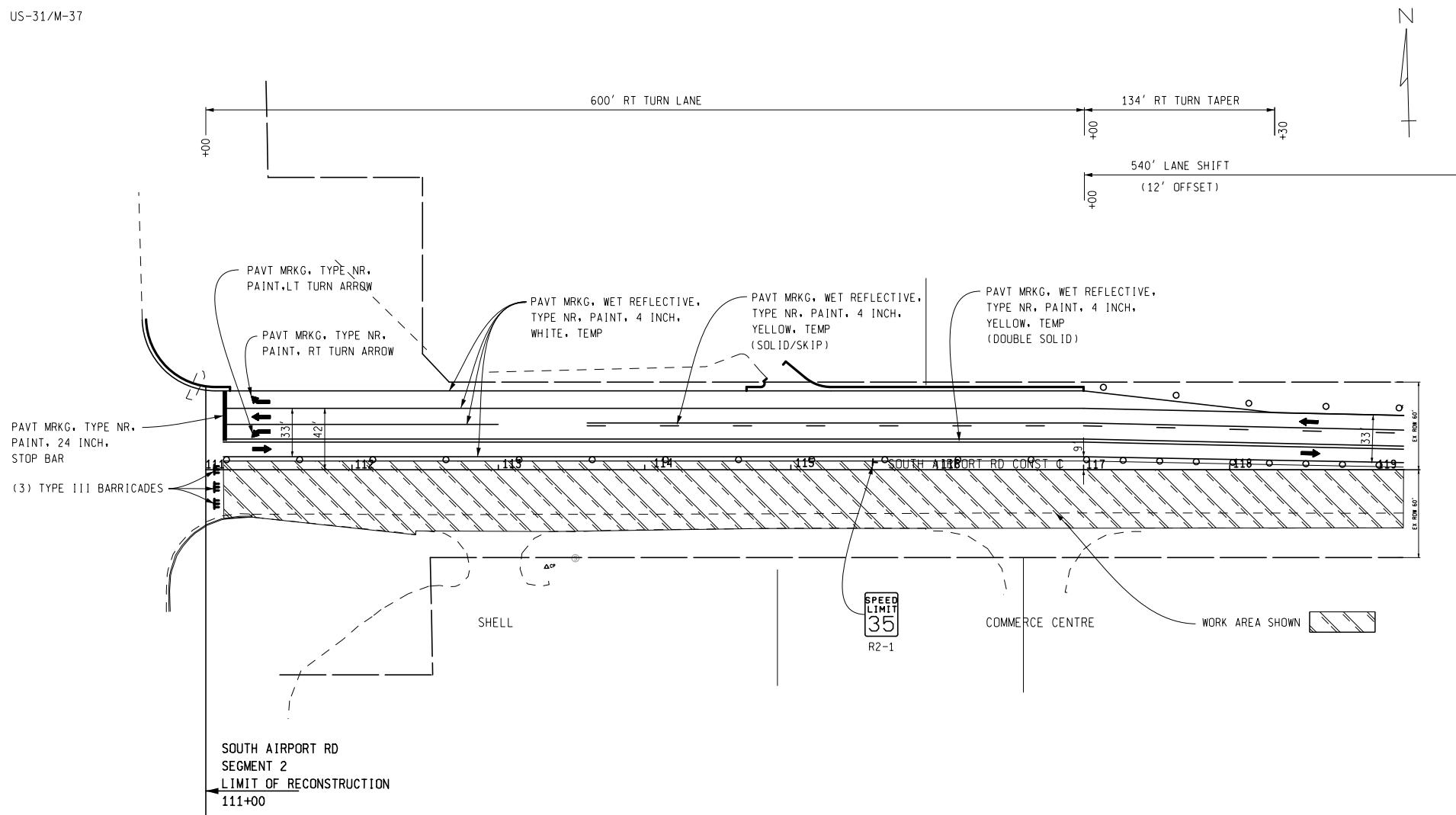
NO SCALE

KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686  
DRAWN BY GLK  
SHEET NO. 5  
DATE: 2/26/2018

US-31/M-37



US-31/M-37

SEGMENT 2 - STAGE 2

LEGEND

- TYPE III BARRICADE
- ○ CHANNELIZING DEVICE
- TEMP SIGN
- DIRECTION OF TRAVEL
- WORK AREA

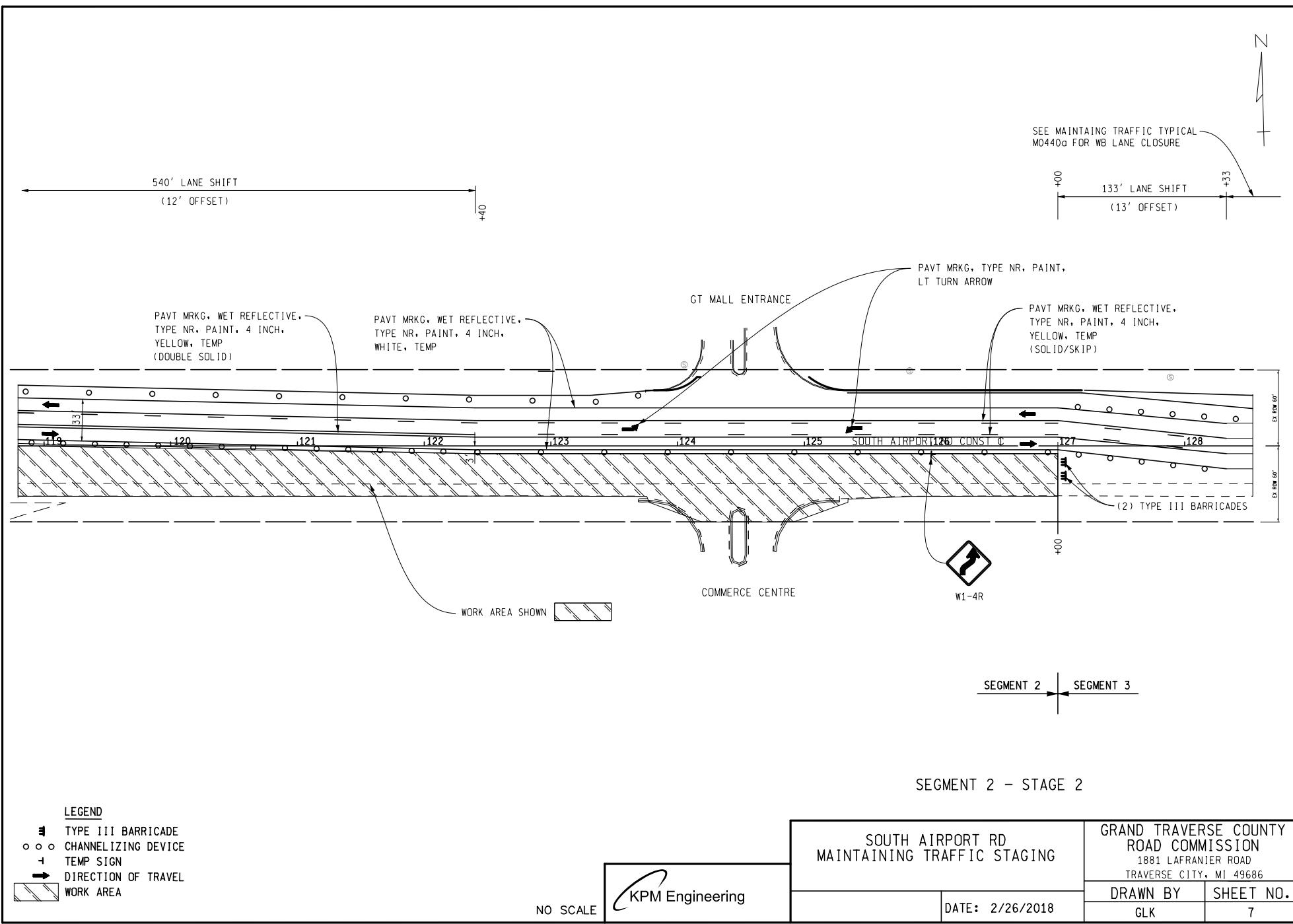
NO SCALE

KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686

DRAWN BY GLK SHEET NO. GLK 6  
DATE: 2/26/2018



STA 131+50 TO 142+00

REMOVE BURIED CONCRETE PACEMENT PRIOR TO BEGINING STAGE 1.  
MAINTAIN TRAFFIC UTILIZING NIGHT TIME LANE CLOSURES.

SEE MAINTAINING TRAFFIC TYPICAL  
M0500a (35' OFFSET)

(4) TYPE II

W1-4R

— WORK AREA SHOWN

W6 -

ALDI

PAVT MRKG. WET REFLECTIV  
TYPE NR. PAINT. 4 INCH.  
WHITE, TEMP

PAVT MRKG, WET REFLECTIVE  
TYPE NR. PAINT, 4 INCH,  
YELLOW, TEMP  
(DOUBLE SOLID)

SEGMENT 2 | SEGMENT 3

### SEGMENT 3 - STAGE 1

## LEGEND

- TYPE III BARRICADE
- ○ ○ CHANNELIZING DEVICE
- TEMP SIGN
- DIRECTION OF TRAVEL
- WORK AREA

NO SCALE

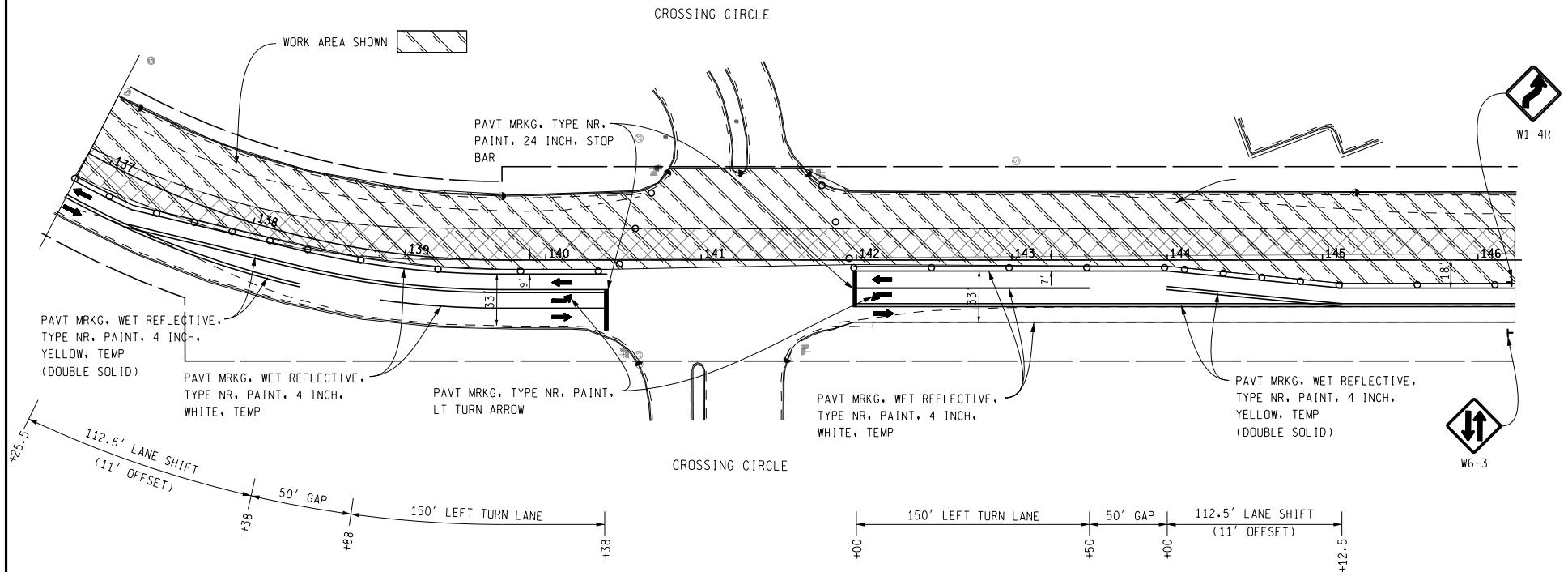
KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686

STA 131+50 TO 142+00  
REMOVE BURIED CONCRETE PACEMENT PRIOR TO BEGINNING STAGE 1.  
MAINTAIN TRAFFIC UTILIZING NIGHT TIME LANE CLOSURES.

