

ROAD COMMISSION FOR IONIA COUNTY

170 E. Riverside Drive • P.O. Box 76 • Ionia, Michigan 48846 • Phone (616) 527-1700 • Fax (616) 527-8848

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Commissioner

DOROTHY G. POHL, CPA
Managing Director

PAUL A. SPITZLEY, P.E.
County Highway Engineer

Notice to Bidders

Sealed bids will be received by the Board of Ionia County Road Commissioners until 1:00 p.m., Monday, August 20, 2018 at which time they will be publicly opened and read in the Commission offices for:

M-222 SLOPE REPAIRS

The contractor shall certify that all materials and equipment meet current Michigan Department of Transportation specifications. All bids will meet or exceed the specifications established by the Ionia County Road Commission and/or the Michigan Department of Transportation.

Further information on which bids shall be based is available at the road commission office; phone 616-527-1700 or www.ioniacountyroads.org on the "Doing Business" page. The bid form is to be returned in a sealed envelope and plainly marked "Sealed Bid for Allegan County M-222 Slope Repairs" and shall include the name and address of the bidder.

The Ionia County Road Commission and/or Michigan Department of Transportation reserve the right to reject any and all proposals or to waive irregularities therein, and to accept any proposals which, in their opinion, may be most advantageous and in the best interest of the Ionia County Road Commission and the Michigan Department of Transportation.

Board of County Road Commissioners
Ionia County, Michigan

Charles G. Minkley - Chairman
Robert G. Dunton - Vice Chairman
Albert A. Almy - Member
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**BOARD OF COUNTY ROAD COMMISSIONERS
of the County of Ionia**

INSTRUCTIONS TO BIDDERS

Sealed bids will be publicly opened at the offices of the Board of County Road Commissioners of the County of Ionia, State of Michigan, located at 170 E. Riverside Drive, Ionia, MI 48846.

Refer to the **NOTICE TO BIDDERS** for the exact timing and for the identification of the bids as related to furnishing materials, services, equipment, work and/or supplies with the terms, conditions, specifications, drawings, plans and special provisions as stated herein and hereto attached.

The Board's practice is to open and read the bids at the designated time and then refer the file to staff for tabulation and analysis. During this period, bid files are closed until presented to the Board of County Road Commissioners at their next regular meeting. Notifications of award, pending award, or other outcome, will be made in writing. The bid tabulation will accompany award, as is customary for item bid, or may be requested by phone at (616) 527-1700.

1. Bids must be submitted on the Board's blank form when provided. The bid shall be legibly prepared in ink or typewriter. The bidder must initial any erasures or alterations.
2. Specifications and plans should not be returned unless otherwise stated herein.
3. Bids shall be mailed or delivered. **Bids shall be in a sealed envelope and identified on the outside as to the bid concerned.** Bids will NOT be accepted by fax or email.
4. Bids will not be accepted after the time designated for the opening of the bids. The bidder shall assume full responsibility for delivery of bids prior to the appointed hour and shall assume the risk of late delivery or non-delivery regardless of the manner used for the transmission thereof. **Bids will be accepted at the Road Commission office** on behalf of the Board at any time during normal business hours only, said hours being 6:00 a.m. to 4:00 p.m., Monday through Thursday, with the exception of legal holidays.
5. It is understood that the Board of County Road Commissioners is a governmental unit and as such, is exempt from the payment of all State and Federal taxes, except as allowed by the regulatory agencies to be included in the cost of materials and services.
6. The bidder, as evidenced by the execution of the bid form, thereby declares that the bid is made without collusion with any other person, firm, or corporation and agrees to furnish all bid items in strict adherence with all Federal regulatory measures.
7. The Board reserves the right to reject any and all bids, to waive any irregularities therein, and to accept any bid which, in the opinion of the Board, may be most advantageous and in the best interest of the County. In case of error in the extension of prices in the bid or other arithmetical error, the unit prices will govern.

General Specifications

Location:

This project commences on M-222 (Grand Street) at Weeks Street POB Sta 16+00 (CSMP 0.852). This project is located in the City of Allegan, in Allegan County.

Description of work:

This project consists of repairing damaged areas of riprap with aggregate blend wrapped with a non-woven geotextile separator, culvert adjustment, existing haul road work and slope restoration.

A. Qualifications:

1. Licensed by the State of Michigan
2. State of Michigan Pre-qualified
3. Minimum of 5 years experience in the field

B. Contacts:

1. Questions concerning the plans or specifications should be directed to Bart Franklin, MDOT at 616-464-7705.

C. Insurance Requirements:

1. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Michigan Department of Transportation and the Ionia County Road Commission and its agents and employees from and against all claims, damages, losses and expenses including, but not limited to, attorneys' fees arising out of or resulting from the performance of this Contract including claims, damages, losses and expenses attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, but only to the extent caused by the fault, negligent acts, or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage loss or expense is caused in part by the parties indemnified hereunder. This obligation does not include an obligation to indemnify the parties, indemnified hereunder for their sole negligence and shall not be construed to negate or modify other rights or obligations of indemnity that otherwise exist as to the parties or persons described herein, arising out of and during the progress and to the completion of work all in accordance with Public Act 468 of 2012 and the 2012 Michigan Department of Transportation's "Standard Specifications for Construction", Division 1, paragraph 1.07.10 with the following minimum requirements:

Workman's Compensation: Statutory Coverage

Bodily Injury and Property Damage Other Than Automobile:

Each Occurrence \$1,000,000

Aggregate \$2,000,000

Bodily Injury Liability and Property Damage Liability Automobile:

Bodily Injury Liability \$500,000 Each Person, Each Occurrence \$1,000,000

Property Damage Liability \$1,000,000 Each Occurrence

Combined Single Limit for Bodily Injury and Property Damage Liability:

Each Occurrence \$2,000,000

2. Insurance Certificate declaring The Michigan Department of Transportation and Ionia County Road Commission as additional insured, not certificate holder, must be issued and shall become part of the contract.
3. Contractor shall maintain current up-to-date insurance coverage during the term of the contract and failure to do so shall result in termination of said contract.
4. Certificate must be submitted within fifteen days upon notification of award of Contract and prior to Contract signing.

D. Payment:

Upon completion, payment will be authorized and approved by the Michigan Department of Transportation.

E. Warranty:

1. Upon completion, a one-year warranty on the installation must be furnished.
2. Upon completion, all manufacturer's warranties, if applicable, must be furnished.

F. Submission of bid will be construed as a conclusive presumption that the Contractor is thoroughly familiar with the bid requirements and specifications and that he/she understands and agrees to abide by each and all of the stipulations and requirements contained therein.

G. "The ICRC, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, disability, race, color, or national origin in consideration for an award."

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor shall comply with the Regulations relative to non-discrimination in Federally-assisted programs of the Department of Transportation, Title 49, code of Federal Regulations, Part 21 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulation, including employment practices when the contractor covers a program set forth in Appendix B of the Regulations.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's

obligations under this contract and the Regulations relative to non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information and its facilities as may be determined by the Ionia County Road Commission to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the State highway department, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.
5. **Sanctions for Non-compliance:** In the event of the contractor's non-compliance with the non-discrimination provisions of this contract, the Ionia County Road Commission shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - (a) Withholding of payments to the contractor under the contract until the contractor complies, and/or
 - (b) Cancellation, termination or suspension of the contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Ionia County Road Commission may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Ionia County Road Commission to enter into such litigation to protect the interests of the County, and, in addition, the contractor may request the State highway department to enter into such litigation to protect the interests of the State and/or the United States to enter into such litigation to protect the interests of the United States.

