MATERIALS SOURCE GUIDE

January 2021

MDOT
Michigan Department of Transportation

CONSTRUCTION FIELD SERVICES DIVISION

FOREWORD

This manual has been prepared to give information and guidance to personnel associated with sampling, testing and inspection of materials used in Michigan Department of Transportation and Federal Aid Secondary projects. Its purpose is to supplement the Materials Quality Assurance Procedures (MQAP) Manual, Hot Mix Asphalt (HMA) Production Manual, Procedures for Aggregate Inspection, Density Control Handbook, and the Michigan Construction Manual to standardize procedures and assure adequate, uniform quality control.

Buy America step certification is required for pay items and materials as listed in the document located at the following web link: http://www.michigan.gov/documents/mdot/MDOT_BuyAmericaStepCertPayItems_401954_7.pdf Please also review the Special Provision for Source of Steel and Iron (Buy America), 12SP105(A) at the following web link: http://mdotcf.state.mi.us/public/dessssp/spss_source/12SP105(A)v7.pdf To reference The Buy America - Compliance Listing of Approved Manufacturers, Qualified Products List and Tested Stock Suppliers navigate to the following web link: http://www.michigan.gov/mdot/0,4616,7-151-9622_11044_11367-291113--,00.html

For copies of the most recent Materials Source Guide you can:

Download from the internet at web address:

http://www.michigan.gov/mdot/0,1607,7-151-9622_11044_11367-22505--,00.html

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Materials Source Guide

Periodically check the website for updates to the Materials Source Guide. Updated guides can be downloaded and printed.

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This manual is in accordance with the 2012 Standard Specifications for Construction.

DEFINITIONS

(References to the Materials Quality Assurance Procedures Manual-MQAP)

BASIS OF ACCEPTANCE: Refers to the method by which materials incorporated into MDOT projects are accepted. Below is a list of all the current Basis of Acceptance methods used by MDOT for acceptance of materials.

- **Visual Inspection (VI):** (See MQAP Section 1.06) Materials which may be visually inspected by MDOT personnel for acceptance or rejection. When a maximum VI limit is given for materials with another specified basis of acceptance, materials may be accepted by VI up to maximum VI quantities as indicated for that material, per item, per contract. (NOTE: All materials should be visually inspected prior to incorporation into the job without quantity limit, and may be rejected on that basis even though material may be acceptable on another basis.)

- **General Certification (Gen Cert):** (See MQAP Section 2.01) When this certification is specified as the basis of acceptance in the contract documents, it must be provided in accordance with Section 2.01 of the MQAP. A general certification must include a general description of the material(s), a list of the applicable specifications (ASTM, AASHTO, MDOT or other designations as appropriate), and a statement that the material(s) conforms to these specifications.

- **Test Data Certification (Test Data Cert):** (See MQAP Section 2.01) When this certification is specified as the basis of acceptance in the Materials Acceptance Requirements Table, in addition to the requirements of a General Certification, the certification must also include laboratory test report(s) for samples obtained from the same lot(s), batch, heat, etc. of material represented by the certification and tested according to applicable specifications (ASTM, AASHTO, MDOT).

- **Approved Manufacturer (Appr Mfr):** (See MQAP Section 2.02) A manufacturer who has submitted quality control documentation and/or material samples, and has been given approval status to certify specific material(s). General Certification per the requirements of Section 2.01 of the MQAP must accompany all Approved Manufacturer shipments to either an Approved Supplier location or the MDOT project site. Strict adherence to the requirements for Certification Documentation and Distribution is required of all Approved Manufacturers.

    - Approved Supplier: (See MQAP Section 2.02) When Approved Manufacturer is specified as the basis of acceptance in the contract documents, the material must be supplied by the manufacturer or, **without modification** to the material, by an Approved Supplier. An Approved Supplier must recertify Approved Manufacturer material(s). Strict adherence to the requirements for Certification Documentation and Distribution is required of all Approved Suppliers for the recertification of material(s). All original Approved Manufacturer General Certification(s) must accompany the material(s) shipment to the MDOT project site. When Approved Manufacturer is specified, a supplier may not distribute or recertify material(s) unless they have been granted Approved Supplier status.

- **Special Provision:** Revisions and additions to the Standard and Supplemental Specifications applicable to an individual project. Special Provisions have been reviewed and approved for use by MDOT. Materials acceptance may be defined by these documents included in the project proposals.

- **Fabrication Inspection (Fabrication Inspection):** Materials subjected to Fabrication Inspection are those that are typically manufactured offsite and shipped to the project. Refer to the proper subsection of Chapter 3 of the MQAP to find the requirements of the various Fabrication Inspections currently performed by MDOT.