+



### SEGMENT 3 – STAGE 1

## LEGEND

**TYPE III BARRICADE  
CHANNELIZING DEVICE  
TEMP SIGN  
DIRECTION OF TRAVEL  
WORK AREA**

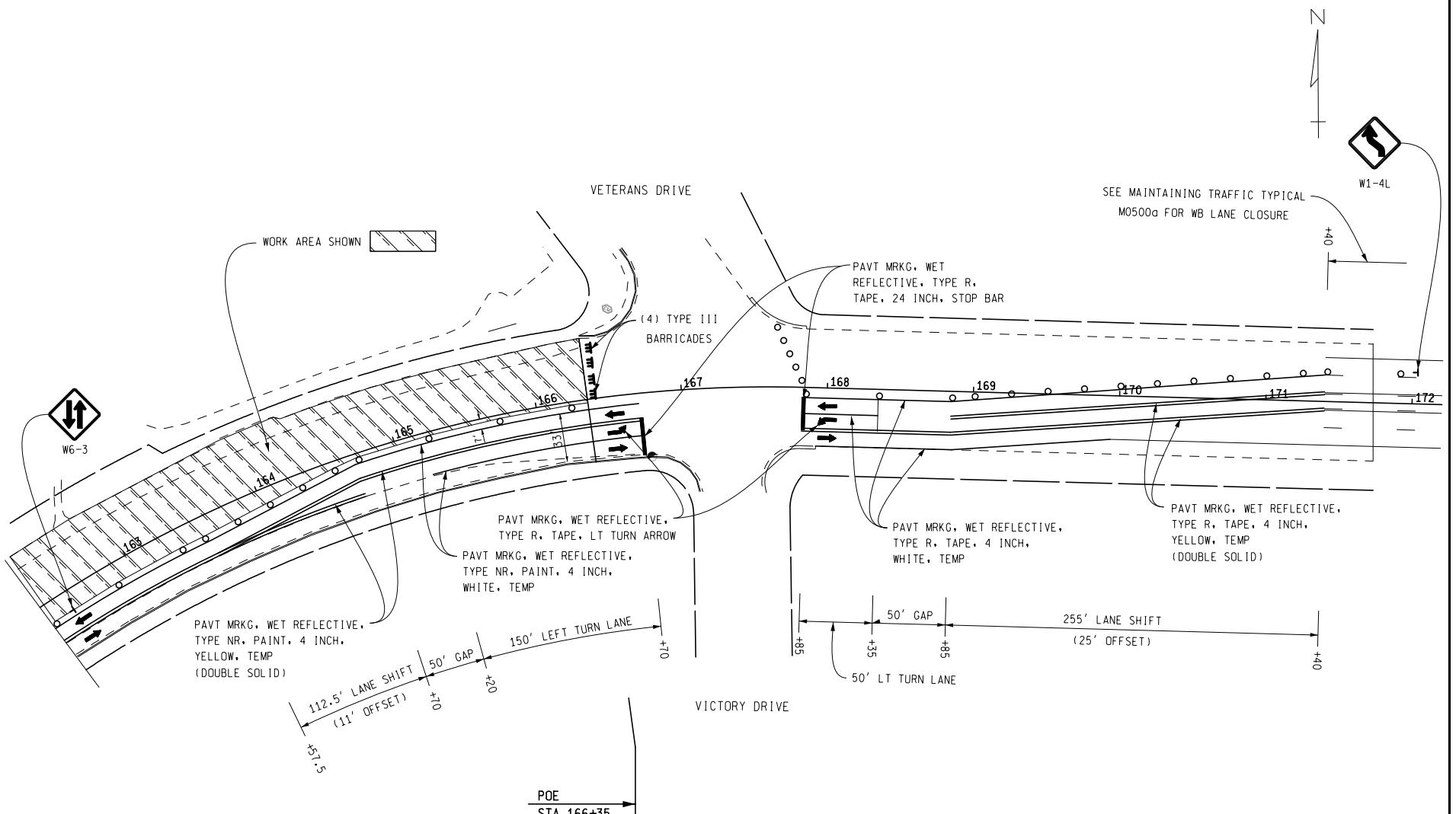
NO SCALE

 KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD

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GLK 9



### SEGMENT 3 - STAGE 1

## LEGEND

- TYPE III BARRICADE
- ○ ○ CHANNELIZING DEVICE
- TEMP SIGN
- DIRECTION OF TRAVEL
- WORK AREA

NO SCALE

KPM Engineering

SOUTH AIRPORT RD MAINTAINING TRAFFIC STAGING		GRAND TRAVERSE COUNTY ROAD COMMISSION 1881 LAFRANIER ROAD TRAVERSE CITY, MI 49686	
	DRAWN BY		SHEET NO.
	GLK		10
DATE: 2/26/2018			

STA 131+50 TO 142+00

REMOVE BURIED CONCRETE PACEMENT PRIOR TO BEGINING STAGE 1.  
MAINTAIN TRAFFIC UTILIZING NIGHT TIME LANE CLOSURES.



SEE MAINTAINING TRAFFIC TYPICAL  
M0440G (14' OFFSET)



W1-4L

PAVT MRKG, WET REFLECTIVE,  
TYPE NR. PAINT, 4 INCH,  
YELLOW, TEMP  
(SOLID/SKIP)

WORK AREA SHOWN

SEGMENT 2 SEGMENT 3  
+00

LEGEND  
■ TYPE III BARRICADE  
○ ○ ○ CHANNELIZING DEVICE  
→ TEMP SIGN  
→ DIRECTION OF TRAVEL

NO SCALE

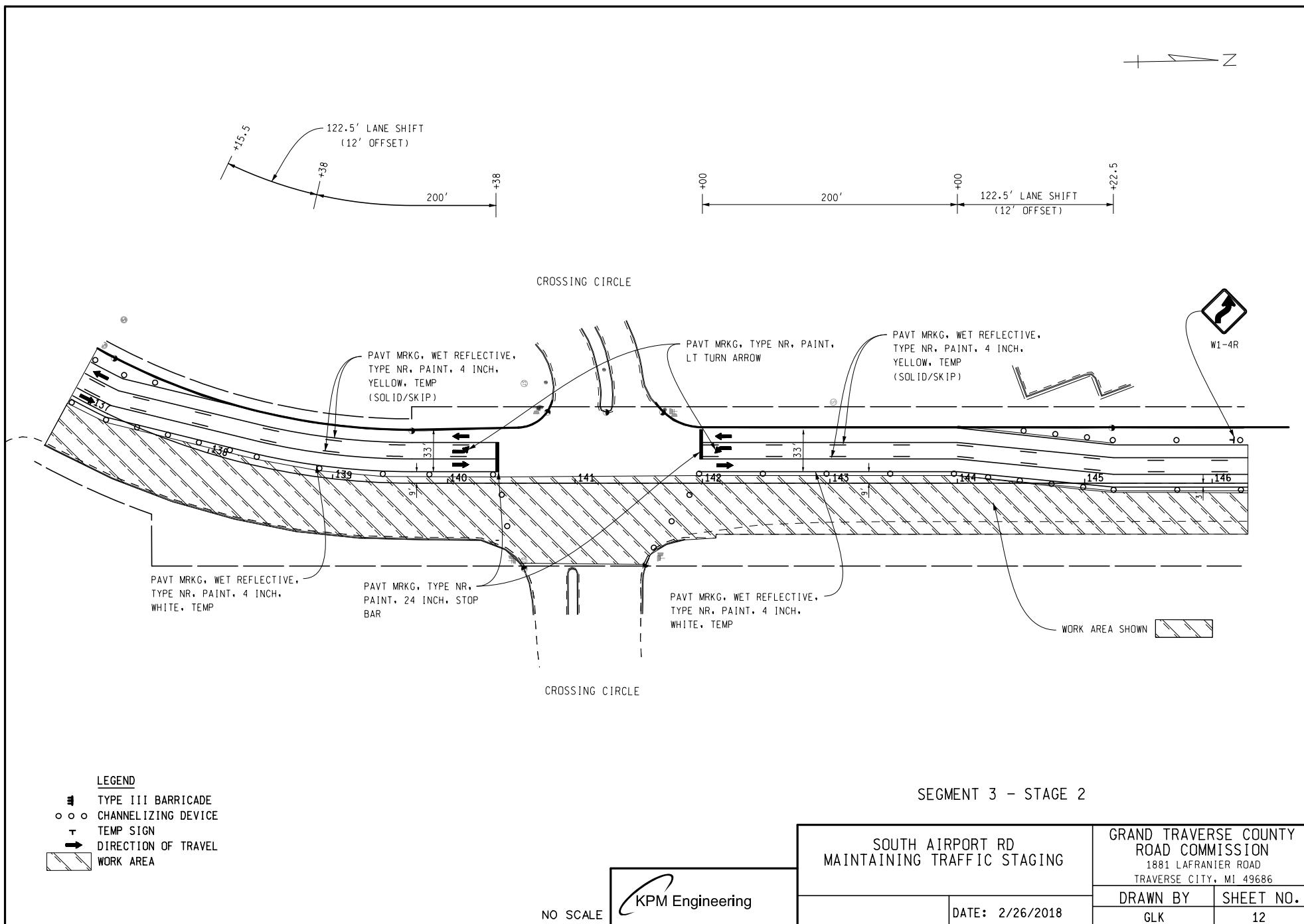
KPM Engineering

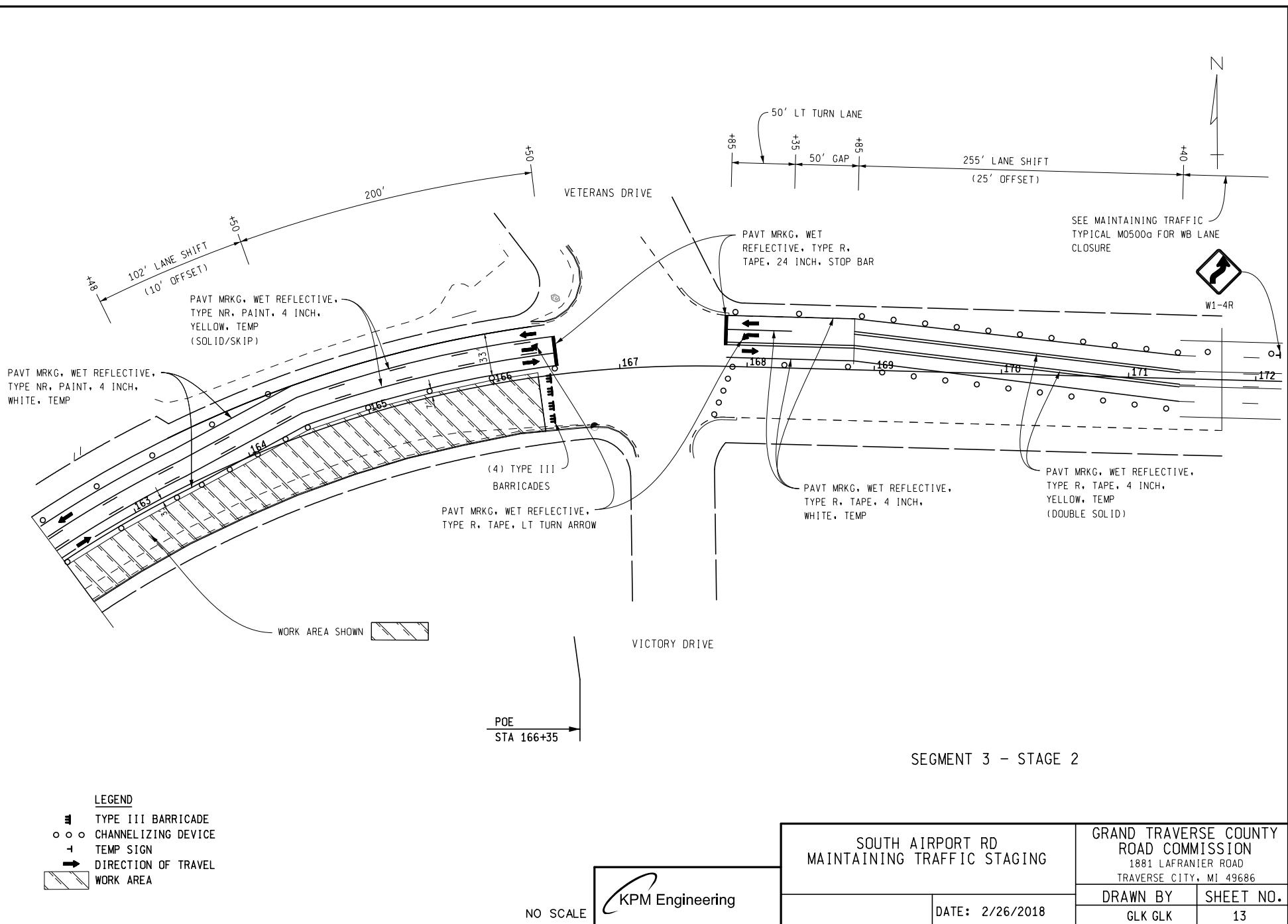
SEGMENT 3 - STAGE 2

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686

DRAWN BY GLK SHEET NO. 11  
DATE: 2/26/2018





## LEGEND

- TYPE III BARRICADE
- ○ ○ CHANNELIZING DEVICE
- TEMP SIGN
- DIRECTION OF TRAVEL
- WORK AREA

NO SCALE

 KPM Engineering

SOUTH AIRPORT RD  
MAINTAINING TRAFFIC STAGING

GRAND TRAVERSE COUNTY  
ROAD COMMISSION  
1881 LAFRANIER ROAD  
TRAVERSE CITY, MI 49686

DRAWN BY	SHEET NO.
GLK GLK	13

### MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET FEET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
1	10	15	20	27	45	50	55	60	65	70
2	21	30	41	53	90	100	110	120	130	140
3	31	45	61	80	135	150	165	180	195	210
4	42	60	82	107	180	200	220	240	260	280
5	52	75	102	133	225	250	275	300	325	350
6	63	90	123	160	270	300	330	360	390	420
7	73	105	143	187	315	350	385	420	455	490
8	83	120	163	213	360	400	440	480	520	560
9	94	135	184	240	405	450	495	540	585	630
10	104	150	204	267	450	500	550	600	650	700
11	115	165	225	293	495	550	605	660	715	770
12	125	180	245	320	540	600	660	720	780	840
13	135	195	266	347	585	650	715	780	845	910
14	146	210	286	374	630	700	770	840	910	980
15	157	225	307	400	675	750	825	900	975	1050

TAPER LENGTH "L" IN FEET

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

$$"L" = \frac{W \times S^2}{60} \text{ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS}$$

$$"L" = S \times W \text{ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER}$$

L = MINIMUM LENGTH OF MERGING TAPER  
S = POSTED SPEED LIMIT IN MPH

PRIOR TO WORK AREA

W = WIDTH OF OFFSET

#### TYPES OF TAPERS

UPSTREAM TAPERS

MERGING TAPER

SHIFTING TAPER

SHOULDER TAPER

TWO-WAY TRAFFIC TAPER

DOWNSTREAM TAPERS

(USE IS OPTIONAL)

#### TAPER LENGTH

L - MINIMUM

1/2 L - MINIMUM

1/3 L - MINIMUM

100 ' - MAXIMUM

100 ' - MINIMUM

(PER LANE)



TRAFFIC AND SAFETY  
MAINTAINING TRAFFIC  
TYPICAL

TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf

JUNE 2006

M0020a

SHEET  
1 OF 2

CHECKED BY: BMM

PLAN DATE:

FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

REV. 08/21/2006

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D"  
AND LENGTH OF LONGITUDINAL BUFFER SPACE ON  
"WHERE WORKERS PRESENT" SEQUENCES

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
D (FEET)	250	300	350	400	450	500	550	600	650	700

GUIDELINES FOR LENGTH OF  
LONGITUDINAL BUFFER SPACE "B"

SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

\* POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

1 BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS), AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.



TRAFFIC AND SAFETY  
MAINTAINING TRAFFIC  
TYPICAL

TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf

JUNE 2006

M0020a

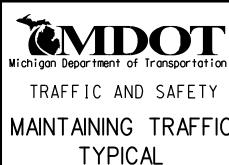
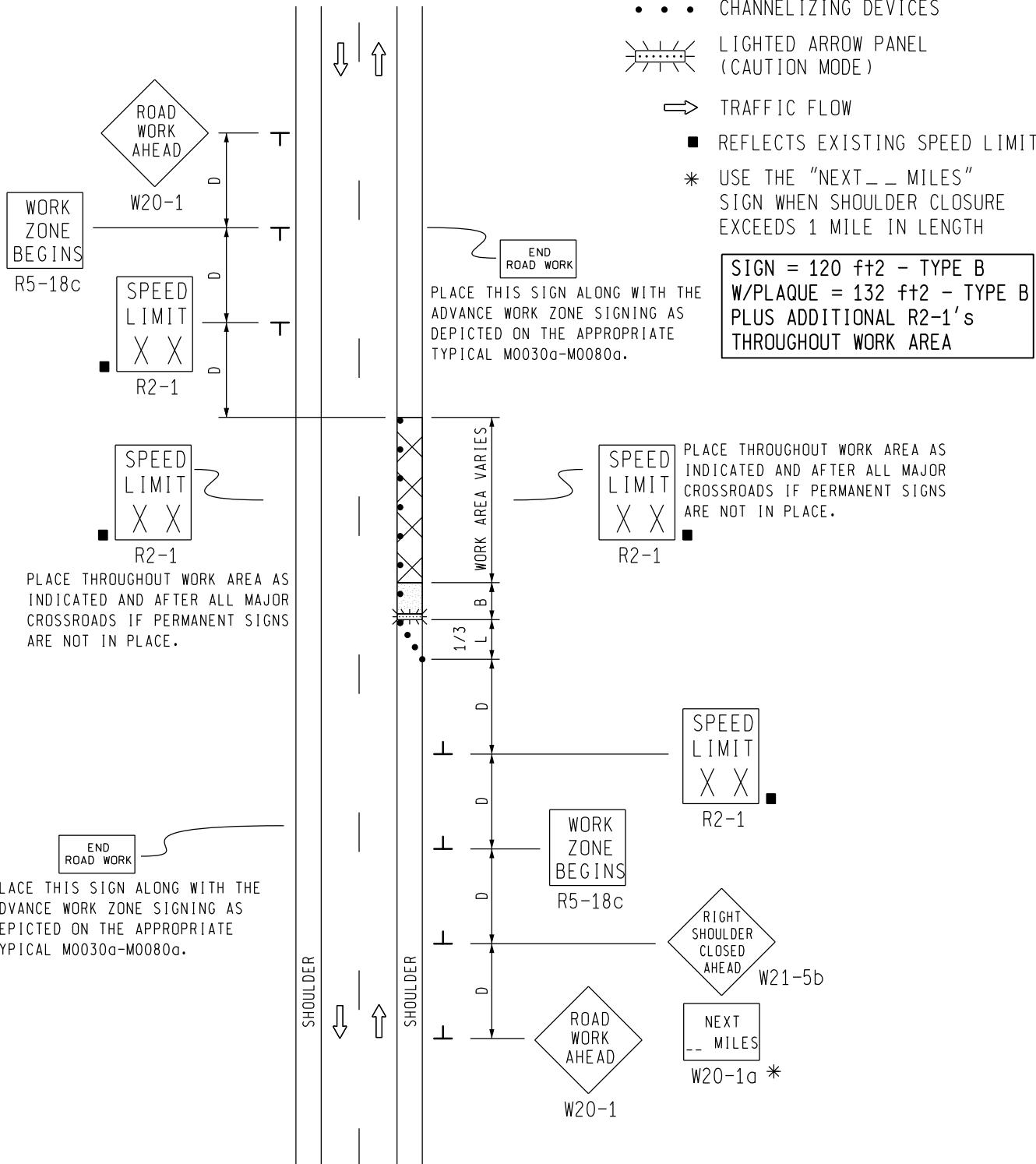
SHEET  
2 OF 2

CHECKED BY: BMM

PLAN DATE:

FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

REV. 08/21/2006



TYPICAL TEMPORARY TRAFFIC CONTROL  
FOR A SHOULDER CLOSURE ON A TWO  
LANE TWO-WAY ROADWAY  
NO SPEED REDUCTION

DRAWN BY: CON:AF:

CHECKED BY: BMM:CG

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OCTOBER 2011

PLAN DATE:

118 / 188

M0110a

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SHEET

1 OF 2

NOT TO SCALE

## NOTES

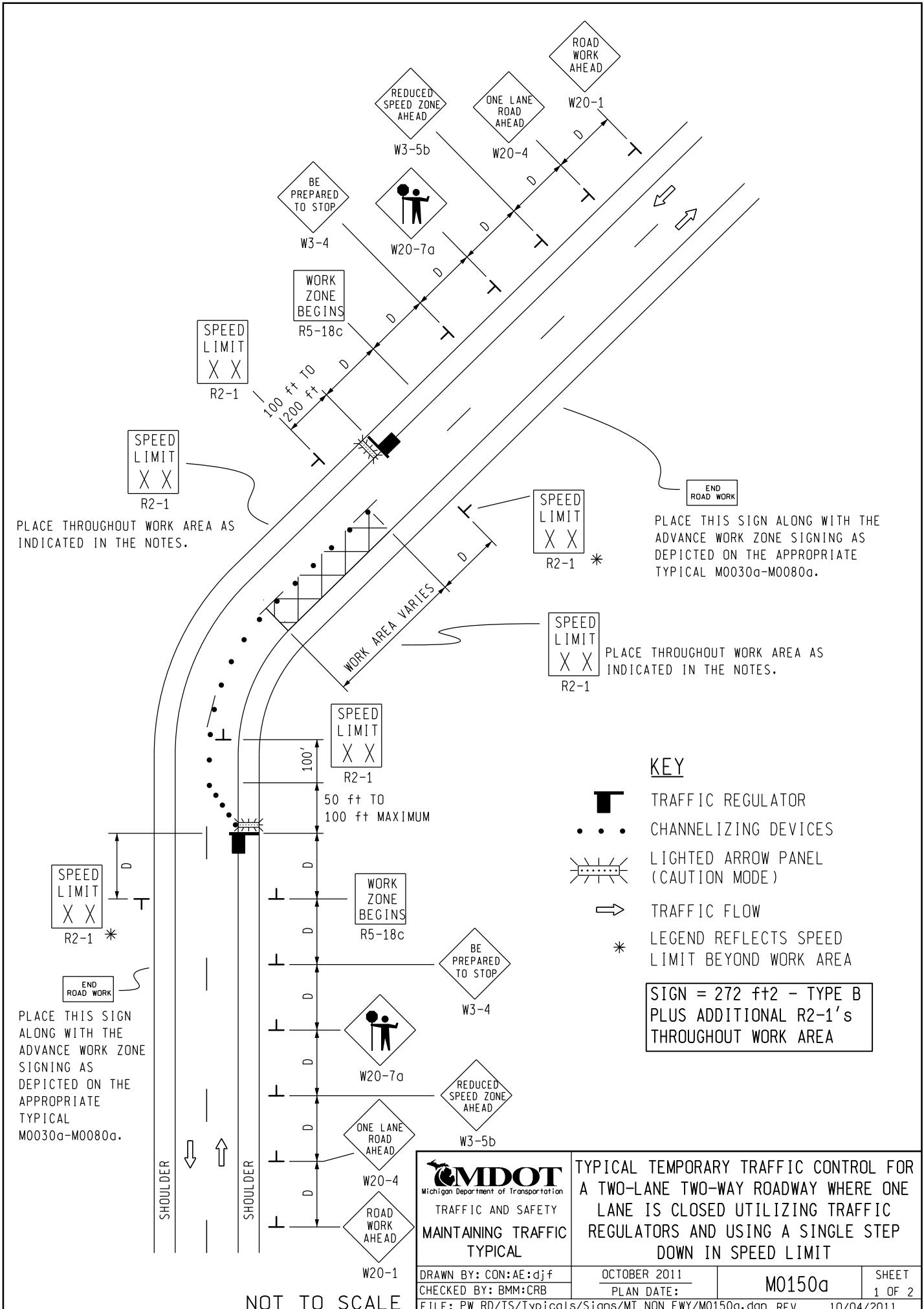
1. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES  
1/3 L = MINIMUM LENGTH OF TAPER  
B = LENGTH OF LONGITUDINAL BUFFER  
SEE M0020a FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
- 29A. THE TYPE OF REFLECTIVE SHEETING USED FOR THE W20-1a PLAQUE SHALL BE THE SAME AS THE TYPE USED FOR THE PARENT SIGN.

## SIGN SIZES

DIAMOND WARNING - 48" x 48"  
W20-1a PLAQUE - 48" x 36"  
R2-1 REGULATORY - 48" x 60"  
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A SHOULDER CLOSURE ON A TWO LANE TWO-WAY ROADWAY NO SPEED REDUCTION		
DRAWN BY: CON:AE:djf	OCTOBER 2011	PLAN DATE: M0110a	SHEET 2 OF 2
CHECKED BY: BMM:CRB	FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0110a.dgn	REV. 10/04/2011	



## NOTES

- 1H. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES AND LENGTH OF LONGITUDINAL BUFFERS SEE M0020a FOR "D" VALUES.
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4A. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES IN THE TAPER AREA(S) SHOULD BE 15 FEET AND SHOULD BE EQUAL IN FEET TO TWICE THE POSTED SPEED IN MILES PER HOUR IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
9. ALL TRAFFIC REGULATORS SHALL BE PROPERLY TRAINED AND SUPERVISED.
- 9A. IN ANY OPERATION INVOLVING MORE THAN ONE TRAFFIC REGULATOR, ONE PERSON SHOULD BE DESIGNATED AS HEAD TRAFFIC REGULATOR.
10. ALL TRAFFIC REGULATORS' CONDUCT, THEIR EQUIPMENT, AND TRAFFIC REGULATING PROCEDURES SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CURRENT EDITION OF THE MDOT HANDBOOK ENTITLED "TRAFFIC REGULATORS INSTRUCTION MANUAL."
11. WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS, APPROPRIATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY ILLUMINATE THE TRAFFIC REGULATOR'S STATIONS.
- 12E. THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS SHALL BE NO MORE THAN 2 MILES IN LENGTH UNLESS RESTRICTED FURTHER IN THE SPECIAL PROVISIONS FOR MAINTAINING TRAFFIC. ALL SEQUENCES OF MORE THAN 2 MILES IN LENGTH WILL REQUIRE WRITTEN PERMISSION FROM THE ENGINEER BEFORE PROCEEDING.
13. WHEN INTERSECTING ROADS OR SIGNIFICANT TRAFFIC GENERATORS (SHOPPING CENTERS, MOBILE HOME PARKS, ETC.) OCCUR WITHIN THE ONE-LANE TWO-WAY OPERATION, INTERMEDIATE TRAFFIC REGULATORS AND APPROPRIATE SIGNING SHALL BE PLACED AT THESE LOCATIONS.
14. ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W3-4 SIGNS.
15. THE HAND HELD (PADDLE) SIGNS REQUIRED BY THE MMUTCD TO CONTROL TRAFFIC WILL BE PAID FOR AS PART OF FLAG CONTROL.
- 16A. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK AREA WHERE THE REDUCED SPEED IS IN EFFECT, AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN TWO MILES APART.
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
- 16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.
- 28E. THE TRAFFIC REGULATORS SHOULD BE POSITIONED AT OR NEAR THE SIDE OF THE ROAD SO THAT THEY ARE SEEN CLEARLY AT A MINIMUM DISTANCE OF 500 FEET. THIS MAY REQUIRE EXTENDING THE BEGINNING OF THE LANE CLOSURE TO OVERCOME VIEWING PROBLEMS CAUSED BY HILLS AND CURVES.

### SIGN SIZES

DIAMOND WARNING - 48" x 48"  
RECTANGULAR REGULATORY - 48" x 60"  
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE



DRAWN BY: CON:AE:djf

CHECKED BY: BMM:CRB

FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0150a.dgn

TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS AND USING A SINGLE STEP DOWN IN SPEED LIMIT

OCTOBER 2011

PLAN DATE:

M0150a

SHEET

2 OF 2

10/04/2011



ROAD  
WORK  
AHEAD

W20-1



CENTER  
LANE  
CLOSED  
AHEAD

W20-5a  
(MODIFIED)



R5-18c



R2-1



R2-1



R2-1

PLACE THROUGHOUT WORK AREA AS  
INDICATED AND AFTER ALL MAJOR  
CROSSROADS IF PERMANENT SIGNS  
ARE NOT IN PLACE.

1/2 L



PLACE THIS SIGN ALONG WITH THE  
ADVANCE WORK ZONE SIGNING AS  
DEPICTED ON THE APPROPRIATE  
TYPICAL M0030a-M0050a.

SHOULDER

SHOULDER

SHOULDER

SHOULDER

PLACE THIS SIGN ALONG WITH THE  
ADVANCE WORK ZONE SIGNING AS  
DEPICTED ON THE APPROPRIATE  
TYPICAL M0030a-M0050a.



W1-6



W1-4



R2-1

PLACE THROUGHOUT WORK  
AREA AS INDICATED AND  
AFTER ALL MAJOR  
CROSSROADS IF  
PERMANENT SIGNS ARE  
NOT IN PLACE.