Specifications for Contract #518-470W:
M-222 Slope Repairs, contd.

Technical Specifications (LOG OF PROJECT ON THE FOLLOWING PAGES)

Log of project to be used along with the set of plans provided

PROGRESS CLAUSE: Submit a Progress Schedule. The Engineer for this project is as follows:

Nathan VanDrunen, P.E.
MDOT Grand Rapids TSC
2660 Leonard Street NE
Grand Rapids, MI 49525
616-464-7714
vandrunenn@michigan.gov

After receiving Notice of Award, start work on the date approved by the Engineer, which date must be no earlier than **September 4, 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 in **21** calendar days. Calendar days will be charged on the date work starts, and will be charged continuously until the work is completed, except for the establishment period for turf establishment.

The project must be completed and completely open to traffic on or before the interim completion date of **October 5, 2018**.

The entire project must be completed on or before the final completion date of **November 15, 2018**.

The final completion date for this project is **November 15, 2018**. This date is to accommodate an establishment period for turf establishment. All contract work except turf establishment must be completed in its entirety, by the interim completion date of **October 5, 2018**. Turf establishment must be placed by the interim completion date of **October 5, 2018**.

Failure by the Contractor to meet interim or final completion dates will result in the assessment of liquidated damages in accordance with subsections 108.10.C.1 of the Standard Specifications for Construction. Liquidated damages will be assessed separately and simultaneously for failure to meet interim and final completion dates. Liquidated damages will continue to be assessed for each calendar day that the work associated with the interim or final completion dates remains incomplete, even if these days extend into or beyond seasonal suspension, unless approved otherwise by the Engineer.

Unless specific pay items are provided in the contract any extra costs incurred by the Contractor due to cold-weather protection and winter grading will not be paid for separately, but will be included in payment of other contract items.

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

rescheduled if there are delays in the award of the project.

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

The Contractor must comply with all local ordinances (noise, etc.) as described in the Special Provision for Maintaining Traffic, Permanent Signing and Pavement Marking.

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

Failure on the part of the Contractor to carry out the provisions of this Progress Clause may be considered sufficient cause to prevent bidding future projects.

LOG OF PROJECT

LOCATION

This project commences on M-222 (Grand Street) at Weeks Street POB Sta 16+00 (CSMP 0.852). This project is located in the City of Allegan, in Allegan County.

DESCRIPTION OF WORK

This project consists of repairing damaged areas of riprap with aggregate blend wrapped with a non-woven geotextile separator, culvert adjustment, existing haul road work and slope restoration.

SLOPE REPAIR

Mobilization, Max	1	Lsum
Contractor Staking	1	Lsum
Excavation, Earth	75	Cyd
Riprap, Plain, Salv	275	Syd
Riprap, Plain	100	Syd
Aggregate Blend	160	Cyd
Geotextile, Separator, Non-Woven	3,500	Syd
Conc, Grade S2	1	Cyd
Reinforcement Steel, Epoxy Coated	40	Lb
Culvert Adj	24	Ft
Culv End Section, Salv, 30 inch or less	1	Ea
Slope Restoration, Non-Freeway, Type D	750	Syd

HAUL ROAD

Machine Grading	10	Sta
Excavation, Earth	90	Cyd
Wooded Wetland Understory Mix	3	Lbs

MAINTINANCE OF TRAFFIC

Channelizing Device, 42 inch, Fluorescent, Furn	50	Ea
Channelizing Device, 42 inch, Fluorescent, Oper	50	Ea
Minor Traffic Devices	1	Lsum
Flag Control	1	Lsum
Lighted Arrow, Type C, Furn	2	Ea
Lighted Arrow, Type C, Oper	2	Ea
Sign, Type B, Temp, Prismatic, Furn	248	Sft
Sign, Type B, Temp, Prismatic, Oper	248	Sft

SOIL ERSION AND SETIMENTATION CONTROL

Erosion Control, Gravel Access Approach	2	Ea
Erosion Control, Silt Fence	350	Ft
Erosion Control, Inlet Protection, Fabric Drop	4	Ea

GENERAL NOTES

UTILITIES

MISS DIG/UNDERGROUND UTILITY NOTIFICATION

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

OUT OF SERVICE UTILITIES

If plan information indicates an existing underground utility is or will be out of service within the limits of this contract, the Contractor is cautioned to treat such a line as if it were still in service and notify "Miss Dig" when working in the area of the out of service facility.

STATIONING

Stationing on this project was taken from old plans and pavement stenciled stationing and is not necessarily accurate.

OLD PLANS

OLD ROAD PLANS

The following old road plans were referred to in the design of this project.
03041-107575A

In addition, other old road plans that predate this project may be available. These plans may be reviewed in the Transportation Service Center (TSC) during normal working hours.

EARTHWORK

EARTHWORK

Earthwork quantities are computed based upon limited survey information. These quantities are for bidding purposes only and will be adjusted by the Engineer based upon actual field measurements.

EARTH DISTURBANCE LIMITS

The earth disturbance limit for this project will be limited to 10' beyond the slope stake line or to the ROW line whichever is less for all areas except for wetland areas. For areas adjacent to wetlands, the earth disturbance limit will be limited to the slope stake line. Restoration measures have been included in this set of plans for the approved areas of disturbance. The Contractor shall submit an earth change plan for any work beyond the approved limits to the Engineer to review for approval prior to the disturbance. All costs for obtaining and executing an approved earth change plan, including restoration, shall be at the Contractor's expense.

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.

PAVEMENT

PAVEMENT AND HMA SURFACE REMOVAL QUANTITIES

Pavement and HMA Surface removal as shown on the plans will be at the discretion of the Engineer. If in his/her judgment, areas of pavement may be left in place, or additional areas added to provide the proper cross-section and base. Changes will be made in the quantities.

PROJECT SPECIFIC NOTES

NOTES APPLYING TO STANDARD PLANS

Where the following items are called for on plans, they are to be constructed according to the standard plan given below opposite each item unless otherwise indicated.

Title	Plan No.
ROAD	
PRECAST CONCRETE END SECTION FOR PIPE CULVERT	R-86-E
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-E
SEEDING AND TREE PLANTING	R-100-H
SIGNING	
WORK ZONE DEVICES	
GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS	WZD-100-A *
TEMPORARY TRAFFIC CONTROL DEVICES	WZD-125-E *

* Denotes Special Detail

MAINTENANCE OF TRAFFIC

Traffic will be maintained by means of a Traffic Control Regulator and a single lane closure on M-222 (Grand Street).

No lane closures will be allowed outside of the hours of 9:00 AM to 3:00 PM Monday through Friday, or as directed by the Engineer.

Any proposed changes to the Maintenance of Traffic will be submitted for review and approval by the Engineer. Any additional costs for approved changes to the Maintenance of Traffic are the responsibility of the Contractor.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
**NON-COMPLIANCE WITH SOIL EROSION AND SEDIMENTATION CONTROL
REQUIREMENTS**

CFS:DMG

1 of 2

APPR:TWK:HZ:06-13-17

FHWA:APPR:06-13-17

a. Description. This special provision establishes negative adjustments related to the failure to properly install and maintain soil erosion and sedimentation control (SESC) measures and the conditions under which these adjustments will be determined and applied. Nothing in this special provision modifies section 107 of the Standard Specifications for Construction.