- **Acceptance Testing (Test):** Sampling and testing of a material to determine compliance with specification requirements prior to incorporation into the project. Acceptance testing is the required basis of acceptance for some materials, as indicated in the contract documents, but may be applied to all materials regardless of the basis of acceptance.

OTHER DEFINITIONS

Manufacturer: A producer or fabricator of materials with control over the quality, workmanship and handling of material.

Supplier: A supplier has no control, other than through careful handling, over the quality and workmanship of material.

CERTIFICATION DOCUMENTATION
(See MQAP Section 2.01)

Where more than one piece of paper is included in the certification document, all pages must be numbered (__ of __)and include Contract I.D. in order to reunite them should they become separated.

Upon delivery to a supplier, all certified material, either bundled or palleted, shall be stenciled, stamped or otherwise identified as per ASTM, AASHTO, or MDOT specification to allow the manufacturer's material to be recognized and checked against the manufacturer's certification documentation.

General Certification – This documentation must consist of all of the following:

- Company name, address and contact information.
- Date the certification was produced.
- Contract number (Control Section/Job Number).
- Name of contractor.
- If material is certified by a supplier or Contractor, the manufacturer's name must be included on the certification.
- A list of all applicable specifications (ASTM, AASHTO, MDOT or other designations as appropriate) which the material is certified to meet.
- Any applicable specification modifier such as class, grade, type, etc.
- Name of material (MDOT designation and Spec Number).
- Identification markings on shipment as required by the General Materials Certification Procedures, in the Quality Assurance Procedures Manual, Section 2.01.03.B.
- A statement, signed by a responsible representative of the manufacturer, supplier, or Contractor that the material represented by the certification meets all MDOT listed specification requirements.

Test Data Certification - When this certification is specified as the basis of acceptance in the Materials Acceptance Requirements Table, in addition to the requirements of a General Certification, the following information must also be included:

- Laboratory test report(s) for samples obtained from the lot(s) of material represented by the certification and tested according to applicable specifications (ASTM, AASHTO, MDOT).

CERTIFICATION DISTRIBUTION

All certification documents except those issued by Approved Manufacturers/Approved Suppliers must be distributed as follows: Submit to the Construction/Project Engineer. The Contractor is ultimately responsible for all materials documentation distribution to the Project Engineer's office.

Approved Manufacturer/Approved Supplier Certifications must follow the above distribution requirements with the addition of one a copy being mailed, emailed, or faxed on the date of shipment to:

Michigan Department of Transportation
Construction Field Services Division
Materials Control
P.O. Box 30049
Lansing, Michigan 48909
Facsimile: (517) 322-5664
Email: MDOT-MaterialsControl@michigan.gov

CERTIFICATIONS AND RECERTIFICATIONS

Information required on certifications may vary from one material to the next. The following examples of certification documents are ONLY provided for reference.

MATERIALS SOURCE LIST
(See MQAP Section 1.04)

A completed and signed Materials Source List (Form 501) is required project documentation, and required for payment of associated items of work. The Materials Source List is not a substitute for other required material quality control and quality assurance documentation. Prime contractors are responsible for accurate submission of the Materials Source Lists for all materials including their subcontractors.

Michigan Department
Of Transportation
0501 (07/13)

MATERIALS SOURCE LIST

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INSTRUCTIONS: Use the **"Materials Source Guide"** for material name and specification number. Enter "SP" for MDOT SPEC # for materials specified by special provision. To avoid delays, submit as soon as possible. No testing of materials will be conducted until forms are received.
Submit to Construction/Project Engineer. Construction/Project Engineer to forward to Region Materials Supervisor. (Please Print or Type all Fields)

CONTROL SECTION

CONSTRUCTION/PROJECT ENGINEER	CONTRACTOR	JOB NUMBER

PROJECT LOCATION

MDOT SPEC #	MDOT MATERIAL/PRODUCT NAME	TYPE/SIZE or CLASS	APPX. QTY.	SOURCE OF MATERIAL (NAME, ADDRESS, LOCATION, Pit#)	FOR OFFICE USE ONLY (Owner Agency) BASIS OF ACCEPTANCE TEST	T.S.	V.I.	QPL	CERTS	REMARKS/OTHER

Check here if there are any revisions. Mark any revisions with an asterisk.

CONTRACTOR'S SIGNATURE	PRINT NAME	TELEPHONE NUMBER	DATE SUBMITTED
OWNER AGENCY (Rep. Signature)	PRINT NAME	TELEPHONE NUMBER	DATE RECEIVED

Enter Your Company Letterhead/Logo Here
(Name, Address, Contact Info)

GENERAL CERTIFICATION

Date: _____ Name of Contractor: _____

Control Section/Project #: _____ Project/Job Location: _____

We certify that the following described materials/products meet the specification requirements of the MICHIGAN DEPARTMENT OF TRANSPORTATION, ASTM, or AASHTO.