1/2 L

1/3 L

1/2 L

1/3 L



R2-1



R5-18c



W1-4



W20-1

### KEY

- • • CHANNELIZING DEVICES
- ~~~~ LIGHTED ARROW PANEL (CAUTION MODE)
- TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 184 ft<sup>2</sup> - TYPE B  
PLUS ADDITIONAL R2-1's  
THROUGHOUT WORK AREA

NOT TO SCALE



Michigan Department of Transportation

TRAFFIC AND SAFETY

MAINTAINING TRAFFIC

TYPICAL

DRAWN BY: CON:AE:DJF

CHECKED BY: BMM:CRB

FILE: PW: RD/T&S/Typicals/Signs/MT/MT nonFwy/M0231a REV. 10/18/2011

TYPICAL TEMPORARY TRAFFIC CONTROL  
FOR CLOSING ONE LANE OF A THREE  
LANE ROADWAY WITH CLFLTO AND  
SHIFTING ONE THROUGH LANE INTO THE  
CLFLTO NO SPEED REDUCTION

OCTOBER 2011

PLAN DATE:

M0231a

SHEET

1 OF 2

## NOTES

1F. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES  
1/2 L, AND 1/3 L = MINIMUM LENGTH OF TAPER  
B = LENGTH OF LONGITUDINAL BUFFER  
SEE M0020a FOR "D," "L," AND "B" VALUES

2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.

3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.

3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.

4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).

5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.

6. THE TYPE A WARNING FLASHER SHOWN ON THE WARNING SIGNS SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.

7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.

8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.

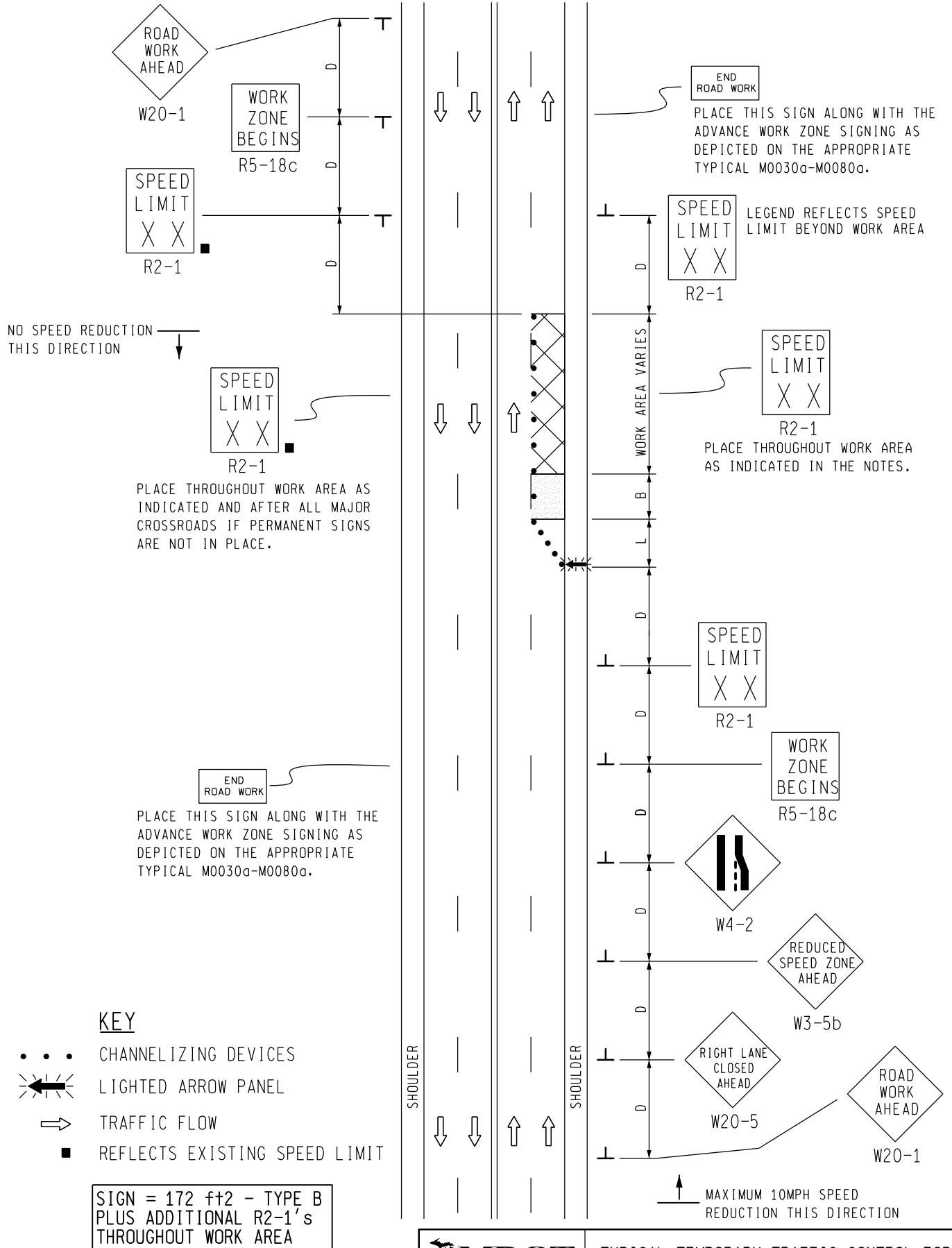
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

## SIGN SIZES

DIAMOND WARNING - 48" x 48"  
W1-6 WARNING - 48" x 24"  
R2-1 REGULATORY - 48" x 60"  
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING ONE LANE OF A THREE LANE ROADWAY WITH CLFLTO AND SHIFTING ONE THROUGH LANE INTO THE CLFLTO NO SPEED REDUCTION		
DRAWN BY: CON:AE:DJF	OCTOBER 2011	M0231a	SHEET 2 OF 2
CHECKED BY: BMM:CRB	PLAN DATE:		
FILE: PW: RD/T&S/Typicals/Signs/MT/MT nonFwy/M0231a REV.	10/18/2011		



NOT TO SCALE

TYPICAL TEMPORARY TRAFFIC CONTROL FOR  
A ONE-LANE CLOSURE ON AN UNDIVIDED  
MULTI-LANE ROADWAY USING A SINGLE  
STEP DOWN IN SPEED LIMIT  
IN ONE DIRECTION ONLY

## NOTES

1B. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES  
L = MINIMUM LENGTH OF TAPER  
B = LENGTH OF LONGITUDINAL BUFFER  
SEE M0020a FOR "D," "L," AND "B" VALUES

2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.

3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.

3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.

4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).

5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.

6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.

7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.

8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.

16A. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK AREA WHERE THE REDUCED SPEED IS IN EFFECT, AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN TWO MILES APART.

16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.

16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.

21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

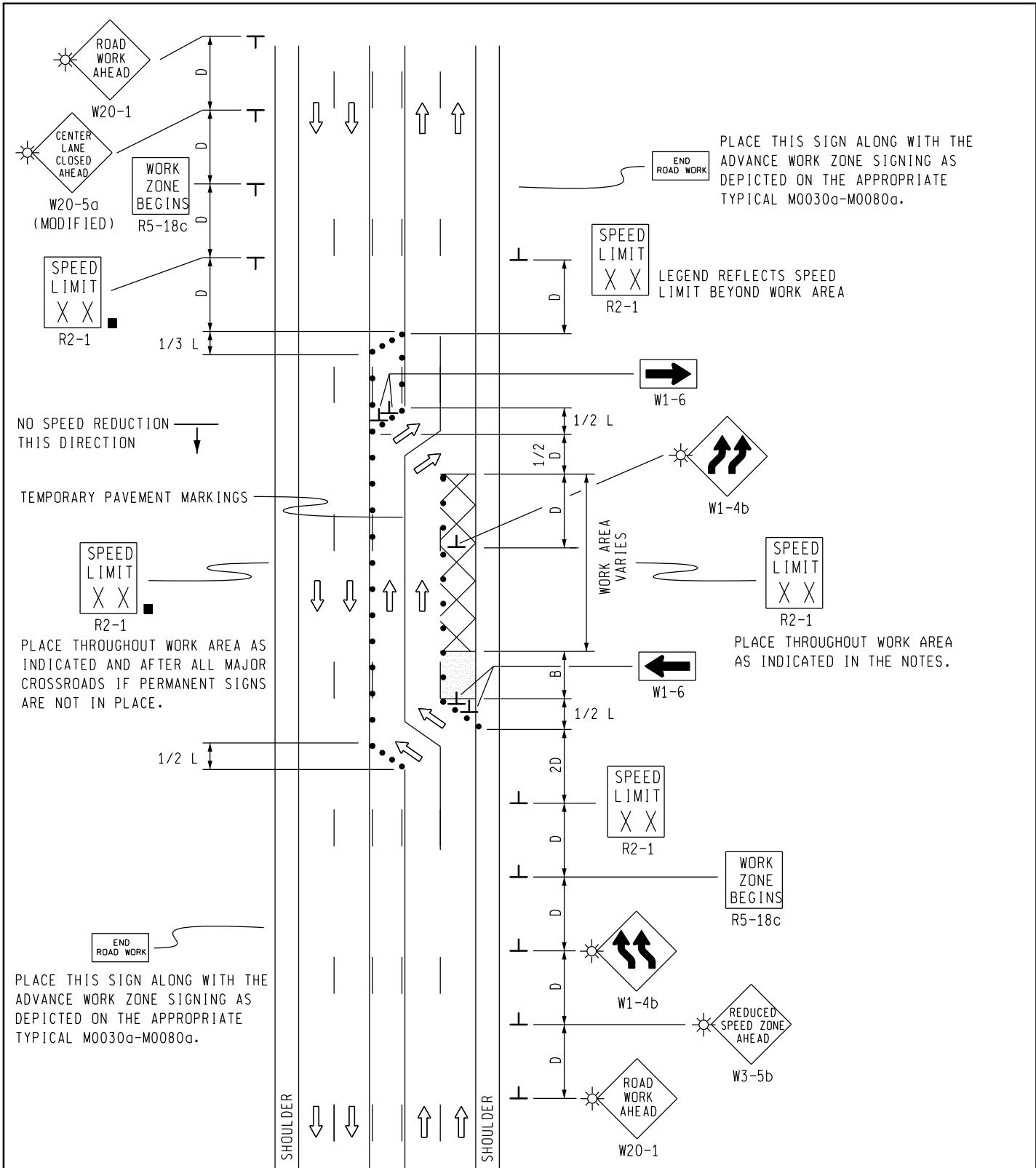
26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

## SIGN SIZES

DIAMOND WARNING - 48" x 48"  
RECTANGULAR REGULATORY - 48" x 60"  
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON AN UNDIVIDED MULTI-LANE ROADWAY USING A SINGLE STEP DOWN IN SPEED LIMIT IN ONE DIRECTION ONLY		
DRAWN BY: CON:AE:djf	OCTOBER 2011	M0250a	SHEET 2 OF 2
CHECKED BY: BMM:CRB	PLAN DATE:		
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0250a.dgn	REV.	10/11/2011	



### KEY

- • • CHANNELIZING DEVICES
- ☀ TYPE A WARNING FLASHER (REQUIRED)
- ➡ TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 220 ft<sup>2</sup> - TYPE B  
PLUS ADDITIONAL R2-1's  
THROUGHOUT WORK AREA

NOT TO SCALE

MAXIMUM 10MPH SPEED  
REDUCTION THIS DIRECTION

**MDOT**  
Michigan Department of Transportation  
TRAFFIC AND SAFETY  
MAINTAINING TRAFFIC  
TYPICAL

DRAWN BY: CON:AE:djf

CHECKED BY: BMM:CRB

FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0410a.dgn

TYPICAL TEMPORARY TRAFFIC CONTROL  
FOR CLOSING ONE LANE OF A FIVE-LANE  
UNDIVIDED ROADWAY AND MAINTAINING TWO  
THROUGH LANES IN EACH DIRECTION USING A  
SINGLE STEP DOWN IN SPEED LIMIT  
IN ONE DIRECTION ONLY

OCTOBER 2011

PLAN DATE:

M0410a

SHEET

1 OF 2

REV. 10/19/2011

## NOTES

1F. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES  
1/2 L, AND 1/3 L = MINIMUM LENGTH OF TAPER  
B = LENGTH OF LONGITUDINAL BUFFER  
SEE M0020a FOR "D," "L," AND "B" VALUES

2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.

3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.

3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.

4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).

5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.

6. THE TYPE A WARNING FLASHER SHOWN ON THE WARNING SIGNS SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.

7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.

8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.

16A. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK AREA WHERE THE REDUCED SPEED IS IN EFFECT, AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN TWO MILES APART.

16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.

16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.

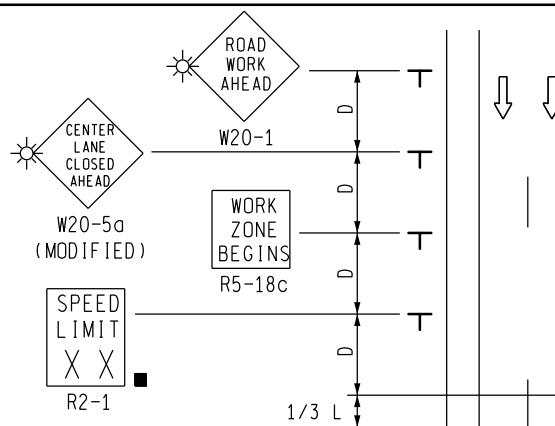
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

## SIGN SIZES

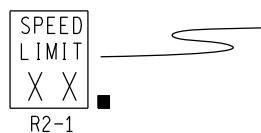
DIAMOND WARNING	- 48" x 48"
W1-6 WARNING	- 48" x 24"
RECTANGULAR REGULATORY	- 48" x 60"
R5-18c REGULATORY	- 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING ONE LANE OF A FIVE-LANE UNDIVIDED ROADWAY AND MAINTAINING TWO THROUGH LANES IN EACH DIRECTION USING A SINGLE STEP DOWN IN SPEED LIMIT IN ONE DIRECTION ONLY		
DRAWN BY: CON:AE:djf	OCTOBER 2011	M0410a	SHEET 2 OF 2
CHECKED BY: BMM:CRB	PLAN DATE:		
FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0410a.dgn	REV.	10/19/2011	



NO SPEED REDUCTION THIS DIRECTION



PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

1/2 L

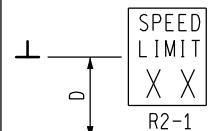


W1-6



PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

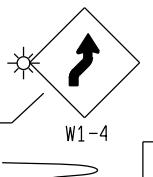
PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.



LEGEND REFLECTS SPEED LIMIT BEYOND WORK AREA



W1-6



PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES.



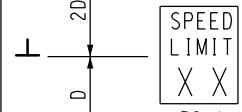
R2-1



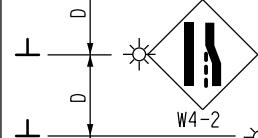
W1-4



W1-4



R5-18c



MAXIMUM 10MPH SPEED REDUCTION THIS DIRECTION

### KEY

- • • CHANNELIZING DEVICES
- ← LIGHTED ARROW PANEL
- ☀ TYPE A WARNING FLASHER (REQUIRED)
- TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 252 ft<sup>2</sup> - TYPE B  
PLUS ADDITIONAL R2-1'S  
THROUGHOUT WORK AREA

SHOULDER



SHOULDER



**MDOT**  
Michigan Department of Transportation  
TRAFFIC AND SAFETY  
MAINTAINING TRAFFIC  
TYPICAL

DRAWN BY: CON:AE:djf

CHECKED BY: BMM:CRB

FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0440a.dgn

TYPICAL TEMPORARY TRAFFIC CONTROL FOR  
CLOSING TWO ADJACENT THROUGH LANES  
OF A FIVE-LANE UNDIVIDED ROADWAY USING  
A SINGLE STEP DOWN IN SPEED LIMIT  
IN ONE DIRECTION ONLY

OCTOBER 2011

PLAN DATE:

M0440a

SHEET

1 OF 2

REV. 10/20/2011

NOT TO SCALE

## NOTES

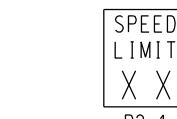
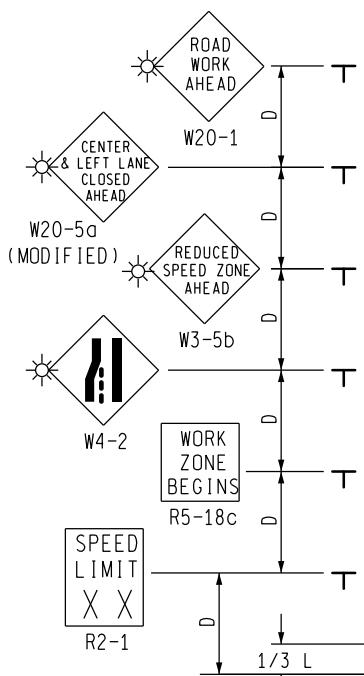
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L, 1/2 L, AND 1/3 L = MINIMUM LENGTH OF TAPER  
B = LENGTH OF LONGITUDINAL BUFFER  
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26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

## SIGN SIZES

DIAMOND WARNING	- 48" x 48"
W1-6 WARNING	- 48" x 24"
RECTANGULAR REGULATORY	- 48" x 60"
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NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING TWO ADJACENT THROUGH LANES OF A FIVE-LANE UNDIVIDED ROADWAY USING A SINGLE STEP DOWN IN SPEED LIMIT IN ONE DIRECTION ONLY		
DRAWN BY: CON:AE:djf		OCTOBER 2011	M0440a	SHEET 2 OF 2
CHECKED BY: BMM:CRB		PLAN DATE:		
FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0440a.dgn				
REV. 10/20/2011				



PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES.

LEGEND REFLECTS SPEED LIMIT BEYOND WORK AREA



### KEY

• • • CHANNELIZING DEVICES

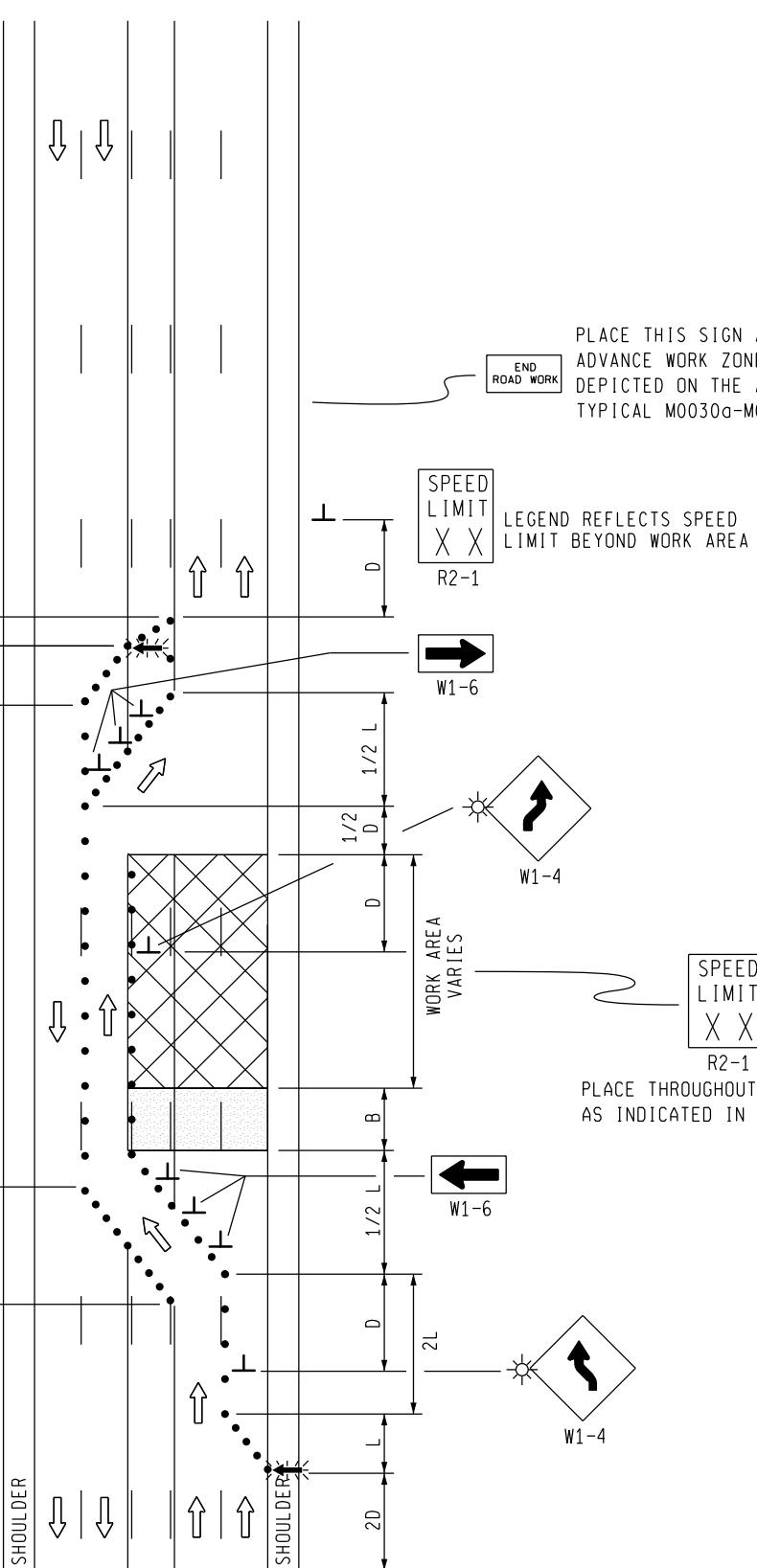


TYPE A WARNING FLASHER (REQUIRED)

TRAFFIC FLOW

SIGN = 320 ft<sup>2</sup> - TYPE B  
PLUS ADDITIONAL R2-1's  
THROUGHOUT WORK AREA

NOT TO SCALE



**MDOT**  
Michigan Department of Transportation  
TRAFFIC AND SAFETY  
MAINTAINING TRAFFIC  
TYPICAL

DRAWN BY: CON:AE:djf

CHECKED BY: BMM:CRB

FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0500a.dgn

TYPICAL TEMPORARY TRAFFIC CONTROL FOR  
CLOSING THREE LANES OF A FIVE-LANE  
UNDIVIDED ROADWAY USING A SINGLE  
STEP DOWN IN SPEED LIMIT

OCTOBER 2011

PLAN DATE:

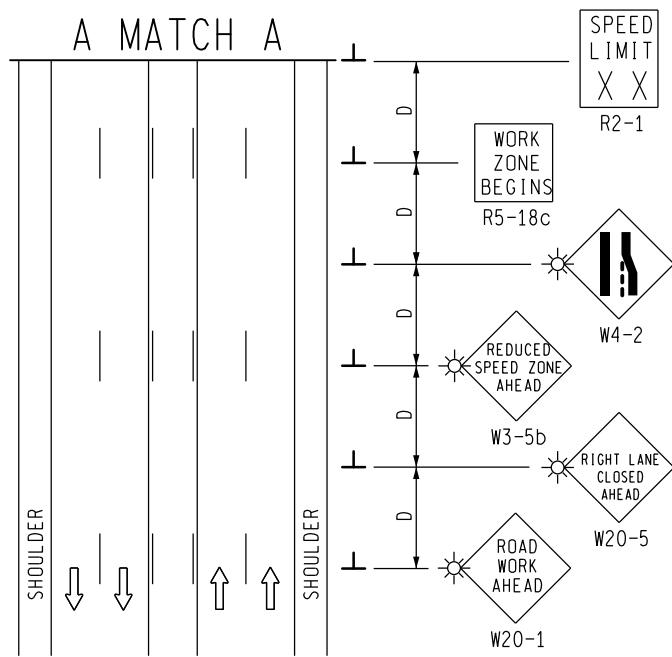
M0500a

SHEET

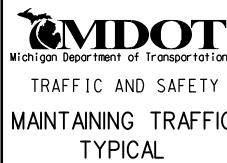
1 OF 3

REV. 10/20/2011

PLACE THIS SIGN ALONG WITH THE  
ADVANCE WORK ZONE SIGNING AS  
DEPICTED ON THE APPROPRIATE  
TYPICAL M0030a-M0080a.



NOT TO SCALE



DRAWN BY: CON:AE:djf

CHECKED BY: BMM:CRB

FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0500a.dgn

TYPICAL TEMPORARY TRAFFIC CONTROL FOR  
CLOSING THREE LANES OF A FIVE-LANE  
UNDIVIDED ROADWAY USING A SINGLE  
STEP DOWN IN SPEED LIMIT

OCTOBER 2011

PLAN DATE:

M0500a

SHEET  
2 OF 3

REV. 10/20/2011

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- 26C. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE MERGING TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE MERGING TAPER AS POSSIBLE.

## SIGN SIZES

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W1-6 WARNING	- 48" x 24"
RECTANGULAR REGULATORY	- 48" x 60"
R5-18c REGULATORY	- 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING THREE LANES OF A FIVE-LANE UNDIVIDED ROADWAY USING A SINGLE STEP DOWN IN SPEED LIMIT		
DRAWN BY: CON:AE:djf	OCTOBER 2011	M0500a	SHEET 3 OF 3
CHECKED BY: BMM:CRB	PLAN DATE:		
FILE: K:-DGN-TSR-STDS-ENGLISH-MNTTRF-M0500a.dgn	REV.	10/20/2011	

GRAND TRAVERSE COUNTY ROAD COMMISSION  
SPECIAL PROVISION  
FOR  
**HMA APPLICATION ESTIMATE**

KPM:GLK

1 of 1

02-23-18  
S.Airport Rd

**a. Description:**

This work shall be done in accordance with the requirements of section 501 of the 2012 Edition of the Michigan Department of Transportation Standard Specifications for Construction, except as specified herein. **The use of Reclaimed Asphalt Pavement (RAP) shall be limited to Tier 1 (0% to 17% RAP binder by weight of the total binder in the mixture). The use of shingles (RAS) shall not be permitted.**

**b. Construction Methods:**

Acceptance of HMA mixture shall be based on the Special Provision for Acceptance of HMA Mixture on Local Agency Projects (12SP501(J)) and the direct density method.

**c. Materials:**

The Target Air Void percentage shall be 3.5% for all HMA on this project.

The HMA, 4E10, High Stress (Top course) shall have a yield of 220 pounds per square yard.

The HMA, 4E10, High Stress (Leveling course) shall have a yield of 220 pounds per square yard.

The HMA, 3E10 (Base course) shall have a yield of 330 pounds per square yard.

The HMA, 4E3 (Top Course) shall have a yield of 220 pounds per square yard.

The HMA, 4E3 (Leveling Course) shall have a yield of 220 pounds per square yard.

The HMA, 3E3 (Base Course) shall have a yield of 330 pounds per square yard.

The HMA Approach for approach roads and drives, using HMA, 4E3 in 2 courses, shall have a yield of 220 pounds per square yard (Top Course) and 220 pounds per square yard (Leveling Course).

The Asphalt Cement for the HMA, 4E10, High Stress Mixture shall be 70-28P performance grade. The Asphalt Cement for the HMA, 4E3 Mixture shall be 64-28 performance grade. The Asphalt Cement for the HMA, 3E10 and HMA, 3E3 Mixtures shall be 58-22 performance grade.

The top course of HMA pavement shall have a minimum AWI of 260.

The Bond Coat material shall be as specified in the 2012 MDOT Standard Specifications for Construction. The application rate on existing or between courses for HMA shall be 0.05 - 0.15 gallon per square yard. Payment for this work will be included in payment for the applicable HMA mixture.

**d. Measurement and Payment:**

Measurement and Payment shall be at the contract unit price of HMA, 4E10 High Stress, HMA, 3E10, HMA, 4E3, or HMA 3E3. The HMA material for approach roads and driveways shall be measured and paid for as HMA Approach.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR

**ACCEPTANCE OF HOT MIX ASPHALT MIXTURE ON LOCAL AGENCY PROJECTS**

CFS:KPK

1 of 7

APPR:CJB:JWB:07-05-16  
FHWA:APPR:07-05-16

**a. Description.** This special provision provides sampling and testing requirements for local agency projects using the roller method and the nuclear density gauge testing. Provide the hot mix asphalt (HMA) mixture in accordance with the requirements of the standard specifications, except where modified herein.

**b. Materials.** Provide aggregates, mineral filler (if required), and asphalt binder to produce a mixture proportioned within the master gradation limits shown in the contract, and meeting the uniformity tolerance limits in Table 1.

**Table 1: Uniformity Tolerance Limits for HMA Mixtures**

Parameter		Top and Leveling Course		Base Course	
Number	Description	Range 1 (a)	Range 2	Range 1 (a)	Range 2
1	% Binder Content	-0.30 to +0.40	±0.50	-0.30 to +0.40	±0.50
2	# 8 and Larger Sieves	±5.0	±8.0	±7.0	±9.0
	# 30 Sieve	±4.0	±6.0	±6.0	±9.0
	# 200 Sieve	±1.0	±2.0	±2.0	±3.0
3	Crushed Particle Content (b)	Below 10%	Below 15%	Below 10%	Below 15%