Delays to the project as a result of the Contractor conducting corrective actions for SESC measures do not constitute a valid reason for an extension of time.

Ensure deficiencies with SESC measures are corrected in the time frame stated herein. For those deficiencies not corrected within the stated time frame, the Engineer will make a negative adjustment to the contract as stated herein.

b. Materials. None specified.

c. Construction. Install all temporary erosion control measures identified on the plans and as directed by the Engineer for an impacted area of the project prior to the start of any earth disturbance including, but not limited to, clearing, grading and excavation in that area. The Engineer will inspect these measures every 7 days and within 24 hours after a precipitation event that results in a discharge from the site. Deficiencies will be documented on the National Pollutant Discharge Elimination System and SESC Inspection Report (MDOT Form 1126).

If at any time during the project, including the time during the seasonal suspension, the Engineer documents deficient SESC measures, the Engineer will provide written notification with instructions for corrective action to the Contractor. The time frame for completion of these corrective actions will be specified in the notification and will be discussed with the Contractor as necessary.

Deficiencies are defined as one or more of the following:

1. Failure to install or construct SESC measures shown on the plans or as directed by the Engineer;
2. Failure to maintain the measures;
3. Failure to conduct earth change activities in a manner consistent with all applicable environmental permit requirements;
4. Failure to comply with the area limitations or the time limitations stated in subsections 208.03.A and 208.03.B, respectively, of the Standard Specifications for Construction.

SESC deficiencies are either emergency or non-emergency and the time frame for corrective action is determined accordingly. Sediment leaving the right-of-way or entering a drainage structure, waters of the state, or loss of support of the roadbed impacting public safety constitutes an emergency and corrective actions must be completed within 24 hours of notification, including weekends or holidays regardless of whether the Contractor is working or not. Non-emergency deficiencies must be corrected within 5 calendar days of notification.

For those emergency corrective actions not completed within 24 hours of notification, the Contractor will be assessed \$100.00 per hour for every hour the deficiency remains uncorrected after the initial 24 hours of notification. For those non-emergency corrective actions not completed within 5 calendar days, the Contractor will be assessed \$500.00 per day for every day, or part thereof, the deficiency remains uncorrected after the initial 5 days of notification.

If it is not practicable to complete the non-emergency corrective actions within 5 calendar days, the Contractor must document the reasons and propose a corrective action plan to the Engineer within 5 days of notification. The corrective action plan must contain the Contractor's course of action and a time frame for completion. If the reasons and the corrective action plan are acceptable to the Engineer, the Contractor will be allowed to proceed with the plan as proposed without incurring a negative adjustment. If the approved corrective action plan is not completed as proposed, the Contractor will be assessed \$1000.00 per calendar day for every day, or part thereof, the deficiency remains uncorrected after the time frame is exceeded in the approved corrective action plan.

Correct, in the timeframe stated herein, all other emergency or non-emergency SESC deficiencies documented anywhere else on the project during completion of the approved corrective action plan.

d. Measurement and Payment. The Engineer will make the necessary monetary adjustment to the contract amount based on the length of time the Contractor allows the deficiencies to remain uncorrected after the time allowance stated herein and as described to cover any costs incurred by the Department as a result of SESC violations.

All costs associated with corrective actions required due to the Contractor's failure to properly install or maintain SESC measures on this project will be borne by the Contractor.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PAYMENT FOR MINOR TRAFFIC DEVICES AND TRAFFIC REGULATOR CONTROL

OPR:JJG

1 of 1

APPR:BJO:DBP:07-19-11
FHWA:APPR:07-19-11

Delete Table 812-1 in subsection 812.04.E, on page 625 of the Standard Specifications for Construction, in its entirety and replace with the following.

Table 812-1 Partial Payment Schedule for Minor Traf Devices and Traffic Regulator Control

Percent of Original Contract Amount Earned	Total Percent of Unit Price Paid
First Use	15
25	30
50	55
75	80
90	100

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PAYMENT OF TEMPORARY TRAFFIC CONTROL DEVICES

OFS:CRB

1 of 1

APPR:CGB:MB:08-26-16

FHWA:APPR:09-13-16

Delete subsection 812.04.A Damage Compensation, on page 623 of the Standard Specifications for Construction, in its entirety and replace with the following:

A. Damage Compensation. Notify the Engineer of damaged temporary traffic control devices. Before replacement and disposal, allow the Engineer to verify the condition of damaged temporary traffic control devices eligible for payment. Damage will be assumed to have occurred from vehicular traffic unless otherwise documented. The Department will pay as follows, for replacing temporary traffic control devices or equipment that are placed appropriately and damaged by vehicular traffic, other than the Contractor's vehicles and equipment.. Devices will be assumed to be placed appropriately unless otherwise documented. Replacement will be made up to project completion (excluding water and cultivating), as follows:

1. The **Furnished** unit price for temporary traffic control devices paid for as furnished pay items, excluding Plastic Drums and 42 inch channelizing devices;
2. The unit price for devices not paid for as **Furnished**;
 - a. Plastic Drums and 42 inch Channelizing Devices will be paid for at a set rate of \$35 per Plastic Drum and \$18 per damaged 42 inch Channelizer.
 - i. Prior to payment the Plastic Drum or 42 inch Channeling Device must be classified as unacceptable, per the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features (ATSSA QG), and spray-painted with an X.
 - ii. All Plastic Drums and 42 inch Channelizing Devices that are classified as marginal, per the ATSSA QG, during the project, will have blue survey ribbon tied to the handle. MDOT will be responsible for marking marginal devices. Removal and replacement will take place as defined under the Quality Classifications and Requirements Section of the ATSSA QG and will be at no additional cost to the Department.
 - If at any time, any Contactor, is witnessed tampering with the marginal marking method, the Engineer may require all marginal devices on the project to be upgraded to acceptable outside the timeframes detailed in the ATSSA QG.
3. The manufacturer's invoice cost for devices required by the Engineer and not included in the unit price for other relevant pay items;
4. The manufacturer's invoiced cost for damaged equipment included in a lump sum pay item for maintaining traffic.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
USE OF 42-INCH CHANNELIZING DEVICES

OFS:RAL

1 of 1

APPR:CRB:MB:06-30-17
FHWA:APPR:07-21-17

Delete subsection 812.03.D.6, on page 605 of the Standard Specifications in its entirety and replace it with the following:

6. **42-inch Channelizing Devices.** Provide and install 42-inch tall, retro-reflective plastic channelizing devices as shown on the plans, or directed by the Engineer. Do not attach lights.
- a. **Daytime Use.** The Department will allow the daytime use of 42-inch channelizing devices in tapers and tangents for the following:
- i. Capital Preventative Maintenance (CPM) projects, pavement marking, chip seal, microsurface, and crack-filling projects;
 - ii. Any projects where the use of plastic drums restricts proposed lane widths to less than 11 feet, including shy distance; or
 - iii. Work durations of 12 hours or less.

The devices must be placed such that spacing does not exceed the maximum values described in Table 812-1:

Table 812-1		
Maximum Spacing for 42-inch Channelizing Devices		
Work Zone Speed Limit	Taper	Tangent
< 45 mph	1.0 S	2.0 S
≥ 45 mph	50 feet	100 feet
S=Work Zone Speed Limit (mph)		

- b. **Nighttime Use.** The Department will allow the nighttime use of 42-inch channelizing devices in tangents and tapers for the following:
- i. Capital Preventative Maintenance (CPM) projects, pavement marking, chip seal, microsurface, and crack-filling projects;
 - ii. Any projects where the use of plastic drums restricts proposed lane widths to less than 11 feet, including shy distance; or
 - iii. Work durations of 12 hours or less.