MDOT MATERIAL NAME: *As described in the MDOT Materials Source Guide*

MDOT SPEC #: *As described in the MDOT Materials Source Guide*

LOT #, HEAT OR IDENTIFICATION:

CLASS, GRADE OR TYPE:

SIZE OR WEIGHT:

Signature of Company Representative

Printed Name of Company Representative

Title of Company Representative

DISTRIBUTION: Submit to the Construction/Project Engineer

Example

Enter Your Company Letterhead/Logo Here
(Name, Address, Contact Info)

APPROVED SUPPLIER RECERTIFICATION

Contract ID:
Control Section/Job #: _____ DATE: _____

CONTRACTOR: _____

We certify that the following described material meets the specification requirements of the MICHIGAN DEPARTMENT OF TRANSPORTATION for the above project and this material is certified by the manufacturers indicated below.

MDOT MATERIAL NAME: *As described in the MDOT Materials Source Guide*
MDOT SPEC #: *As described in the MDOT Materials Source Guide*
MANUFACTURER:
LOT, HEAT OR IDENTIFICATION:
QUANTITY:

MDOT MATERIAL NAME: *As described in the MDOT Materials Source Guide*
MDOT SPEC #: *As described in the MDOT Materials Source Guide*
MANUFACTURER:
LOT, HEAT OR IDENTIFICATION:
QUANTITY:

MDOT MATERIAL NAME: *As described in the MDOT Materials Source Guide*
MDOT SPEC #: *As described in the MDOT Materials Source Guide*
MANUFACTURER:
LOT, HEAT OR IDENTIFICATION:
QUANTITY:

All steel furnished on this certification is of domestic origin and is in compliance with the project "Buy America" provision.

Signature of Company Representative

Printed Name of Company Representative

Title of Company Representative

DISTRIBUTION: Submit to the Construction/Project Engineer. Submit one additional Copy MAILED or FAXED to Construction Field Services Division, MDOT, P.O. BOX 30049, LANSING, MI 48909. FAX # (517)322-5664 or via email to MDOT-MaterialsControl@michigan.gov , COMPLETE ON DATE OF MATERIAL SHIPMENT.

Example

MATERIALS ACCEPTANCE REQUIREMENTS TABLE
DEFINITIONS

Sampling Frequency: (**If Required**) Amount of material or number of items, as defined in the Materials Acceptance Requirements Table or other contract documents, which require a sample when submitting material to the Construction Field Services Division for testing.

Size of Sample: **Minimum** size of sample required for testing as defined in the Materials Acceptance Requirements Table or other contract documents.

Maximum VI Quantity: Maximum amount of material which can be accepted by visual inspection for each material, per item, per project.

Remarks: Special notes pertaining to individual materials.

Special Instructions: More detailed information pertaining to particular types of materials, and referenced in "Remarks" or listed in the Materials Source Guide.

NOTE: When the Basis of Acceptance is not “Test”, the sampling criteria provided may be used as guidance if the Project/Construction Engineer determines there may be a problem with the material and requests sampling and testing.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
401.03E End Section Grate for Culverts	VI	-	-	-	See Standard Plans for Sizes.
401.03E Precast Concrete Headwalls	Gen Cert	-	-	-	24" or less. For larger than 24" construct per Section 706 of Standard Specifications.
404.02C Underdrain Outlet Endings	VI	-	-	-	See Standard Plans.
501.02 Asphalt, Release Agents	VI	-	-	-	
NOTE: Must be approved by the project engineer. No fuel or oil based agents.					
502.02B Overband Crackfill	VI See Remark	-	-	-	Must be a Qualified Product (502.02B).
603.03B2 Adhesive Systems for Grouting Dowel Bars and Tie Bars for Full-Depth Concrete Pavement Repairs	VI See Remark	-	-	-	Must be a Qualified Product (603.03B2).
NOTE: Use for grouting to existing concrete in the same direction of traffic in the same lane as the repair. For grouting lane ties (deformed bars positioned transverse to the direction of traffic located between traffic lanes) select from Adhesive Anchor Systems for Structural Anchors and Lane Ties (712.03J).					
603.03B11 Bond Breaker Tape	VI	-	-	-	
702.02A Standard Mortars and Grouts	VI	-	-	-	
702.02B Non-Shrinking Mortar and Grout, Type H-1(Non-Metallic) Pre-Mixed	VI See Remark	-	-	-	Must be a Qualified Product (702.02B).
702.02C Admixture for Expansive Grout, Type E-1	Test Data Cert	-	-	-	
NOTE: Certification to include manufacturers recommended dosage per sack of cement.					
703 Prepackaged Hydraulic Fast Set Mortar	VI See Remark	-	-	-	Must be a Qualified Product (703).
706.03K4 Expansion Joint Devices for Bridges	See Remark	-	-	-	See project plans for list of approved devices and details.
706.03S Penetrating Water Repellent (Protective Coating for Concrete)	VI See Remark	-	-	-	Must be a Qualified Product (706.03S).