a. This range allows for normal mixture and testing variations. The mixture must be proportioned to test as closely as possible to the Job-Mix-Formula (JMF). b. Deviation from JMF.					

Parameter number 2 as shown in Table 1 is aggregate gradation. Each sieve will be evaluated on one of the three gradation tolerance categories. If more than one sieve is exceeding Range 1 or Range 2 tolerances, only the one with the largest exceedance will be counted as the gradation parameter.

The master gradation should be maintained throughout production; however, price adjustments will be based on Table 1. Aggregates which are to be used in plant-mixed HMA mixtures must not contain topsoil, clay, or loam.

**c. Construction.** Submit a Mix Design and a JMF to the Engineer. Do not begin production and placement of the HMA until receipt of the Engineer's approval of the JMF. Maintain the binder content, aggregate gradation, and the crushed particle content of the HMA mixture within the Range 1 uniformity tolerance limits in Table 1. For mixtures meeting the definition of top or leveling course, field regress air void content to 3.5 percent with liquid asphalt cement unless

specified otherwise on HMA application estimate. For mixtures meeting the definition of base course, field regress air void content to 3.0 percent with liquid asphalt cement unless specified otherwise on HMA application estimate.

Ensure all persons performing Quality Control (QC) and Quality Assurance (QA) HMA field sampling are "Local Agency HMA Sampling Qualified" samplers. At the Pre-Production or Pre-Construction meeting, the Engineer will determine the method of sampling to be used. Ensure all sampling is done in accordance with *MTM 313 (Sampling HMA Paving Mixtures)* or *MTM 324 (Sampling HMA Paving Mixtures Behind the Paver)*. Samples are to be taken from separate hauling loads.

For production/mainline type paving, obtain a minimum of two samples, each being 20,000 grams, each day of production, for each mix type. The Engineer will sample and maintain possession of the sample. Sampling from the paver hopper is prohibited. Each sample will be divided into two 10,000 gram parts with one part being for initial testing and the other part being held for possible dispute resolution testing. Obtain a minimum of three samples for each mix type regardless of the number of days of production.

Obtain samples that are representative of the day's paving. Sample collection is to be spaced throughout the planned tonnage. One sample will be obtained in the first half of the tonnage and the second sample will be obtained in the second half of the tonnage. If planned paving is reduced or suspended, when paving resumes, the remaining sampling must be representative of the original intended sampling timing.

Ensure all persons performing testing are Bit Level One certified or Bit QA/QC Technician certified.

Ensure daily test samples are obtained, except, if the first test results show that the HMA mixture is in specification, the Engineer has the option of not testing additional samples from that day.

At the Pre-Production or Pre-Construction meeting, the Engineer and Contractor will collectively determine the test method for measuring asphalt content (AC) using *MTM 319 (Determination of Asphalt Content from Asphalt Paving Mixtures by the Ignition Method)* or *MTM 325 (Quantitative Extraction of Bitumen from HMA Paving Mixtures)*. Back calculation will not be allowed for determining asphalt content.

Ensure all labs performing local agency acceptance testing are qualified labs per the *HMA Production Manual* and participate in the MDOT round robin process, or they must be *AASHTO Materials Reference Laboratory* (AMRL) accredited for *AASHTO T 30* or *T 27*, and *AASHTO T 164* or *T 308*. Ensure on non-National Highway System (NHS) routes, Contractor labs are made available, and may be used, but they must be qualified labs as previously stated. Contractor labs may not be used on NHS routes. Material acceptance testing will be completed by the Engineer within 14 calendar days, except holidays and Sundays, for projects with less than 5,000 tons (plan quantity) of HMA and within 7 calendar days, except holidays and Sundays, for projects with 5,000 tons (plan quantity) or more of HMA, after the Engineer has obtained the samples. QA test results will be provided to the Contractor after the Engineer receives the QC test results. Failure on the part of the Engineer or the laboratory to provide Quality Assurance test results within the specified time frame does not relieve the Contractor of their responsibility to provide an asphalt mix within specifications.

The correlation procedure for ignition oven will be established as follows. Asphalt binder content based on ignition method from MTM 319. Gradation (ASTM D 5444) and Crushed particle content (MTM 117) based on aggregate from MTM 319. The incineration temperature will be established at the Pre-Production Meeting. The Contractor will provide a laboratory mixture sample to the acceptance laboratory to establish the correction factor for each mix. Ensure this sample is provided to the Engineer a minimum of 14 calendar days prior to production.

For production/mainline type paving, the mixture may be accepted by visual inspection up to a quantity of 500 tons per mixture type, per project (not per day). For non-production type paving defined as driveways, approaches, and patching, visual inspection may be allowed regardless of the tonnage.

The mixture will be considered out-of-specification, as determined by the acceptance tests, if for any one mixture, two consecutive tests per parameter, (for Parameter 2, two consecutive aggregate gradations on one sieve) are outside Range 1 or Range 2 tolerance limits. If a parameter is outside of Range 1 tolerance limits and the second consecutive test shows that the parameter is outside of Range 2, then it will be considered to be a Range 1 out-of-specification. Consecutive refers to the production order and not necessarily the testing order. Out-of-specification mixtures are subject to a price adjustment per the Measurement and Payment section of this special provision.

Contractor operations will be suspended when the mixture is determined to be out-of-specification, but contract time will continue to run. The Engineer may issue a Notice of Non-Compliance with Contract Requirements (Form 1165), if the Contractor has not suspended operations and taken corrective action. Submit a revised JMF or proposed alterations to the plant and/or materials to achieve the JMF to the Engineer. Effects on the Aggregate Wear Index (AWI) and mix design properties will be taken into consideration. Production and placement cannot resume until receipt of the Engineer's approval to proceed.

Pavement in-place density will be measured using one of two approved methods. The method used for measuring in-place density will be agreed upon at a pre-production or pre-construction meeting.

Pavement in-place density tests will be completed by the Engineer during paving operations and prior to traffic staging changes. Pavement in-place density acceptance testing will be completed by the Engineer prior to paving of subsequent lifts and being open to traffic.

#### Option 1 – Direct Density Method

Use of a nuclear density gauge requires measuring the pavement density using the Gmm from the JMF for the density control target. The required in-place density of the HMA mixture must be 92.0 to 98.0 percent of the density control target. Nuclear density testing and frequency will be in accordance with the *MDOT Density Testing and Inspection Manual*.

#### Option 2 – Roller Method

The Engineer may use the Roller Method with a nuclear or non-nuclear density gauge to document achieving optimal density as discussed below.

Use of the density gauge requires establishing a rolling pattern that will achieve the required in-place density. The Engineer will measure pavement density with a density gauge using the Gmm from the JMF for the density control target.

Use of the Roller Method requires developing and establishing density frequency curves, and meeting the requirements of Table 2. A density frequency curve is defined as the measurement and documentation of each pass of the finished roller until the in-place density results indicate a decrease in value. The previous recording will be deemed the optimal density. The Contractor is responsible for establishing and documenting an initial or QC rolling pattern that achieves the optimal in-place density. When the density frequency curve is used, the Engineer will run and document the density frequency curve for each half day of production to determine the number of passes to achieve the maximum density. Table 5, located at the end of this special provision, can be used as an aid in developing the density frequency curve. The Engineer will perform density tests using an approved nuclear or non-nuclear gauge per the manufacturer's recommended procedures.

**Table 2: Minimum Number of Rollers Recommended Based on Placement Rate**

Average Laydown Rate, Square Yards per Hour	Number of Rollers Required (a)	
	Compaction	Finish
Less than 600	1	1 (b)
601 - 1200	1	1
1201 - 2400	2	1
2401 - 3600	3	1
3601 and More	4	1

a. Number of rollers may increase based on density frequency curve.  
b. The compaction roller may be used as the finish roller also.

After placement, roll the HMA mixture as soon after placement as the roller is able to bear without undue displacement or cracking. Start rolling longitudinally at the sides of the lanes and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the drum. Ensure each required roller is 8 tons minimum in weight unless otherwise approved by the Engineer.

Ensure the initial breakdown roller is capable of vibratory compaction and is a maximum of 500 feet behind the paving operations. The maximum allowable speed of each roller is 3 miles per hour (mph) or 4.5 feet per second. Ensure all compaction rollers complete a minimum of two complete rolling cycles prior to the mat temperature cooling to 180 degrees Fahrenheit (F). Continue finish rolling until all roller marks are eliminated and no further compaction is possible. The Engineer will verify and document that the roller pattern has been adhered to. The Engineer can stop production when the roller pattern is not adhered to.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for using applicable pay items as described in subsection 501.04 of the Standard Specifications for Construction, or the contract, except as modified below.

Base Price. Price established by the Department to be used in calculating incentives and adjustments to pay items and shown in the contract.

If acceptance tests, as described in section c. of this special provision, show that a Table 1 mixture parameter exceeds the Range 1, but not the Range 2, tolerance limits, that mixture parameter will be subject to a 10 percent penalty. The 10 percent penalty will be assessed based on the acceptance tests only unless the Contractor requests that the 10,000 gram sample part retained for possible dispute resolution testing be tested. The Contractor has 4 calendar days from receipt of the acceptance test results to notify the Engineer, in writing, that dispute resolution testing is requested. The Contractors QC test results for the corresponding QA test results must result in an overall payment greater than QA test results otherwise the QA tests will not be allowed to be disputed. The Engineer has 4 calendar days to send the dispute resolution sample to the lab once dispute resolution testing is requested. The dispute resolution sample will be sent to an independent lab selected by the Local Agency, and the resultant dispute test results will be used to determine the penalty per parameter, if any. Ensure the independent lab is a MDOT QA/QC qualified lab or an AMRL HMA qualified lab. The independent lab must not have conflicts of interest with the Contractor or Local Agency. If the dispute testing results show that the mixture parameter is out-of-specification, the Contractor will pay for the cost of the dispute resolution testing and the contract base price for the material will be adjusted, based on all test result parameters from the dispute tests, as shown in Table 3 and Table 4. If the dispute test results do not confirm the mixture parameter is out-of-specification, then the Local Agency will pay for the cost of the dispute resolution testing and no price adjustment is required.

If acceptance tests, as described in section c. of this special provision, show that a Table 1 mixture parameter exceeds the Range 2 tolerance limits, the 10,000 gram sample part retained for possible dispute resolution testing will be sent, within 4 calendar days, to the MDOT Central Laboratory for further testing. The MDOT Central Laboratory's test results will be used to determine the penalty per mixture parameter, if any. If the MDOT Central Laboratory's results do not confirm the mixture parameter is out-of-specification, then no price adjustment is required. If the MDOT Central Laboratory's results show that the mixture is out-of-specification and the Engineer approves leaving the out-of-specification mixture in place, the contract base price for the material will be adjusted, based on all parameters, as shown in Table 3 and Table 4.

In the case that the Contractor disputes the results of the test of the second sample obtained for a particular day of production, the test turn-around time frames given would apply to the second test and there would be no time frame on the first test.