Place the devices a maximum distance of 50 feet apart in tangent sections, and a maximum of 25 feet apart in tapers. These spacing requirements apply for all speed limits.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PHYSICAL REQUIREMENTS FOR GEOTEXTILES

CFS:RBE

1 of 1

APPR:DMG:RWS:08-06-15

FHWA:APPR:08-11-15

Delete Table 910-1 on page 813 of the Standard Specifications for Construction in its entirety and replace with the following:

Table 910-1: Physical Requirements for Geotextiles

Geotextile Category	Property				
	Grab Tensile Strength (minimum) (pounds)	Trapezoid Tear Strength (minimum) (pounds)	CBR Puncture Strength (minimum) (pounds)	Permittivity per second (minimum)	Apparent Opening Size (maximum) (millimeters)
	Test Method				
	<i>ASTM D 4632</i>	<i>ASTM D 4533</i>	<i>ASTM D 6241</i>	<i>ASTM D 4491</i>	<i>ASTM D 4751</i>
Geotextile Blanket (a)	90	45	230	0.5	0.21
Geotextile Liner	200	75	440	0.5	0.21
Heavy Geotextile Liner	270	100	620	0.5	0.21
Woven Geotextile Separator (<50% elongation)	270	100	620	0.05	0.425
Non-Woven Geotextile Separator (>50% elongation)	200	75	440	0.05	0.425
Stabilization Geotextile	270	100	620	0.05	0.50
Silt Fence	100 (b)	45	---	0.1	0.60
Drainage Geocomposites	90	45	230	0.5	0.21
<p>a. For pipe wrap where backfill around the pipe meets granular material Class IIAA requirements; geotextiles, including knitted polyester sock, which meet the following minimum requirements in the applied condition are permitted: Mass/Unit Area: 3.0 oz/yd²; Mullen burst strength: 100 psi; maximum apparent opening size must be 0.30 mm for pavement and foundation underdrains, and 0.60 mm in other areas. The fluid displacement rate for the Mullen burst test equipment must be 170 mL/min ±5 mL/min. Subtract tare strength from the ultimate burst strength as specified in <i>ASTM D 3786</i>.</p> <p>b. Elongation at the specified grab tensile strength no greater than 40% for silt fence.</p>					

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION FOR
GEOTEXTILE, SEPARATOR, NON-WOVEN

DAV:TPA

1 of 1

APPR:JAT:DMG:03-11-18

a. Description. This work consists labor, equipment, and materials necessary to of furnish and place geotextile separator at the locations shown on the plans according to section 308 of the Standard Specifications for Construction except as modified herein.

b. Materials. Geotextile separator must conform to section 910 of the Standard Specifications for Construction except that it must be a non-woven geotextile.

c. Construction. Perform work in accordance with the appropriate sections 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 item:

Pay Item	Pay Unit
Geotextile, Separator, Non-Woven	Square Yard

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
RIPRAP, PLAIN, SALVAGED

TAY:GCY

1 of 1

C&T:APPR:RWS:DMG:05-19-11

a. Description. Remove existing riprap at the locations shown on the plans, stockpile as approved by the Engineer. Place geotextile liner and stockpiled riprap at the prepared location as approved by the Engineer.

b. Materials. Geotextile liner must meet the requirements of section 910 of the Standard Specifications for Construction.

c. Construction. Prepare grade for riprap placement, place geotextile liner and stockpiled riprap. Construct as shown on the plans.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following contract item (pay item):

Contract Item (Pay Item)	Pay Unit
Riprap, Plain, Salv.....	Square Yard

Payment for **Riprap, Plain, Salv** includes all labor, equipment and materials necessary to complete the work as described.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CULVERT ADJUST

SUP:CRG

1 of 1

C&T:APPR:DMG:DBP:03:26:12

a. Description. This work consists of excavating below existing pipe, re-adjusting existing sections of pipe and backfilling. This work must conform to section 401 of the Standard Specifications for Construction, details shown on the plans and this special provision.

b. Materials. Select pipe joint assemblies for use with culverts from the Qualified Products List (909.03).

Geotextile blanket must be in accordance with section 910 of the Standard Specifications for Construction.

c. Construction. Adjust those culvert sections showing signs of settlement or poor alignment, or that require adjustment to meet grade, as determined by the Engineer.

Excavate the existing embankment to a minimum of 6 inches below the proposed bottom of the pipe or end section. Place culvert bedding as directed by the Engineer and re-lay all existing sections of pipe true to the line and grade given, bells or grooves upgrade, ends fully and closely jointed, and with full, firm bearing throughout its length.

Wrap pipe joints with geotextile blanket. Provide geotextile blanket with a minimum width of 36 inches, and center it on the joint.

Backfill all adjusted culvert sections with material approved by the Engineer than can be compacted to at least 95 percent of maximum unit weight, contains no organic material and has a maximum unit weight of at least 95 pounds per cubic foot.

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
Culvert Adj.....	Foot

Culvert Adj includes all labor, equipment and materials necessary to complete the work as described. Adjusting culverts necessitated by the Contractor's operations will be at the Contractor's expense.

Any erosion control measures or restoration items required will be paid for separately.

Excess material must be disposed of in accordance with subsection 205.03 of the Standard Specifications for Construction. The costs associated with the disposal will be included in the pay item **Culvert Adj**.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
SLOPE RESTORATION, NON-FREEWAY

C&T:DMG

1 of 3

C&T:APPR:TWK:DBP:04-25-12

a. Description. This work consists of preparing all lawns and slopes on non-freeway projects designated for slope restoration on the plans or as directed by the Engineer and applying topsoil, fertilizer, seed, mulch with mulch anchor, mulch blanket, high velocity mulch blanket and permanent turf reinforcement mat to those areas. Turf establishment must be in accordance with section 816 of the Standard Specifications for Construction and Standard Plan R-100 Series, except as modified herein or otherwise directed by the Engineer.

b. Materials. The materials and application rates specified in sections 816 and 917 of the Standard Specifications for Construction apply unless modified by this special provision or otherwise directed by the Engineer. The following materials must be used on this project:

1. Seeding mixture as called for on the plans
2. Fertilizer, Chemical Nutrient, Class A
3. Topsoil Surface, Furnished or Salvaged, 4 inch. Remove any stones greater than 1/2 inch in diameter or other debris from all topsoil.
4. Mulch and Mulch Anchoring, Mulch Blanket and High Velocity Mulch Blanket
5. Permanent Turf Reinforcement Mat (TRM) must be 100 percent synthetic and consist of 100 percent ultraviolet (UV) stabilized polyolefin fibers sewn between two layers of black UV stabilized polypropylene netting with polyolefin thread. The TRM must meet the following "minimum average roll value" requirements:

Property	Test Method	Requirement
Mass/Unit Area	ASTM D 6566	10 oz/syd
Ultraviolet Stability @ 1000 hrs	ASTM D 4355	80 percent
Tensile Strength (MD)	ASTM D 6818	165 lbs/ft

Acceptance. Supply a Test Data Certification for the permanent TRM from one of the following manufacturers:

Recyclex - American Excelsior Co., Arlington, TX (800) 777-7645
P300 - North American Green, Poseyville, IN (800) 772-2040
Landlok 450 - Propex, Inc., Chattanooga, TN (800) 621-1273
PP5-10 - Western Excelsior, Mancos, CO (800) 833-8573

c. Construction. Construction methods must be in accordance with subsection 816.03 of the Standard Specifications for Construction. Begin this work as soon as possible after final grading of the areas designated for slope restoration but no later than the maximum time frames stated in

subsection 208.03 of the Standard Specifications for Construction. It may be necessary, as directed by the Engineer, to place materials by hand.