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
707.02 Bushings for Pins and Link Plates	VI See Remark	-	-	-	Must be a Qualified Product (707.02).
708.01 Structural Prestressed Concrete Construction	Fabrication Inspection	-	-	-	See Chapter 5 of the Structural Fabrication Quality Manual for Approved Supplier List and section 2.2. See Special Instructions.
710.03D Waterproofing Shotcrete	VI	-	-	-	
712.03A1c Abrasive, Low Dusting	Gen Cert	-	-	-	See Section 715.02.
712.03D Epoxy Mastic	VI	-	-	-	
712.03J Adhesive Anchor Systems for Structural Anchors and Lane Ties	VI See Remark	-	-	-	Must be a Qualified Product (712.03J).
712.03K Structure Expansion Anchors (Mechanical Expansion Anchors)	VI See Remark	-	-	-	Must be a Qualified Product (712.03K). Pull-out testing is required see MQAP Manual Section 3.03.
712.03L Mechanical Reinforcement Splicing	VI See Remark	1 per project	2 splices	-	See Special Instructions. Must be a Qualified Product (712.03L).
712.03X Grout Under Masonry Plates	VI	-	-	-	
712.03Y Embedded Galvanic Anodes	VI See Remark	-	-	-	Must be a Qualified Product (712.03Y).
713.02B Sealant for Perimeter of Beam Repairs	VI See Remark	-	-	-	Must be a Qualified Product (713.02B).
715.02 Coating Systems for New Hanger Assemblies	VI See Remark	-	-	-	Must be a Qualified Product (915).
715.02 Abrasive, Low Dusting	VI See Remark	-	-	-	Must be a Qualified Product (715.02).
715.02 Abrasive, Steel Grit	VI	-	-	-	Verify uniform profile after blasting of 1 to 2.8 mils per SSPC.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
716.02 Abrasive, Low Dusting	VI See Remark	-	-	-	See Section 715.02.
803.02B Detectable Warning Surfaces	VI See Remark	-	-	-	Must be a Qualified Product (803.02B).
804.01 Glare Screen	VI	-	-	-	Included in Concrete Spec.
808.03C Temporary Fence Materials	VI	-	-	-	
810.03O Bridge Sign Connections	Fabrication Inspection	-	-	-	See Section 2.4 of the Structural Fabrication Quality Manual.
811.03D1 Waterborne, Liquid Pavement Marking Materials	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D1).
811.03D2 Low Temperature Waterborne, Liquid Pavement Marking Materials	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D2).
811.03D3 Regular Dry Paint, Liquid Pavement Marking Materials	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D3).
811.03D4 Cold Plastic Tape, Preformed Pavement Marking Material	VI See Remark	-	-	-	MQAP Manual Section 5.16. Must be a Qualified Product (811.03D4).
811.03D5 Thermoplastic Liquid Pavement Marking Materials	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D5).
811.03D5 Thermoplastic, Blocks Rumble Strips and Snowmobile Crossings	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D5).
811.03D6 Thermoplastic, Sprayable, Liquid Pavement Marking Materials	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D6).
811.03D7 Polyurea, Liquid Pavement Marking Materials	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D7).
811.03D8 Modified Urethane, Liquid Pavement Marking Materials	VI See Remark	-	-	-	MQAP Manual Section 5.15. Must be a Qualified Product (811.03D8).
811.03D9 Preformed Thermoplastic, Preformed Pavement Marking Material	VI See Remark				MQAP Manual Section 5.15. Must be a Qualified Product (811.03D9).