The laboratory (MDOT Central Laboratory or independent lab) will complete all Dispute Resolution testing and return test results to the Engineer, who will provide them to the Contractor, within 13 calendar days upon receiving the Dispute Resolution samples.

In all cases, when penalties are assessed, the penalty applies to each parameter, up to two parameters, that is out of specification.

**Table 3: Penalty Per Parameter**

Mixture Parameter out-of-Specification per Acceptance Tests	Mixture Parameter out-of-Specification per Dispute Resolution Test Lab	Price Adjustment per Parameter
NO	N/A	None
YES	NO	None
	YES	Outside Range 1 but not Range 2: decrease by 10% Outside Range 2: decrease by 25%

The quantity of material receiving a price adjustment is defined as the material produced from the time the first out-of-specification sample was taken until the time the sample leading to the first in-specification test was taken.

Each parameter of Table 1 is evaluated with the total price adjustment applied to the contract base price based on a sum of the two parameter penalties resulting in the highest total price adjustment as per Table 4. For example, if three parameters are out-of-specification, with two parameters outside Range 1 of Table 1 tolerance limits, but within Range 2 of Table 1 limits and one parameter outside of Range 2 of Table 1 tolerance limits and the Engineer approves leaving the mixture in place, the total price adjustment for that quantity of material is 35 percent.

**Table 4: Calculating Total Price Adjustment**

Cost Adjustment as a Sum of the Two Highest Parameter Penalties		
Number of Parameters Out-of-Specification	Range(s) Outside of Tolerance Limits of Table 1 per Parameter	Total Price Adjustment
One	Range 1	10%
	Range 2	25%
Two	Range 1 & Range 1	20%
	Range 1 & Range 2	35%
	Range 2 & Range 2	50%
Three	Range 1, Range 1 & Range 1	20%
	Range 1, Range 1 & Range 2	35%
	Range 1, Range 2 & Range 2	50%
	Range 2, Range 2 & Range 2	50%

**Table 5: Density Frequency Curve Development**

Tested by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Route/Location:	Air Temp:
Control Section/Job Number:	Weather:
Mix Type:	Tonnage:
Producer:	Depth:

Roller #1 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Roller #2 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Roller #3 Type:

Pass No.	Density	Temperature	Comments
1			
2			
3			
4			
5			
6			
7			
8			
Optimum			

Summary: \_\_\_\_\_

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MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
DRAINAGE STRUCTURE COVER, ADA COMPLIANT

KZO:KD

1 of 1

C&T:APPR:DMG:KAS:12-20-14  
JN 2015-M08

**a. Description.** This work consists of furnishing and installing an ADA compliant drainage structure covers, including the casting and grate. The drainage structure covers, including the casting and grate, must be in accordance with the standard plans, except that the grate opening size must be in accordance with this special provision. This work also includes the removal and disposal of existing drainage structure covers, including the castings and grates.

**b. Materials.** Provide materials in accordance with sections 403 and 908 of the Standard Specifications for Construction and this special provision. The frame and cover must be manufactured by East Jordan Iron Works, Neenah Foundry, or approved equal, and must comply with all dimensions shown on the standard plans for drainage structure covers, except that the openings must not permit passage of a sphere greater than 0.5 inch in diameter. Elongated openings must be oriented such that the longer dimension is perpendicular to the typical direction of travel.

**c. Construction.** Furnish and install the drainage structure cover as indicated on the plans or as directed by the Engineer. Complete this work in accordance with section 403 of the Standard Specifications for Construction.

Ensure that the drainage structure covers are delivered and unloaded at the job site in good condition. The Engineer will not accept cracked or otherwise damaged units and no reimbursement will be made for delivery or pick-up of damaged units.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Dr Structure Cover, ADA Compliant .....	Each

**Dr Structure Cover, ADA Compliant** includes all labor, equipment and materials required to furnish and install cast iron frame and cover (grate), and the removal and disposal of existing drainage structure cover, including the casting and grate.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
TRAFFIC SIGNAL, BAG AND UNBAG

OPR:EMS

1 of 1

APPR:JAR:DBP:09-12-11  
FHWA:APPR:09-12-11

**a. Description.** This work consists of covering (bag) or removing cover from (unbag) a traffic or pedestrian signal face assembly or a case sign face to accommodate maintaining traffic requirements associated with the project. This work includes all material required to securely fasten the bag to the signal or case sign faces or to unbag the signal or case sign faces.

**b. Materials.** Provide material specifically designed and manufactured for the purpose of bagging and unbagging traffic signal heads and case signs. Previously used bag material is acceptable as long it meets the requirements of this special provision and is approved by the Engineer. Ensure bag material is dark in color, completely cover (mask) the traffic or pedestrian signal face or case sign face. When installed the bag must prevent visible light emission from the traffic or pedestrian signal face or case sign face, and completely obscure the case sign legend.

**c. Construction.** Complete bagging and unbudging of a traffic or pedestrian signal face assembly or a case sign face as shown on the plans, or as directed by the Engineer. Ensure the bag is securely attached to the unit and is maintained to meet stage construction requirements. Replace any bag which falls off the unit in accordance with the Special Provision for Quality Guidelines for Work Zone Traffic Control Devices, and at no additional cost to the Department.

Obtain prior approval from the Engineer for any plan changes that may cause the sequence of bagging and unbudging to be altered from the sequence shown on the plans. No additional compensation will be made for changes in the maintaining traffic staging that are made for the Contractor's convenience.

Dispose of all bag material, when the project is complete, in accordance with subsection 205.03.P of the Standard Specifications for Construction.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
TS, Bag .....	Each
TS, Bag, Rem.....	Each

The Engineer will measure, as a unit, each traffic or pedestrian signal face regardless of number of signal indications, and each case sign face.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
TRAFFIC SIGNAL HEAD, TEMPORARY

SIG:EMS

1 of 1

APPR:LWB:DBP:11-18-14  
FHWA:APPR:11-26-14

**a. Description.** This work consists of furnishing, installing, and removing a temporary traffic signal head to accommodate maintaining traffic requirements associated with a construction project as shown on the plans.

The installation includes a temporary traffic signal head, sufficient length of cable from the signal head to controller to accommodate signal head adjustment as required, lamps, fittings, wiring, line hardware, lashing rod, and all other material required to ensure a complete and operating traffic signal.

The removal includes a temporary traffic signal head (with bags as applicable), and associated material to ensure a complete removal. The Contractor will retain ownership of removed materials.

**b. Materials.** Provide materials in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision. Provide materials, as directed by the Engineer, necessary to provide a complete and operating traffic signal.

Used material (in like new condition) for the installation of a temporary traffic signal head is acceptable, upon approval by the Engineer prior to installation, as long as it meets the requirements of this special provision. All other appurtenant material must be new or as directed by the Engineer.

**c. Construction.** Complete the work in accordance with sections 819 and 820 of the Standard Specification for Construction, as shown on the plans, and as directed by the Engineer. Receive prior approval from the Engineer for any plan changes that may cause the placement of a temporary traffic signal head to be altered from the plans. Complete any necessary modifications to maintenance of traffic, regardless of onsite delay, at no additional cost to the Department. Ensure modifications to the maintenance of traffic are approved by the Engineer. Remove, store and dispose of material in accordance with section 204 of the Standard Specification for Construction or as directed by the Engineer.

**d. Measurement and Payment.** The completed work as described will be measured and paid for at the contract unit price for the following pay item.

Pay Item	Pay Unit
TS Head, Temp.....	Each

**TS Head, Temp** includes furnishing, installing, removing a temporary traffic signal head, and all material required to ensure a complete and operating job, as indicated on the plans or as directed by the Engineer.

MICHIGAN  
DEPARTMENT OF TRANSPORTATIONSPECIAL PROVISION  
FOR  
TRAFFIC SIGNAL HEAD, ADJUST

SIG:EMS

1 of 1

APPR:LWB:DBP:11-17-14  
FHWA:APPR:11-26-14

**a. Description.** This work consists of adjusting (relocating) a traffic signal head to accommodate maintaining traffic requirements associated with a construction project as shown on the plans. As applicable, this work includes adjusting either a permanent or temporary traffic signal head, wiring, fittings, line hardware, lashing rod, lashing and/or unlapping of traffic signal cable, and all other material required to ensure a complete and operating traffic signal.

**b. Materials.** Provide materials in accordance with sections 918 and 921 of the Standard Specifications for Construction and this special provision. Provide materials, as directed by the Engineer, necessary to provide a complete and operating traffic signal.

**c. Construction.** Complete the work in accordance with sections 819 and 820 of the Standard Specification for Construction, as shown on the plans, and as directed by the Engineer. Receive prior approval from the Engineer for any plan changes that may cause the adjustment of a traffic signal head to be altered from the plans. Complete any necessary modifications to maintenance of traffic, regardless of onsite delay, at no additional cost to the Department. Ensure modifications to the maintenance of traffic are approved by the Engineer. Remove, store and dispose of material in accordance with section 204 of the Standard Specification for Construction or as directed by the Engineer.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item.

Pay Item	Pay Unit
TS Head, Adj.....	Each

**TS Head, Adj** includes the adjusting of either a permanent or temporary traffic signal head, wiring, fittings, line hardware, lashing rod, lashing and/or unlapping of traffic signal cable, and all other material required to ensure a complete and operating job, as indicated on the plans or as directed by the Engineer.

MICHIGAN  
DEPARTMENT OF TRANSPORTATIONSPECIAL PROVISION  
FOR  
**NON-HAZARDOUS CONTAMINATED MATERIAL HANDLING AND DISPOSAL**

ENV:JCW

1 of 2

APPR:DMG:DBP:06-13-17  
FHWA:APPR:06-13-17

**a. Description.** This work consists of all labor, equipment, and materials necessary to handle, transport, dispose of non-hazardous contaminated material, including all laboratory testing required for the proper disposal of the material and site restoration of temporary storage locations. This special provision must not be employed without authorization by the Engineer. The laboratory testing will be used to solicit landfill approval and is not intended to determine whether or not the material is contaminated. Soil delineated on the plans and classified as non-hazardous contaminated cannot be used elsewhere on the project regardless of the laboratory test results unless otherwise directed by the Engineer.

**b. Materials.** None specified.

**c. Construction.** Complete this work in accordance with sections 204 and 205 of the Standard Specifications for Construction, except as modified herein or as directed by the Engineer.

1. Excavation of Non-hazardous Contaminated Material. Excavate non-hazardous contaminated material as shown on the plans or as directed by the Engineer.
2. Temporary Storage of Non-hazardous Contaminated Material. Place excavated non-hazardous contaminated material which is to be temporarily stockpiled on plastic sheeting or tarps having a minimum thickness of 6 mils or in trucks, roll off boxes, or other containers, such that no liquid may escape from the containment. Cover the non-hazardous contaminated material securely with plastic sheeting of 6 mils thickness or greater at the end of each work day.

Dispose of excavated non-hazardous contaminated material as soon as approval is received from the disposal site. This material cannot be stockpiled for longer than 30 days prior to disposal.

Restore temporary storage locations to the condition prior to conducting the work.

3. Sampling and Analysis of Non-hazardous Contaminated Material. Sample and analyze non-hazardous contaminated material prior to disposal. The analysis required is dictated by the Type II disposal facility to be utilized for disposal. Should the results of the analysis show the material to be hazardous waste, as defined by the 1994 PA 451, Part 111, of the Natural Resources and Environmental Protection Act, the Engineer must be notified immediately. The material must then be disposed of as directed by the Engineer.