Shape, compact and assure all areas to be seeded are weed free prior to placing topsoil. Place topsoil to the minimum depth indicated above, to meet proposed finished grade. If the area being restored requires more than the minimum depth of topsoil to meet finished grade, this additional depth must be filled using topsoil or, at the Contractor's option, embankment. Furnishing and placing this additional material is included in this item of work.

Topsoil must be weed and weed seed free and friable prior to placing seed. Remove any stones greater than 1/2 inch in diameter or other debris. Apply seed mixture and fertilizer to prepared soil surface. Incorporate seed into top 1/2 inch of topsoil

Apply mulch at a rate of 2 tons per acre. Place Mulch Anchoring over the mulch at a rate specified in subsection 816.03.F of the Standard Specifications for Construction. Mulch Blanket and High Velocity Mulch Blanket must be placed in accordance with subsection 816.03.H of the Standard Specifications for Construction and as shown on Standard Plan R-100 Series.

Areas constructed with the TRM must be installed on prepared (seeded) grades as shown on the plans in strict accordance with the manufacturer's published installation guidelines. The top edge of the TRM must be anchored in a minimum 6 inch deep trench. Operation of equipment on the slope will not be allowed after placement of the TRM. No credit for splices, overlaps, tucks or wasted material will be made.

If an area washes out after this work has been properly completed and approved by the Engineer, make the required corrections to prevent future washouts and replace the topsoil, fertilizer, seed and mulch. This replacement will be paid for as additional work using the applicable contract items.

If an area washes out for reasons attributable to the Contractor's activity or failure to take proper precautions, replacement will be at the Contractor's expense.

The Engineer will inspect the seeded turf to ensure the end product is well established, weed free, in a vigorous growing condition, and contains the species called for in the seeding mixture.

If the seeded turf is not well established at the end of the first growing season, the Contractor is responsible to re-seed until the turf is well established and approved by the Engineer.

If weeds are determined by the Engineer to cover more than 10 percent of the total area of slope restoration, the Contractor must provide weed control in accordance with subsection 816.03.J of the Standard Specifications for Construction. Weed control will be at the Contractor's expense with no additional charges to the project.

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
Slope Restoration, Type _____	Square Yard

1. Place **Slope Restoration, Type A** in all areas not described in the other types of slope restoration and will be measured by area in square yards in place. **Slope Restoration, Type A**

includes all labor, equipment and materials required to install Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; and Mulch and Mulch Anchoring which will not be paid for separately but is included in the contract unit price for **Slope Restoration, Type A**.

2. Place **Slope Restoration, Type B** parallel (6 feet minimum) to the edge of the roadway, in areas that have a 1 on 3 slope and in any ditch with a grade less than 1.5 percent, or as directed by the Engineer. **Slope Restoration, Type B** will be measured by area in square yards in place. **Slope Restoration, Type B** includes all labor, equipment and materials required to install Topsoil Surface, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; and Mulch Blanket which will not be paid for separately but is included in the contract unit price for **Slope Restoration, Type B**.

3. Place **Slope Restoration, Type C** in areas that have a 1 on 2 slope, any ditch with a grade of 1.5 percent to 3 percent or as directed by the Engineer. **Slope Restoration, Type C** will be measured by area in square yards in place. **Slope Restoration, Type C** includes all labor, equipment and materials required to install Topsoil, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; and High Velocity Mulch Blanket which will not be paid for separately but is included in the contract unit price for **Slope Restoration, Type C**.

4. Place **Slope Restoration, Type D** in areas that have a slope steeper than 1 on 2, any ditch with a grade steeper than 3 percent or as directed by the Engineer. **Slope Restoration, Type D** will be measured by area in square yards in place. **Slope Restoration, Type D** includes all labor, equipment and materials required to install Topsoil, Furnished or Salvaged; Fertilizer, Chemical Nutrient, Class A; Seeding Mixture; and TRM which will not be paid for separately but is included in the contract unit price for **Slope Restoration, Type D**.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
WETLAND SEEDING

GR:CAV

1 of 6

APPR:LML:JW:12-14-12

a. Description. This work consists of furnishing and installing the seeding that is identified for the proposed wetland mitigation site. All work must be done in accordance with section 816 of the Standard Specifications for Construction except where noted in this special provision and as directed by the Engineer.

b. Materials.

1. Product, Delivery, Storage and Handling. Provide seed that is packaged individually according to species and kept dry and cool to ensure adequate protection against damage and maintain dormancy while in transit, storage or during planting operations. Seed must be less than 1 year old and stored as recommended by supplier.

Deliver all seed to the site in sealed containers and labeled in compliance with the Federal Seed Act and 1965 PA 329, Michigan Seed Law. Deliver large and small seed in separate containers.

Provide seed, when applicable, that the wetland seed supplier has treated to overcome dormancy mechanisms during the first growing season. Some of the specified species do not require this treatment.

A. Submittals. Submit for approval to the Engineer, at the pre-construction meeting, a written description of the proposed seed mixes indicating the following:

(1) Name and location of seed supplier(s).

(2) Geographic origin of each seed species.

(3) Percentage of Pure Live Seed (PLS) for each species or commitment by supplier to provide germination results.

(4) Proposed substitutions of species due to lack of availability, including species and amount substituted. All substitutions must be approved by the MDOT Wetland Specialist prior to seeding.

(5) Submit copies of all seed labels to Engineer, at least 30 days prior to starting work.

At the pre-construction meeting, submit a work schedule to the Engineer indicating the dates of each of the following events:

- Approximate collection dates for each species.

- Seed installation.
- Substantial completion of work.

B. Seed Testing Requirements. The seed weights noted indicate weight per acre in PLS and must mean the total amount of fresh new crop seed per acre for all species listed. In the event that the seed supplier is unable to verify the percentage of PLS prior to installation, the supplier must submit germination reports that identify the actual germination rates of each specified species. Based on these results, the Contractor must provide supplemental seeding for each species that does not meet the specified rates of PLS. All reports must be submitted within 3 months following seed collection and additional seeding will be required the following late fall or spring, whichever comes first.

C. Seed Mixture Composition. Ensure the seed mixtures are composed of the species listed (by weight). Weights of each species to be included in each mixture are also shown for a one acre application. Separate and group the seed by large and small seed as identified in the specified seed mix based on the number of seeds per ounce. When making substitutions, it is important to make a substitution with a similar type of species and number of seeds per ounce, not necessarily the weight of the species.

D. Seeding Fertilizers. Fertilizers for wetland seed mixes are not required.

E. Seeding Carriers. Provide seed carriers that are coarse screened dried sawdust no more than 1/4 inch in size or approved equivalent. Ensure the seed carrier is kept completely dry to prevent it from becoming too heavy. Mix the seed carrier with the small seed only, at a rate of 4 pounds of carrier to 1 pound of small seed. Large seed does not require a carrier.