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
901 Cement	Appr Mfr	See Remark	10 lb	45 ton	See Special Instructions, see MQAP Manual Section 2.06.
901.06 Slag Cement	Appr Mfr	-	10 lb	-	See Special Instructions for Cement.
901.07 Fly Ash, Pozzolanic Admixtures for Concrete	Appr Mfr	-	10 lb	-	See Special Instructions for Cement, see MQAP Manual Section 2.07
902 Coarse Aggregates	Test	See Remark	50 lb	100 ton	See Special Instructions Refer to Chapter 3 of the Procedures for Aggregate Inspection Manual for sampling information. **See Current List of all Prequalified Aggregate Suppliers at Construction Field Services Web Page.** Actual Current List of Prequalified Aggregate Suppliers web page address: https://www.michigan.gov/documents/mdot/MDOT_Prequalified_Aggregate_Supplier_List_691933_7.pdf
902 Dense-Graded Aggregates	Test	See Remark	50 lb	500 ton	
902 Open-Graded Aggregates	Test	See Remark	50 lb	100 ton	
902 Granular Material Class I	Test	See Remark	50 lb	100 ton	
902 Granular Material Class II (Subbase), Class IIA and Class IIAA	Test	See Remark	50 lb	500 cyd	
902 Class II (Abutment B. F.)	Test	See Remark	50 lb	100 cyd	
902 Granular Material Class III	Test	See Remark	50 lb	500 cyd	
902 Granular Material Class IIIA	Test	See Remark	25 lb	100 cyd	
902 Fine Aggregate	Test	See Remark	25 lb	100 ton	
902 Mineral Filler for HMA Mixtures	Test See Remark	1 per project	1 qt	10 ton	Refer to Section 902.11 of the 2012 Standard Specifications.
903.01 Air Entraining Admixtures	VI See Remark	-	-	-	Must be a Qualified Product (903.01).
903.02 Liquid Chemical Admixtures	VI See Remark	-	-	-	Must be a Qualified Product (903.02).
903.03 Latex Admixture for Concrete	Appr Mfr	1 per lot	1 qt	-	
903.04 Calcium Chloride Concrete Accelerators	VI See Remark	-	-	-	Note the chemical composition.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
903.06 Membrane Curing Compound	Test Data Cert	1 per lot or batch	1 qt	200 gal	
NOTE: Curing compounds must not be used after ONE year from manufacture. Date of manufacture must be clearly printed on the outside of containers.					
903.07A Interim Curing (Linseed Oil Based)	Test Data Cert	1 per lot or batch	1 qt	50 gal	See Note for 903.06 above.
903.07C Insulating Blanket	Test Data Cert	-	-	10 sheets	
903.07D Polystyrene Insulation	Test Data Cert	-	-	-	
904.03A Asphalt Binder for HMA Mixtures	See Remark	1 per batch	(2) 1 qt containers	-	See Special Instructions.
904.03B Liquid Asphalt (MC)	Gen Cert	1 per batch	See Remark	-	1 gal from the top and 1 gal from the bottom of tank.
904.03B Liquid Asphalt (RC-250)	Gen Cert	1 per batch	2 qt	5 gal	
904.03C Emulsified Asphalt	Appr Mfr * See Remark	See Remark	See Remark	-	See Special Instructions.
905.03 Bar Reinforcement (Uncoated)	Appr Mfr *	1 per project per mfr per size	See Remark	500 lb	See Special Instructions.
905.03 Bar Reinforcement (Epoxy Coated) 1. Bar 2. Epoxy Coating Companies 3. Epoxy Coating Material (905.03C)	Appr Mfr * Appr Mfr * VI See Remark	1 per project per mfr per size	See Note	500 lb	See Special Instructions. Epoxy coating must be a Qualified Product (905.03C).
905.03D Bar Chairs and Wire Ties for Epoxy Coated Steel Reinforcement	VI	-	-	-	