4. Disposal of Non-hazardous Contaminated Material. Dispose of non-hazardous contaminated material at a licensed Type II sanitary landfill. Submit at the preconstruction

meeting the name of the Type II landfill to be used for disposal, the sampling and analysis requirements of that landfill, and verification that use of the proposed landfill will meet the requirements of the county solid waste plan.

Ensure the proposed landfill is acceptable to the Department and approval is obtained from the Engineer prior to commencing disposal operations. Provide a copy of the laboratory analysis to the Engineer as a requirement of approval for disposal. Following disposal and prior to approval for payment provide to the Engineer landfill receipts for all non-hazardous contaminated material disposed of.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price for the following pay item:

Pay Item	Pay Unit
Non Haz Contaminated Material Handling and Disposal, LM.....	Cubic Yard

**Non Haz Contaminated Material Handling and Disposal, LM** will be measured by volume in cubic yards, LM. Provide to the Engineer receipts from the disposal facility for the number of cubic yards disposed of at that facility prior to payment. Payment will include all costs for materials, labor and equipment needed for storage, loading, transportation, testing, restoration of temporary storage locations and disposal of the non-hazardous contaminated material. Disposal costs will include all documentation required by the landfill.

Payment for excavation of non-hazardous contaminated material will be included with the related items of work.

Delays in testing and disposal of non-hazardous contaminated material that are not the fault of the Contractor may be considered valid reasons for extension of time. However, these delays and the resultant extensions of time will not be considered valid reasons for additional payment.

Should the analysis of the material document that it is hazardous waste, then payment for disposal of hazardous waste will be measured and paid for as extra work. Disposal includes hauling by a licensed hazardous waste hauler and disposal at an appropriate licensed disposal facility. Prequalification is waived.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**TEMPORARY PAVEMENT MARKING REVISIONS**

OFS:CGB

1 of 4

APPR:MWB:MKB:02-12-16  
FHWA:APPR:02-23-16

**Delete subsection 812.03.D.11.a, on page 610 of the Standard Specifications for Construction, in its entirety and replace with the following:**

- a. **Temporary Pavement Marking – Wet Reflective Type R.** Use temporary wet reflective pavement marking Type R (removable tape) when temporary pavement markings must be placed on finished pavements and are not in the exact location as future permanent markings or at the discretion of the Engineer when temporary markings must be removed during the life of a project.

Ensure prior to installation the pavement surface is air blown or brushed to remove surface dust and dirt. Remove curing compound from new concrete surfaces before applying Type R Tape.

Place wet reflective Type R tape when it is used as a 4-foot dash or full length skip line as defined in the contract to temporarily mark finished pavement prior to the placement of permanent markings according to the Manufacturer's specifications for existing temperature and pavement condition. Offset it 1 foot from the permanent marking so that the permanent markings can be placed prior to the removal of the 4-foot dashes or full length skip line. Do not use 4-foot dashes or full length skip lines to temporarily mark a solid edge line. Ensure damaged or missing tape of more than 2 consecutive skip lines, is replaced at no cost to the Department within 24 hours after notification by the Engineer. Failure to replace the tape within the 24 hour time period will result in a contract price adjustment as described in the Special Provision for Traffic Control Quality and Compliance.

- i. Between April 15 and November 1, place wet reflective Type R tape not used as a skip line according to the Manufacturer's specifications for existing temperature and pavement condition. Replace wet reflective Type R tape of more than 50 cumulative feet that fails, at no cost to the Department within 24 hours after notification by the Engineer. Failure to replace the tape within the 24 hour time period will result in a contract price adjustment as described in the Special Provision for Traffic Control Quality and Compliance.
- ii. From November 2 to December 1 and March 15 to April 14, place wet reflective Type R tape for all temporary shifts and tapers when pavement surfaces are dry and air temperatures are 40 degrees Fahrenheit and rising. All wet reflective Type R tape placed during these times must be placed during approved daytime hours negotiated between the Engineer and the Contractor or daytime hours required in the contract. Do not place wet reflective Type R tape within 24 hours of predicted precipitation, or 24 hours after any precipitation. The Contractor will be paid to

repair locations that fail during these times unless the Engineer determines the failure is due to improper surface preparation, or failure to follow these requirements. Repairs, if required, will be paid for at a negotiated price between the Engineer and the Contractor for the associated work.

- iii. Use temporary wet reflective pavement marking Type NR paint, for all tapers and shifts when ambient air temperature is less than 40 degrees Fahrenheit. To remove the wet reflective Type NR paint, use the least abrasive technique as directed by the Engineer to minimize scarring. If the approved pavement marking removal pay item is not part of the contract, the cost of the removal of Type NR pavement markings will be negotiated between the Engineer and the Contractor.
- iv. Wet reflective Type R tape is not to be placed between December 2 and March 14.

**Delete subsection 812.03.D.11.b, on page 610 of the Standard Specifications for Construction, in its entirety and replace with the following:**

**b. Temporary Pavement Marking.**

- i. **Wet Reflective Type NR Paint.** Use temporary pavement marking Wet Reflective Type NR paint when temporary pavement markings must be placed on pavement to be removed or replaced during construction. They also must be used when temporary markings line up exactly with the placement of permanent markings and may be grooved out prior to recessing permanent markings. The temporary pavement marking material must be compatible with the material specified for the permanent markings if permanent markings are to be placed on top of temporary markings.

Place Wet Reflective Type NR paint in accordance with section 811. Place the material at a thickness of 18 mils while driving at a maximum rate of 8 miles per hour. Drop WR optics from the forward most bead applicator gun at a rate of 4 pounds per gallon. Drop glass beads at a rate of 6 pounds per gallon from the rear bead applicator gun.

Place Wet Reflective Type NR paint, used as a 4-foot dash or full length skip line as defined in the contract, to temporarily mark finished pavement prior to the placement of permanent markings, in the exact location as the permanent marking such that its removal is not necessary. Only use Wet Reflective Type NR markings compatible with the permanent pavement marking material specified on the project as a 4-foot dash or full length skip line. Do not use 4-foot dashes or full length skip lines to temporarily mark a solid edgeline.

- ii. **Type NR Tape.** Use temporary pavement marking Type NR Tape as a 4 foot dash or full length skip line as defined in the contract to temporarily mark a white skip line or yellow centerline on base or leveling course of pavement. Type NR tape must not be used to temporarily mark a solid edgeline. Type NR tape is not to be used on the wearing course of asphalt or on existing pavement.

Place Type NR tape in accordance with section 811.

**Delete the following pay items from the list of pay items in subsection 812.04, on page 623 of the Standard Specifications for Construction:**

Pavt Mrkg, Type R, 4 inch, (color), Temp .....Foot  
Pavt Mrkg, Type NR, Paint, 4 inch, (color), Temp .....Foot

**Add the following pay items to the list of pay items in subsection 812.04, on page 623 of the Standard Specifications for Construction:**

Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, (color), Temp .....Foot  
Pavt Mrkg, Wet Reflective, Type NR, Paint, 4 inch, (color), Temp .....Foot

**Delete subsection 812.04.N.2, on page 629 of the Standard Specifications for Construction, in its entirety and replace with the following:**

2. **Non-Removable (Type NR) Pavement Markings.** The unit price for the relevant **Pavt Mrkg, Wet Reflective, Type NR, Paint, Temp** and **Pavt Mrkg, Type NR, Tape, Temp** pay items include the cost of providing and placing temporary pavement markings.

**Delete subsection 812.04.N.3, on page 629 of the Standard Specifications for Construction, in its entirety and replace with the following:**

3. **Removable (Type R) Pavement Markings.** The unit prices for **Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, (color), Temp** and **Pavt Mrkg Cover, Type R, (color)** include the cost of providing, placing, maintaining, removing and disposing of temporary pavement marking. Payment will be per foot measured along the length of the placed pavement marking except for 8 inch gore markings and double solid lines which will be two times their measured length.

**Delete subsection 922.06.A.1 on page 937 of the Standard Specifications for Construction in its entirety and replace with the following:**

1. **Pavement Marking, Wet Reflective, Type R.** Provide wet reflective Type R temporary pavement marking as preformed tape. Select wet reflective Type R markings from the Qualified Products List (922.06A). Apply and remove preformed tape in accordance with the manufacturer's instructions. The tape must remain flexible and conform to the texture of the pavement surface during use.

**Delete subsection 922.06.A.2, on page 937 of the Standard Specifications for Construction, in its entirety and replace with the following:**

2. **Pavement Marking, Wet Reflective, Type NR Paint.** Provide Wet Reflective Type NR temporary pavement markings as paint reflectorized with glass beads and wet

reflective optics, as required.

a. **Wet Night Retro Reflective Optics.** Select WR optics from one of the following Manufacturers or a Department approved alternative that meets or exceeds the requirements in Table 922-2:

3M Corporation  
Potter's Industries  
Swarco

<b>Table 922-2</b> <b>Temporary Wet Reflective Type NR Pavement Markings</b>		
Average Initial Retro reflectivity at 30 meter geometry in mcd/lux/sq m with flow of placement		
Test Method	Color	
	White	Yellow
Dry (ASTM E 1710)	700	500
Wet Recovery (ASTM E 2177)	250	200

Ship the material to the job site or Contractor's yard in sturdy containers marked in accordance with subsection 920.01.A.

Select glass beads for corresponding materials in accordance to subsection 920.02.

Submit to the Engineer prior to the start of work a general certification from the Manufacturer that when applied according to the construction methods herein, the glass beads and optics will meet the minimum requirements shown in Table 922-2.

b. **Binder Material for Temporary Wet Reflective Type NR Pavement Markings.** Select the liquid applied pavement marking from one of the following materials from the Qualified Products List to use as a binder for the WR optics or use an alternative as approved by the Engineer:

811.03D1 Waterborne, Liquid Pavement Marking Material  
811.03D2 Low Temperature Waterborne, Liquid Pavement Marking Material  
811.03D3 Regular Dry Paint, Liquid Pavement Marking Material

3. **Pavement Marking, Type NR Tape.** Provide Type NR temporary pavement markings as preformed tape reflectorized with glass beads, as required. The tape must remain flexible and conform to the texture of the pavement surface during use. Select Type NR tape from the Qualified Products List (922.06A).

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**TEMPORARY SPECIAL PAVEMENT MARKINGS (TRANSVERSE, LEGEND, AND  
SYMBOL)**

OFS:CGB

1 of 2

APPR:MB:CRB:04-10-17  
FHWA:APPR:04-24-17

**a. Description.** This work consists of furnishing, installing, and disposing of temporary transverse, legend, and symbol special pavement markings in accordance with the contract and as directed by the Engineer. Where temporary special pavement markings are required in this contract, use Type R temporary wet reflective special markings if the markings applied during the project require removal during the life of the contract. Use Type NR temporary special markings if the markings applied during the project can remain in place or are located on pavement to be removed or replaced during construction, or if the manufacturer temperature requirements for temporary tape cannot be met.

**b. Materials.**

1. Temporary Special Markings - Wet Reflective, Type R, Tape. Provide Type R temporary special markings from the Qualified Products List (subsection 922.06.A of the Standard Specifications for Construction). Apply and remove tape in accordance with the manufacturer's instructions. The tape must remain flexible and conform to the texture of the pavement surface during use. All curved arrows, curved legends, and curved symbols must be precut or fabricated prior to being placed in the field.