2. Seeding Mixtures. Native seed must be obtained from sources within the same EPA Level III Ecoregion, or the next adjacent Ecoregion, preferably to the west or east. For more information, see the EPA Web site at: <http://www.epa.gov/wed/pages/ecoregions/leveliii.htm>

The following seed companies are suitable seed suppliers or an approved equal:

J. F. New, Native Plant Nursery
128 Sunset Drive
Walkerton, IN 46574
574-586-2412

Lafayette Home Nursery, Inc.
RR1, Box 1A
Lafayette, IL 61449
309-995-3311

Wetlands Nursery, Inc.
PO Box 14553
Saginaw, MI 48601
989-752-3492

A. Wooded Wetland Understory Mix. Apply emergent wetland seed mixture to the mitigation wetland as shown on the plans or as directed by the Engineer. No

and pumping may be allowed as directed by the Engineer. Upon completion of seeding, reestablish water levels as directed by the Engineer.

Do not apply materials over snow or ice. Do not apply seed, seed mixtures, or slurries with seed when wind conditions are such that materials would be carried beyond designated areas or materials would not be uniformly applied. Do not undertake seeding and planting activities during stormy weather when excessive precipitation may result in washing of seeds and plantings away from location intended. Do not sow seed where standing water is present. Do not install plant materials during periods of temperature extremes when atmospheric temperature may drop below 36 degrees F or rise above 90 degrees F.

Avoid soil compaction in planting zones as much as possible. Equipment access and travel should be routed around all planting areas, and repeat passes over the same area should be limited during all grading, topsoil application and decompaction work. Equipment having low unit pressure ground contact should be utilized whenever possible. Prior to seeding, repair any ruts, rills or gullies greater than 2 inches in depth to create smooth continuous grades.

2. Seeding Equipment.

A. Tractors and Crawlers. Must have low-pressure flotation tires or broad tracks so that soil compaction is minimized in areas of site preparation or seeding activities.

B. Disc. In good repair with sound unbroken blades; weighted, as necessary to achieve required tillage depth.

C. Rollers or Cultipackers. Minimum 6 inch diameter rollers; of sufficient weight to pulverize clods of soil. To be used following rough grading on subgrade soils as a preparation for installation of seedbed soils.

D. AerWay Shatterline. Roller tines must be 10 to 12 inches in diameter so that topsoil or organic-rich common fill and surface mulches are mixed into top 2 to 4 inches of subgrade. Weighting of this equipment must be minimal so as to avoid compaction of organic-rich common fill.

E. Hydraulic Seeder. Hydraulic seeding equipment must include a pump rated and operated at no less than 100 gpm and no less than 100 psi pressure. Tank must have a mechanical agitator with sufficient power to keep seed in suspension in the mixture.

F. Spinning Disc Seeder. When spinning disc seeders are used, mix individual seeds comprising mixture with an appropriate dispersal medium such as damp sterile sand or sawdust prior to sowing.

G. Tractor-drawn or Mounted Seeders. Provide with a calibrated adjustable gate opening providing uniform flow over a width adapted to work and able to drop seed directly on prepared seedbed.

3. Seasonal Limitations. The seeding must be done from April 1 to June 15 or from September 15 to first frost. Optimal wetland seeding time is October 1 through first frost to allow repeat freeze-thaw cycles to incorporate the seed into the substrate and provide cold stratification to break seed dormancy. The seeding must be complete before June 15 or

after September 15 of a given calendar year. Seeding must not be performed during periods of any snow cover.

4. Seed Installation. Layout of seed bed edges must be completed by the Contractor's surveyor locating the specified contour elevation shown on the plans. The Engineer reserves the right to adjust bed lines without adjusting total seeded area, to meet field conditions, at no additional cost to the Department.

Seed installation method(s) will be approved by the Engineer prior to seed installation. Seed installation method(s) selected must insure complete coverage of the areas to be seeded. Seed installation method(s) selected must be dependent on the season of installation (i.e., spring vs. fall) and must be appropriate for the type of seed installed. If the seed is installed in the spring, large seed must be installed with a no-till drill or, if one is not available, must be broadcast followed by pressing the seed with a roller or cultipacker. If the seed is installed in the fall, the large seed may be broadcast without pressing since the frost heave experienced in the following winter will accomplish this. In no event must the small seed be rolled or cultipacked since this seed requires surface sowing. Small seed must be installed separately from the large seed and must be mixed with a seed carrier to ensure proper distribution.

Planting depth for seed mixes must not be more than 1/4 inch deep. Wetland seeding must be performed while the wetland is dry: either immediately following construction prior to inundation or during periods of normal dry-down. Acceptable methods of wetland seed installation are listed below.

A. Broadcast Seeding. Apply the seed uniformly over the surface using a tractor-mounted combination seeder/cultipacker unit (Brillion, Truax Trillion or equal). The seeder must be calibrated to uniformly apply the seed at the specified rate. A cone seeder or other similar broadcasting equipment may also be used. Seed must be uniformly applied at the specified rates.

B. Drill Seeding. A rangeland-type no-till drill (Truax, Tye or equal) designed to plant native grasses and forbs may be used. The seeder must be calibrated to uniformly apply the seed at the specified rates. Equipment must be adjusted to prevent seed from being installed deeper than 1/4 inch into the soil.

C. Mulch. Blown and crimped straw mulch will be installed in all areas seeded. Straw mulch must be uniformly applied at a rate of 1.5 tons per acre immediately following seed installation. All blown straw must be crimped 1 to 4 inches into the soil. Do not apply mulch prior to seed installation. Do not install seed prior to hydromulch. If hydromulch is to be used, seed and mulch should be applied together in a single application.

5. Performance Standard. All seeded areas will be inspected by the Engineer at the end of the first growing season for signs of erosion and bare areas. All bare areas larger than 10 square feet will require reseeding with the seed mix appropriate to that location by the Contractor at no cost to the Department. Final acceptance of seeded areas will require 90 percent vegetative cover of originally seeded areas. All seeding applications must comply with the requirements of this special provision.

6. Final Acceptance and Warranty. The Contractor must warrant all plant material to be true to botanical name.

A. The Contractor will not be responsible for defects resulting from neglect by the Department, abuse or damage by others, or unusual phenomena or incidents beyond the Landscape Installer’s control which may result from natural causes such as floods, lightning, storms, freezing rains, severe predation, winds over 60 mph, fires or vandalism.

B. Establish a dense cover of specified herbaceous species on all wetland areas seeded under the contract. The Engineer will conduct a field inspection of all seeded areas at the end of the first and second full growing seasons. Final acceptance will be granted at the end of the second full growing season.

(1) Areas which do not meet the contract requirements must be reseeded within acceptable planting dates as directed by the MDOT Wetland Specialist.

(2) The MDOT Wetland Specialist will conduct a time meander search during the field inspections. This procedure consists of a random search of 20 percent of the seeded areas. Acceptance will be granted if the seeded areas meet the following parameters: 1) 80 percent of species seeded are present; 2) with 80 percent total cover. If these parameters are not met and/or any bare areas exist then the area must be reseeded. These areas must be reseeded as originally specified at no additional cost to the Department.

7. Cleaning, Removal and Restoration. Upon completion of seed installation, remove from the site and legally dispose of all trash and debris including any material removed during grade preparation. Restore existing wetland and upland areas damaged by operations under the contract. Restoration must include finish grading and seeding as required to match existing grade and/or wetlands and maintenance of restored areas. Any damage by the Contractor to established or newly seeded areas not within the project scope of work must be repaired and reseeded at no cost to the Department.