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
905.06 Welded Steel Wire Reinforcement (Mesh)	Appr Mfr *	1 per project per mfr	See Remark	500 syd	See Special Instructions.
905.07 Strand for Prestressed Concrete	Appr Mfr *	1 per heat	2 pcs each 60 in long	-	See Special Instructions.
905.08 Tendons for Post Tensioning of Box Beams (Prestressing Strand)	Appr Mfr * See Remark	1 per heat	2 pcs each 60 in long	-	See Special Instructions.
905.08 Tendons for Post Tensioning of Box Beams (Post Tensioning Bar)	Test	1 per heat per project	2 pcs each 30 in long	-	
906.04 Structural Steel	Fabrication Inspection	-	-	-	See Section 2.3 of the Structural Fabrication Quality Manual. See Special Instructions.
906.05 Foundation Piles (Steel H Piling and Special Sections, Steel Shells for Cast-in- Place Concrete Piles and Pile Points)	Test Data Cert	-	-	-	
906.05 Pile Cutoffs	Gen Cert	-	-	-	
906.06 Steel Piles (Temporary and Permanent Steel Sheet Piling)	Gen Cert	-	-	-	
906.07 High Strength Steel Bolts, Nuts, and Washers for Structural Joints	Test	1 per dia per length per heat per project	3 assemblies	-	See Special Instructions.
906.09 Shear Developers (Studs)	VI See Remark	-	-	-	Must be a Qualified Product (906.09).
907.03A - C Woven Wire Fence (Woven Wire Fabric, Barbed Wire, Smooth Line Wire)	Test Data Cert	1 per project per mfr	Full width of roll 5 ft 6 ft 4 ft	400 ft	
907.03D Woven Wire Fence (Steel Posts)	Test Data Cert	1 per project per mfr	1 post	25 posts	
907.03E Woven Wire Fence (Treated Wood Posts)	See Remark	-	-	-	See Section 912.07B.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
907.03F Woven Wire Fence (Gates)	VI	-	-	-	
907.04A Steel Chain Link Fence (Fabric)	Test Data Cert	See Remark	5 ft full width of roll	250 ft	1 per height and/or mesh size, per project and 1 per mfr per project.
907.04B Steel Chain Link Fence (Tension Wire)	Gen Cert	1 per project per mfr	3 ft	500 ft	
907.04C Steel Chain Link Fence (Post for Fence and Gates), (Pedestrian Fence and Structure Fencing (Steel))	Test Data Cert	1 per project per mfr	1 post	25 posts	See Special Instructions.
NOTE: An alternative zinc/clear coat system will be allowed for pipe sections only. This alternative coating system shall comply with subsection 907.03D of the Standard Specifications for Construction.					
907.04C Steel Chain Link Fence (Top Rail), ((Horz. Rail) (Pedestrian Fence))	Test Data Cert	1 per project per mfr See Remark	5 ft	250 ft	See Special Instructions.
907.04D & E Steel Chain Link Fence (Gates, Fence Fittings and Hardware)	VI	-	-	-	
907.05A High Tensile Wire Fence (Wire)	Test	1 per project per mfr	3 ft	250 ft	
907.05B High Tensile Wire Fence (Treated Wood Posts)	See Remark	-	-	-	See Section 912.07B.
907.05C High Tensile Wire Fence (Hardware)	VI	-	-	-	
907.06 Protective Fence	VI	-	-	-	
908 Castings, Manhole **908.03** Malleable Iron **908.04** Steel **908.05** Gray/Ductile Iron	VI	-	-	-	
908.07 Sheet Lead	Gen Cert	-	-	25 sft	
908.08 Sheet Copper	Gen Cert	1 per consignment	13 in square or equivalent area	25 sft	May be accepted in field if weight requirements can be documented.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
908.09A Tubing, Steel Railings (Base Plate, Angle, and Non-Tubular Post Elements)	Fabrication Inspection	-	-	-	See Structural Fabrication Quality Manual Section 2.3.
908.09B Tubing, Steel Railings (Rail Elements and Tubular Post Elements)	Fabrication Inspection	-	-	-	See Structural Fabrication Quality Manual Section 2.3.
908.09C Tubing, Steel Railings (Hardware)	Test	1 per heat per diameter per project	1 assembly	-	See Special Instructions.
908.10 Hardware for Timber Construction	VI	-	-	-	
908.11A Guardrail, Steel Beam Elements, End Sections	Appr Mfr *	1 per project per mfr	1 piece at least 1 ft length	125 ft	Including Anchorage, Bridge, Shoes, Departing End Terminals.
908.11A Guardrail Approach Terminals	Appr Mfr *	-	-	-	
908.11B & C B. Hardware C. Steel Sleeves, Soil Plates, Bearing Plates, Backup Plates	VI	-	-	-	Item supplied by guardrail supplier.
908.11B Wire Rope	Gen Cert	-	-	-	
908.12 Steel Posts for Beam Guardrail	Appr Mfr *	1 per 1000 posts or fraction thereof	1 post	25 posts	
908.13 Reflective Washers	VI See Remark	-	-	-	Inspect galvanizing, dimensions and type of sheeting.
908.14 Anchor Bolts, Nuts, and Washers	Test	1 per heat per diameter per project	1 assembly	-	See Special Instructions.
908.14D Anchor Bolts and Nuts for Other Purposes	Gen Cert	1 per heat per diameter per project	1 assembly	-	See Special Instructions.
909.01 Recycled Rubber Adjusting Rings for Manholes and Drainage Castings	VI See Remark	-	-	-	Must be a Qualified Product (909.01).