2. Temporary Special Markings - Type NR, Paint. Provide Type NR temporary special markings as paint reflectorized with glass beads, from the Qualified Products List (subsection 922.06.A of the Standard Specifications for Construction).

**c. Construction.** Install the temporary pavement markings in accordance with Pavement Marking Special Detail PAVE-900 Series.

1. Temporary Special Markings - Wet Reflective, Type R, Tape. Between April 15 and November 1, place Type R wet reflective tape in accordance with the manufacturer's specifications for existing temperature and pavement conditions.

Utilizing 4 or 6 inch lines to create a symbol or stop bar is prohibited. Ensure the symbol is fabricated prior to being placed in the field and the stop bar is made out of 12 inch material.

Replace Type R wet reflective tape that fails, as directed by the Engineer. Special markings that fail due to improper installation per the manufacturer's specifications will not be paid for. The Engineer will document the failure and meet with the Contractor and/or supplier to discuss reason for failure. Payment will be as determined by the Engineer. Otherwise marking failure will be assumed to be damaged by traffic unless documented in the Inspector's Daily Report (IDR). Marking failure due to traffic or not clearly documented in an IDR, will be paid for at the contract unit price.

2. Temporary Special Markings - Type NR. Place Type NR markings in accordance with section 811 of the Standard Specifications for Construction. Use pavement marking Type NR temporary special markings when temporary pavement markings must be placed between November 2 and April 14, or if the removal of the temporary marking will occur after December 1.

Special markings that fail due to improper installation per the manufacturer's specifications will not be paid for. The Engineer will document the failure and meet with the Contractor and/or supplier to discuss reason for failure. Payment will be as determined by the Engineer. Otherwise marking failure will be assumed to be damaged by traffic unless documented in the Inspector's Daily Report (IDR). Marking failure due to traffic or not clearly documented in an IDR, will be paid for at the contract unit price.

d. **Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Pavt Mrkg, Wet Reflective, Type R, Tape, __ inch, Crosswalk .....	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 12 inch, Cross Hatching, (color).....	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, __ inch, Stop Bar .....	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, (legend) .....	Each
Pavt Mrkg, Wet Reflective, Type R, Tape, (symbol).....	Each
Pavt Mrkg, Type NR, Paint, __ inch, Crosswalk.....	Foot
Pavt Mrkg, Type NR, Paint, 12 inch, Cross Hatching, (color).....	Foot
Pavt Mrkg, Type NR, Paint, __ inch, Stop Bar .....	Foot
Pavt Mrkg, Type NR, Paint, (legend) .....	Each
Pavt Mrkg, Type NR, Paint, (symbol).....	Each

1. **Pavt Mrkg, Wet Reflective, Type R, Tape, \_\_ inch, Crosswalk; Pavt Mrkg, Wet Reflective, Type R, Tape, 12 inch, Cross Hatching, (color); Pavt Mrkg, Wet Reflective, Type R, Tape, \_\_ inch, Stop Bar; Pavt Mrkg, Wet Reflective, Type R, Tape, (legend); and Pavt Mrkg, Wet Reflective, Type R, Tape, (symbol)** include all materials, labor, and equipment necessary to provide, place, maintain (as noted), remove, and properly dispose of temporary pavement markings.

2. **Pavt Mrkg, Type NR, Paint, \_\_ inch, Crosswalk; Pavt Mrkg, Type NR, Paint, 12 inch, Cross Hatching, (color); Pavt Mrkg, Type NR, Paint, \_\_ inch, Stop Bar; Pavt Mrkg, Type NR, Paint, (legend); and Pavt Mrkg, Type NR, Paint, (symbol)** include all materials, labor, and equipment necessary to provide and place temporary pavement markings. Removal will be paid for separately under the respective pay items.

GRAND TRAVERSE COUNTY ROAD COMMISSION

SPECIAL PROVISION  
FOR  
**ROADWAY GRADING, TYPE 1**  
**ROADWAY GRADING, TYPE 2**

KPM:GLK

1 of 2

02-23-18  
S. Airport Rd

**a. Description.** **Roadway Grading, Type 1 or 2** consists of the miscellaneous earthwork and grading operations required to construct the proposed cross sections within the limits shown on the plans or stated in this special provision. All lines and grades shall be as shown on the plans and as directed by the Engineer. **Roadway Grading, Type 1** shall apply to the earthwork and grading operations required for the widening of South Airport Road (West of US-31) from Station 87+70 to 106+27 Lt. **Roadway Grading, Type 2** shall apply to the earthwork and grading operations required for the reconstruction of South Airport Road (East of US-31) from Station 111+00 to 166+35. **Roadway Grading, Type 1 or 2** shall be completed in accordance with Section 205 of the 2012 Standard Specifications for Construction and this special provision.

**b. Materials.** Additional material required to achieve the typical cross sections shall meet the requirements of the 2012 Standard Specifications for Construction for the specific application. If excavated material is suitable, it shall be used as embankment material within the limits of roadway grading or elsewhere on the project as directed by the Engineer.

**c. Construction Methods.** All work shall be in accordance with applicable sections of the 2012 Standard Specifications for Construction.

As required to achieve proposed cross sections, **Roadway Grading, Type 1** includes, but is not limited to, the following work:

Earthwork and grading operations to widen the roadbed from Station 87+70 to 106+27 Lt.

- Stripping and stockpiling topsoil for use in turf establishment.
- All earth excavation and embankment required to construct the typical cross section along the proposed alignment.
- All earth excavation and embankment required to reconstruct drives and approaches within the limits of the proposed alignment.
- All earth excavation required for ditching within the limits of the proposed alignment.

As required to achieve proposed cross sections, **Roadway Grading, Type 2** includes, but is not limited to, the following work:

Earthwork and grading operations for the reconstruction of South Airport Road from Station 111+00 to 166+35.

- Stripping and stockpiling topsoil for use in turf establishment.
- All earth excavation and embankment required to remove the existing buried HMA and concrete pavement as shown in the typical cross sections.
- All earth excavation and embankment required to construct the typical cross section along the proposed alignment.
- All earth excavation and embankment required to reconstruct drives and approaches within the limits of the proposed alignment.
- All earth excavation required for ditching within the limits of the proposed alignment.

**d. Measurement and Payment.** The completed work as measured will be paid for at the contract unit price for the following contract item (pay item).

Contract Item (Pay Item)	Pay Unit
Roadway Grading, Type 1 .....	Station
Roadway Grading, Type 2 .....	Station

**Roadway Grading, Type 1 or 2** shall only apply where called for in the plans or where stated in this special provision. If the limits of the related work items are extended by the Engineer, the pay limits of **Roadway Grading, Type 1 or 2** will be adjusted accordingly.

**Roadway Grading, Type 1** will be measured along the outside edge of pavement of South Airport Road in those areas where work is performed. In areas where work is performed on both sides of the road, each side of the road will be measured separately.

**Roadway Grading, Type 2** will be measured along the centerline of South Airport Road and shall include work along both sides of the road. The item will only be paid for once along the project length, even though the work may take place during multiple stages.

Where a driveway or approach requires grading to meet proposed grades, this work is included in the measurement and payment for the item **Roadway Grading, Type 1 or 2** measured along South Airport Road in that area.

Payment for **Roadway Grading, Type 1 or 2** shall include all labor, equipment, and materials required to complete the work as described. Turf establishment, subgrade undercutting, pavement removal, subbase, removal of culverts and other items included in the contract as pay items will be paid for separately.

GRAND TRAVERSE COUNTY ROAD COMMISSION

SPECIAL PROVISION  
FOR  
**SLOPE RESTORATION**

KPM/GLK

1 of 1

02-20-18  
S.Airport Rd

**a. Description:**

This work shall be done in accordance with the requirements of section 816 of the 2012 Edition of the Michigan Department of Transportation Standard Specifications for Construction, except as specified herein.

**b. Materials:**

The following materials shall meet the requirements of Section 917 of the 2012 Standard Specifications for Construction, and as shown below:

<u>Material</u>	<u>Application Rate</u>
Topsoil Surface	3 inches minimum
Seeding, Mixture TDS	220 #/Acre
Fertilizer, Chemical Nutrient, Cl A	176 #/Acre
Mulch Blanket	(Must be from MDOT Qualified Products list)

**c. Construction Methods:**

Topsoil, seed, fertilizer and high velocity mulch blanket meeting the requirements of the 2012 MDOT Standard Specifications for Construction will be placed on disturbed areas, or other areas as directed by the engineer, beyond the roadway shoulder. Topsoil shall be furnished by the contractor but salvaged topsoil may be used as approved by engineer. Topsoil depth shall be not less than 3 inches. The Contractor is responsible for determining the amount of existing topsoil that can be salvaged.

**d. Measurement and Payment:**

The completed work shall be measured and paid for at the contract unit price for the following contract pay item and includes all materials, equipment and labor necessary to complete this item as described above.

<u>Pay Item</u>	<u>Unit</u>
Slope Restoration	Square Yard

Payment for **Slope Restoration** will be measured by area in square yard in place. All materials, labor and equipment required to install **Slope Restoration**, which includes Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; and Mulch Blanket will not be paid for separately but shall be included in the contract unit price bid for **Slope Restoration**.

## **AFFIDAVIT OF NON-COLLUSION BY CONTRACTOR**

STATE OF MICHIGAN )  
 )  
COUNTY OF \_\_\_\_\_ )

I, \_\_\_\_\_, the \_\_\_\_\_ of \_\_\_\_\_, state:

1. That I have submitted a bid to the Grand Traverse County Road Commission.
2. That the bid was not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation.
3. That the bid is genuine and not collusive or a sham.
4. That I have not directly or indirectly by agreement, communication, or conference with anyone, attempted to induce action prejudicial to the interest of the Grand Traverse County Road Commission or of any other bidder, or anyone else interested in the proposed contract.
5. That prior to the public opening and reading of the bids, I:
  - a. Did not directly or indirectly induce or solicit anyone else to submit a false or sham bid.
  - b. Did not directly or indirectly collude, conspire, connive, or agree with anyone else that I or anyone would submit a false or sham bid or that anyone should refrain from bidding or withdraw a bid.
  - c. Did not, in any manner, directly or indirectly, seek by agreement, communication, or conference with anyone to raise or fix the bid of said bidder or of anyone else or to raise or fix any overhead, profit, or cost element of a bid price of that of anyone else.
  - d. Did not, directly or indirectly, submit a bid price or any breakdown thereof, or the contents thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof or to any individual or group of individuals, except to any person or persons who have a partnership or other financial interest with me in my business.

Its: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

Notary Public \_\_\_\_\_ Co., MI  
Acting in \_\_\_\_\_ Co., MI  
My Commission Expires: \_\_\_\_\_

Date:

Contractor's Name  
Address

Subject: Project ID:  
Location:

Dear County Highway Engineer:

We \_\_\_\_\_ (Contractor's Name) represent that the above subject project is substantially complete as of \_\_\_\_\_ (Date). I \_\_\_\_\_ (project manager's name) the project manager, have conducted a thorough review of the project and represent that the project is substantially complete meaning:

- 1) All necessary documentation for the project per the Construction Contract has been received and is available for submittal to the Road Commission.
- 2) The Road Commission can enjoy beneficial use or occupancy of the project and may use, operate, and maintain the project in all respects, for its intended purpose.

We agree that all items of work have been completed and are ready for a review by the County Road Commission for the purpose of issuing a Certificate of Substantial Completion as set forth in the General Specifications of the Construction Contract. I understand that by signing this form, if the project is found to not be substantially complete, the County Road Commission may deduct from the final payment under the Construction Contract all expenses incurred in reviewing the project for Substantial Completion based upon the representations set forth herein.

At this time we would like to request a final inspection of the above subject project.

If you have any question, please feel free to call \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_.

Sincerely,