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
Wooded Wetland Understory Mix	Pound
Temporary Wetland Seed Mix.....	Pound

The contract unit price for the Pay Items above includes all site preparation, labor, equipment and materials required to complete the work, including dewatering if required and the proper storage of all seed materials, as specified herein and as detailed on the plans.

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
AGGREGATE BLEND

GND:JRM

1 of 1

APPR:XXX:YYYXX-XX-XX

a. Description. This work consists of providing all labor, equipment, and materials necessary to of furnish, mix the aggregates and place the aggregate blend on non-woven geotextile fabric at the locations shown on the plans or as directed by the Engineer.

b. Materials. Use materials in accordance with section 902 of the Standard Specifications for Construction specified herein.

1. Furnish Michigan class 6AA coarse aggregates obtained from natural aggregate meeting the gradation and physical requirements listed in Table 902-1 and Table 902-2 of the Standard Specifications for Construction.

2. Furnish Michigan class 29A coarse aggregates obtained from natural aggregate meeting the gradation and physical requirements listed in Table 902-1 and Table 902-2 of the Standard Specifications for Construction.

3. Furnish Michigan class 34G open graded aggregates obtained from natural aggregate meeting the gradation and physical requirements listed in Table 902-1 and Table 902-2 of the Standard Specifications for Construction.

c. Construction. Construction must conform to section 902 of the Standard Specification for Construction except as described herein.

Prepare a blend of Michigan class 6AA coarse aggregate with equal parts by volume (1:1 mix ratio by volume) using either Michigan class 29A coarse aggregate or Michigan class 34G open graded aggregate. Mix the two chosen aggregates on site prior to placement of aggregate blend on to the non-woven geotextile fabric. Place aggregate blend on non-woven geotextile fabric and wrap the aggregate blend so that it is completely encapsulated at the locations shown on the plans 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
Aggregate Blend	Cyd

Payment for **Aggregate Blend** includes all labor, equipment and materials required for the furnishing, placing and the shaping of the aggregate blend as described in this special provision and as directed by the Engineer.

Non-woven geotextile fabric is paid for separately.

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

"L" = S x W 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 CHECKED BY: BMM	JUNE 2006 PLAN DATE:	M0020a

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"

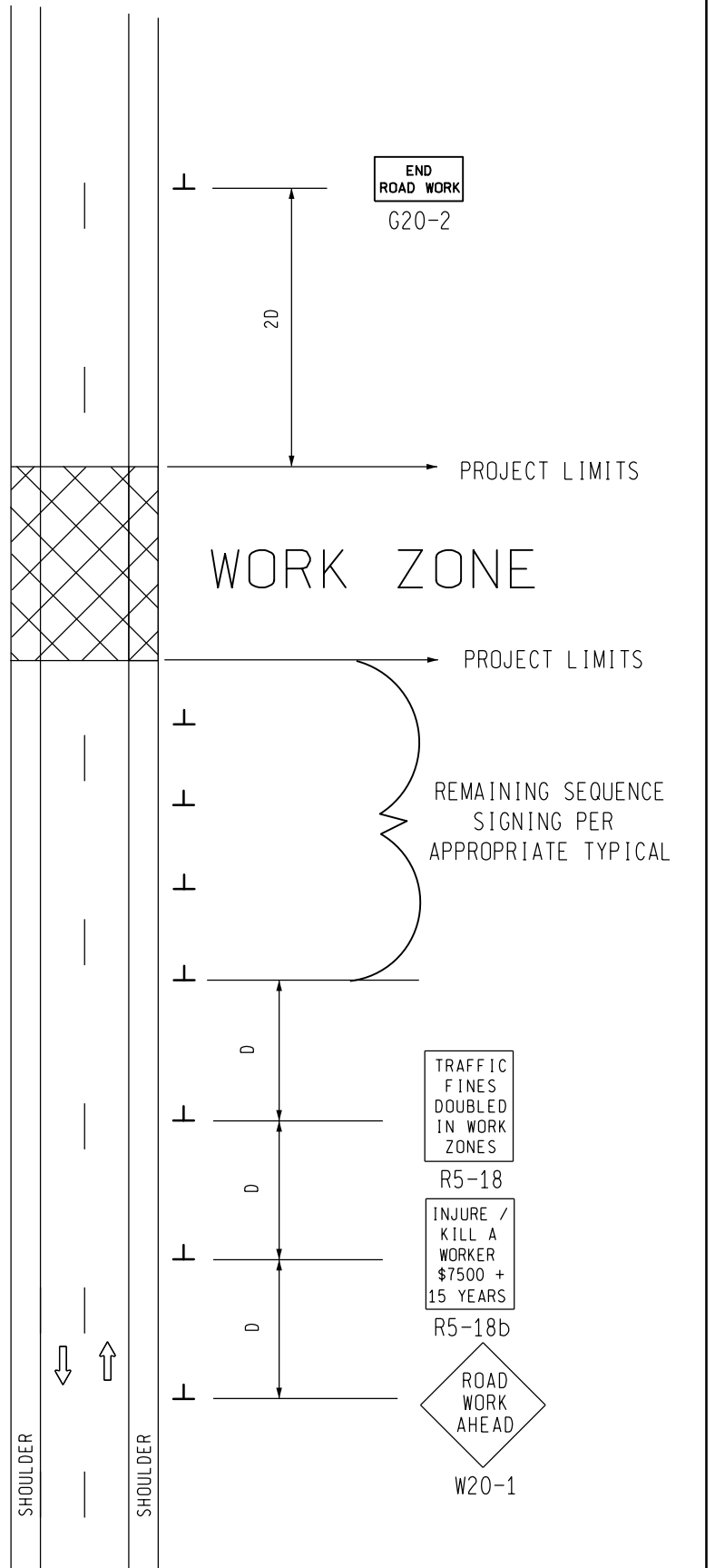
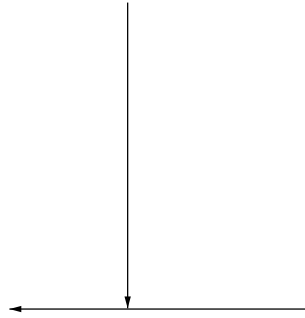
SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

* 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.

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TABLES FOR "L", "D" AND "B" VALUES		
	DRAWN BY: CON:AE:djf CHECKED BY: BMM	JUNE 2006 PLAN DATE:	M0020a
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SIGN PLACEMENT
IS THE SAME FOR
BOTH DIRECTIONS



SIGN = 48 f+2 - TYPE B
FOR ONE DIRECTION OF TRAFFIC
W20-1 QUANTITY INCLUDED WITH
APPROPRIATE TYPICAL FOR
SEQUENCE SIGNING

<p>TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL</p>	<p>TYPICAL ADVANCE SIGNING TREATMENT FOR INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS WHERE ALL TRAFFIC CONTROL DEVICES ARE REMOVED AT END OF EACH WORK DAY ON AN UNDIVIDED TWO-WAY ROADWAY</p>	
	<p>DRAWN BY: CON:AE:djf CHECKED BY: CRB</p>	<p>OCTOBER 2011 PLAN DATE:</p>
<p>FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0050a.dgn REV. 10/13/2011</p>		


NOT TO SCALE

NOTES

30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
35. THESE SIGNS ARE INTENDED TO BE USED WITHIN THE LIMITS OF THE TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY OTHER TEMPORARY SEQUENCE SIGNING EXCEPT AS SHOWN.