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
909.03 Watertight Joint Systems	VI See Remark	-	-	-	Must be a Qualified Product (909.03).
909.03 Gasket, Compression (O-Rings)	VI	-	-	-	Part of Watertight Joint System.
909.03 Gasket, External Rubber Type	VI	1 per lot or shipment	18 in length full width of gasket	-	Part of Watertight Joint System.
909.04A Reinforced Concrete Pipe	Appr Mfr *	1 percent of number of pcs of each size	See Remark	5 pieces of 42 in or smaller	See Special Instructions.
909.04B Reinforced Concrete Elliptical Pipe	Appr Mfr *	1 percent of number of pcs of each size	See Remark	5 pieces of 42 in or smaller	See Special Instructions.
909.04C Non-Reinforced Concrete Pipe	Appr Mfr *	See Remark	See Remark	10 pcs	See Special Instructions.
909.04D Precast Concrete Box Sections	Appr Mfr * See Remark	-	-	-	Spans 20 ft. and greater (measured from inside of exterior walls, parallel to the roadway centerline) require QA inspection. QA inspection may be required for spans from 10-20 ft. Box = 4 sided. See section 2.1 of the Structural Fabrication Quality Manual. See Special Instructions.
909.04E Precast Concrete End Section for Culverts and Sewers	Appr Mfr *	1 percent of number of pcs	Full size units	10 pcs	Strength test by coring or cylinders, VI dimensions and conditions. Test for air content. .
909.04G Precast Concrete Three-Sided or Arch Culverts	Appr Mfr See Remark	-	-	-	Spans 20 ft. and greater (measured from inside of exterior walls, parallel to the roadway centerline) require QA inspection. QA inspection may be required for spans from 10-20 ft. See section 2.1 of the Structural Fabrication Quality Manual. See Special Instructions.
909.05A Corrugated Steel Pipe	Appr Mfr *	See Remark	See Remark	-	See Special Instructions.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
909.05A1 Corrugated Steel Sheets (Galvanized)	Gen Cert	See Remark	See Remark	-	See Special Instructions.
909.05A1 Polymer Coating, Galvanized Corrugated Steel Pipe	VI See Remark	-	-	-	Coating must be from Qualified Products List (909.05A1).
909.05A4 Coupling Bands	Gen Cert	-	-	5 pcs	
909.05B Corrugated Aluminum Alloy Sheet	Gen Cert	See Remark	See Remark	25 sheets	See Special Instructions.
909.05B Corrugated Aluminum Alloy Pipe	Gen Cert	1 per 1000 ft	See Remark	250 ft	Sample Size: A 6 in by 3 in (minimum) section cut from the end of the pipe avoiding the seams. Do not damage coating.
909.05C Steel End Section	Gen Cert	-	-	4 pcs	
909.05D 1. Steel Pipe (Jacked-in-Place)	Gen Cert	-	-	-	
909.05D 2. Casing, Steel Pipe	VI	-	-	-	
909.06 1. Corrugated Polyethylene Pipe (CPE/HDPE), (Smooth Lined Type S)	See Remark	-	-	100 ft	See MQAP Chapter 3.10.
909.06 2. Corrugated Polyvinyl Chloride (CPV) Pipe	Test	1 per 1000 ft	See Remark	12 in. dia and over, 100 ft	Over 12 in. dia- one 10 ft and one 6 ft. length plus coupling.
909.06 3. Plastic Pipe Class A, B and F Bury (CPE/HDPE & CPV)	VI See Remark	-	-	-	Must be a Qualified Product (909.06).
909.06 4. Smooth Polyvinyl Chloride (PVC) Pipe and Fittings for Sanitary Sewer	VI	1 per 6000 ft	1 piece, 5 ft in length	-	Sample must include bell end of pipe.
909.07A Pipe for Underdrains Smooth Perforated Plastic Pipe (PVC)	Test	1 per 2500 ft or fraction thereof	5 ft length	250 ft	Sample must include bell end of pipe.
909.07A1 Pipe for Underdrains Acrylonitrile-Butadiene-Styrene (ABS)	Test	1 per 6000 ft	1 piece, 6 ft in length	600 ft	If bell and spigot joint, sample from bell end.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
909.07B Pipe for Underdrains Corrugated Plastic Tubing (Perforated and Non-Perforated) (Wrapped and Non-Wrapped)	Appr Mfr * 4-, 6-, or 8-in dia	1 per 5000 ft sample from coils	See Remark	250 ft	Sample Size, one 10 ft length plus coupling. For perforated tubing wrapped in fabric, tie fabric securely in place before cutting sample. Do not disturb fabric after cutting.
909.07C Outlet Pipe for Underdrains 1. Polyvinyl Chloride (PVC) Pipe	Test	1 per 2500 ft or fraction thereof	5 ft length	250 ft	See 404.02C for Underdrain Outlet Endings. Sample must include bell end of pipe.
909.07C Outlet Pipe for Underdrains 2. Corrugated Steel Pipe	Appr Mfr *	See Remark	See Remark	-	See Special Instructions for 909.05A,. See 404.02C for Underdrain Outlet Endings.
909.07C Outlet Pipe for Underdrains 3. Corrugated Aluminum Alloy Pipe	Gen Cert	1 per 1000 ft	6 in x 3 in	250 ft	See 404.02C for Underdrain Outlet Endings. See 909.05B.
909.08A Bridge Deck Downspouts	VI	-	-	-	
909.08B Culvert, Downspouts 1. Corrugated Steel Pipe	Appr Mfr *	See Remark	See Remark	-	See 909.05A Corrugated Steel Pipe.
909.08B Culvert, Downspouts 2. Corrugated Aluminum Alloy Pipe	Gen Cert	1 per 1000 ft	6 in x 3 in	250 ft	See 909.05B.
909.08B Culvert, Downspouts 3. Corrugated Polyethylene Pipe (Corrugated Type C) (CPE/HDPE)	Test	1 per 1000 ft	See Remark	<12 in. dia up to 250 ft ≥12 in. dia up to 100 ft	A sample consists of one 10-foot-long piece, one 6-foot-long piece, and one coupling.
909.08C Bridge Deck Drain Extensions (Polyethylene)	Gen Cert	-	-	-	
909.09 Cold Applied Pipe Joint Sealer (Mastic)	VI	1 per shipment from a single container	1 qt	-	
909.10 Drainage Marker Post	See Delineator Posts	-	-	-	
910.03A Geotextiles 1. Blankets 2. Filter Bags	Test	See Remark	See Remark	See Remark	See Special Instruction 910.03. Anticipate up to 28 calendar days for the testing of geotextile samples.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
910.03A Knitted Sock Pipe Wrap	See Remark	-	-	-	See 909.07B Certified with Corrugated Plastic Tubing.
910.03B Liner for Rip-Rap	Test	See Remark	See Remark	See Remark	See Special Instruction 910.03. Anticipate up to 28 calendar days for the testing of geotextile samples.
910.03B Liner for Heavy Rip-Rap	Test	See Remark	See Remark	See Remark	See Special Instruction 910.03. Anticipate up to 28 calendar days for the testing of geotextile samples.
910.03C Separator/Stabilization Geotextile	Test	See Remark	See Remark	See Remark	See Special Instruction 910.03. Anticipate up to 28 calendar days for the testing of geotextile samples.
910.03D Geogrids	Test	1 per type per shipment	1 pc 6 ft long full roll width	-	Sample must be rolled not folded. Anticipate up to 21 calendar days for the testing of geogrid samples.
910.04 Silt Fence; (Geotextile Fabric only)	VI See Remark	-	-	-	Must be a Qualified Product (910.04).
910.05A Prefabricated Drainage System	Test	1 per 10,000 ft or less	See Remark	500 ft	See Special Instruction 910.05. Suppliers must provide separate samples of filter wrap geotextile and polymer core.
910.05B Wall Drain	Test	1 per 2000 ft or less	See Remark	250 sft	See Special Instruction 910.05. Suppliers must provide separate samples of filter wrap geotextile and polymer core.
911 Water	Test See Remark	1 per source	1 qt	-	Water approved for drinking by the Michigan Dept of Public Health may be used without sampling and testing.
912.05 Structural Timber and Lumber	Appr Mfr *	Each Charge	22 cores See Remark	-	48 cores if treatment is creosote.
912.06 Timber Piles	VI	-	-	-	