SIGN SIZES

G20-2	-	48" x 24"
R5-18	-	48" x 60"
R5-18b	-	48" x 60"
W20-1	-	48" x 48"

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL ADVANCE SIGNING TREATMENT FOR INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS WHERE ALL TRAFFIC CONTROL DEVICES ARE REMOVED AT END OF EACH WORK DAY ON AN UNDIVIDED TWO-WAY ROADWAY		
	DRAWN BY: CON:AE:djf CHECKED BY: CRB	OCTOBER 2011 PLAN DATE:	SHEET 2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0050a.dgn REV. 10/13/2011			

NOT TO SCALE






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

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

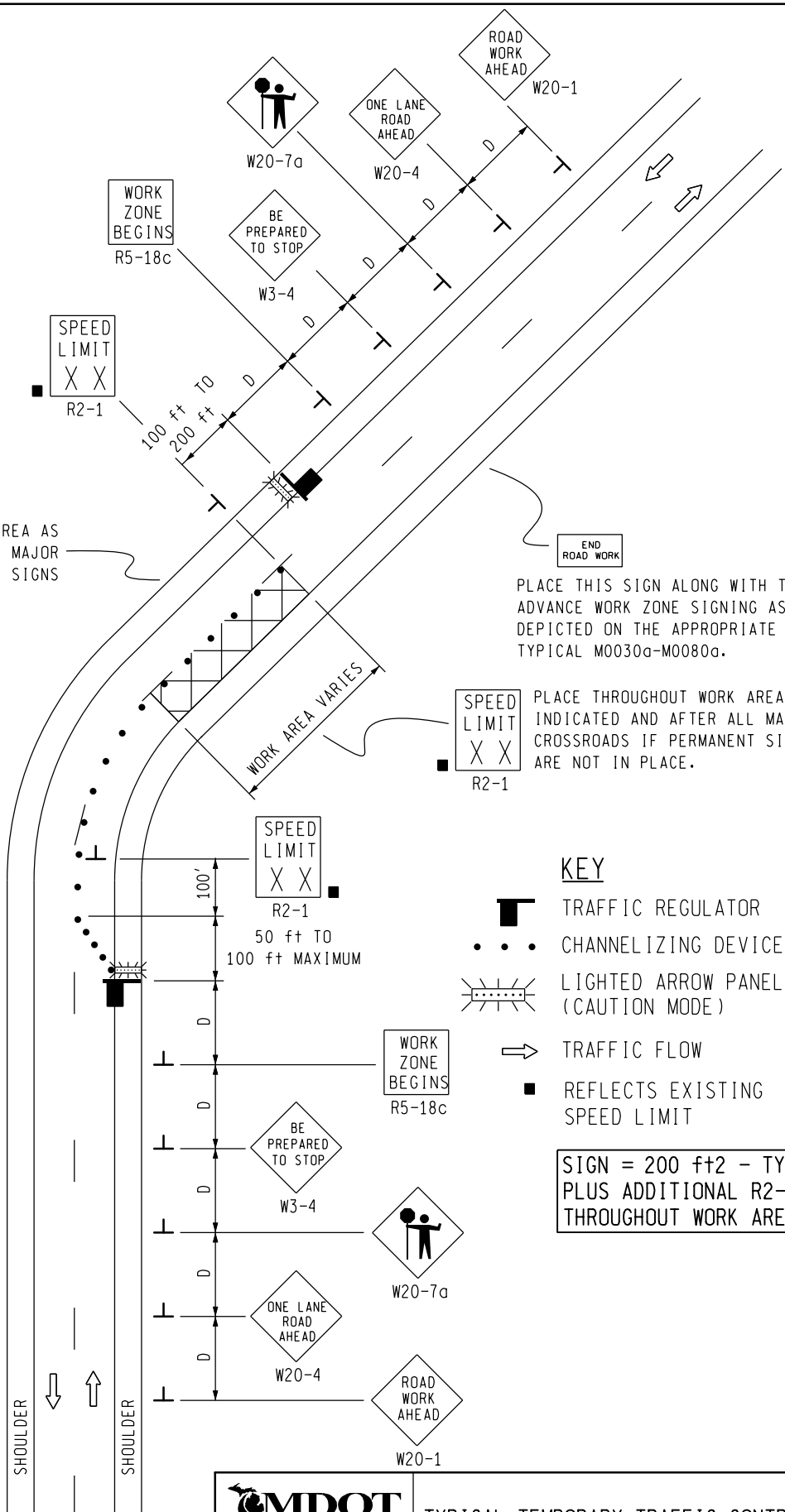
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KEY

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

SIGN = 200 ft± - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA



NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS, NO SPEED REDUCTION	
	DRAWN BY: CON:AE:djf CHECKED BY: CRB	OCTOBER 2011 PLAN DATE:


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 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.
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.
- 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"
 R2-1 REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

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 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS, NO SPEED REDUCTION		
DRAWN BY: CON:AE:djf	OCTOBER 2011	M0140a	SHEET
page 36 of 38 CON:CRB	PLAN DATE:		2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0140a.dgn REV. 10/04/2011			

**Bid Form Contract #518-470W:
M-222 Slope Repairs**

<u>Item</u>	<u>Quantity</u>	<u>Units</u>	<u>Unit Price</u>	<u>Total</u>
Mobilization, Max 10%	1	Lsum	_____	_____
Contractor Staking	1	Lsum	_____	_____
Excavation, Earth	165	Cyd	_____	_____
Riprap, Plain, Salv	275	Syd	_____	_____
Riprap, Plain	100	Syd	_____	_____
Aggregate Blend	160	Cyd	_____	_____
Geotextile, Separator, Non-Woven	3500	Syd	_____	_____
Conc, Grade S2	1	Cyd	_____	_____
Reinforcement Steel, Epoxy Coated	40	Lb	_____	_____
Culvert Adj	24	Ft	_____	_____
Culv End Section, Salv, 30 inch or less	1	Ea	_____	_____
Slope Restoration, Non-Freeway, Type D	750	Syd	_____	_____
Machine Grading	10	Sta	_____	_____
Wooded Wetland Understory Mix	3	Lbs	_____	_____
Channelizing Device, 42 inch, Fluorescent, Furn	50	Ea	_____	_____
Channelizing Device, 42 inch, Fluorescent, Oper	50	Ea	_____	_____
Minor Traffic Devices	1	Lsum	_____	_____
Flag Control	1	Lsum	_____	_____
Lighted Arrow, Type C, Furn	2	Ea	_____	_____
Lighted Arrow, Type C, Oper	2	Ea	_____	_____
Sign, Type B, Temp, Prismatic, Furn	248	Sft	_____	_____
Sign, Type B, Temp, Prismatic, Oper	248	Sft	_____	_____
Erosion Control, Gravel Access Approach	2	Ea	_____	_____
Erosion Control, Silt Fence	350	Ft	_____	_____
Erosion Control, Inlet Protection, Fabric Drop	4	Ea	_____	_____
<u>Total Bid Price</u>				

Specifications for Contract #518-470W:
M-222 Slope Repairs, contd.

State License Number _____
MDOT Prequalified Copy _____
Years of Experience _____

References of contracts completed in this type of installation:

Co. Name	Contact Person	Tele. #
_____	_____	_____
_____	_____	_____
_____	_____	_____

Warranty per specifications _____

Company Name _____
Company Address _____

Authorized Signature & Title _____
Written _____
Typed/Printed _____

Telephone No. _____ Fax No. _____
Email _____
Date _____
Fed. Emp. ID# _____