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
912.07B Treated Wood; Fence Posts, Guide Posts, Guard Posts and Mail Box Posts	VI	-	-	-	
912.08 Wood Posts and Blocks for Guardrail and Highway Signs (Dimension Sawed)	Appr Mfr *	Each Charge	22 cores	-	Cedar post need not be treated.
912.08Q Recycled Plastic or Rubber Guardrail Offset Blocks	VI See Remark	-	-	-	Must be a Qualified Product. May only be used on Steel Posts (912.08Q).
912.09 Timber for Rustic Construction	Gen Cert	-	-	-	
913.03 Clay and Sand Lime Brick and Block	Test	1 per 250,000 or fraction thereof	6 pcs	1000 pcs	
913.03C Concrete Brick	Test Data Cert	See Remark	6 pcs	1000 pcs	1 from each 10,000 bricks or fraction thereof; 2 from lots more than 10,000 to 100,000; 3 from each lot over 100,000.
913.05 Concrete Block	Test Data Cert	See Remark	4 pcs	1000 pcs	One from lot of 10,000 or fraction thereof; 2 from lots more than 10,000.
913.06 Precast Reinforced Concrete Units for Drainage Structures (Tops, Risers and Sump Bases)	Appr Mfr *	1 percent per size	See Remark	10 pcs total	Submit QA cylinder test results and core samples. Submit sample 1-3 sq.in. from wall of unit if absorption is required.
913.06 Precast Drainage Structure Adjusting Rings	Gen Cert	-	-	-	
913.07 Precast Concrete Bases, for Drainage Structures	Appr Mfr *	5 percent of total	-	10 pcs total	
913.08 Structural Tile	Test	1 per proj.	6 tiles	1000 tiles	
913.09 Slope Pavement Blocks	Appr Mfr *	1 per 25,000	6 blocks	1000 pcs	
914.03 Bituminized Fiber Joint Filler	Test Data Cert	1 per 1000 sft or fraction thereof	2 ft See Remark	150 sft	Sample for structure to be at least 5 in. wide. ¼ in. filler need not be sampled.
914.03B Recycled Rubber Joint Filler	VI See Remark	-	-	-	Must be a Qualified Product (914.03B).

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
914.04A Hot-Poured Rubber Joint Sealant	VI See Remark	-	-	-	Must be a Qualified Product (914.04A).
914.04B Backer Rod for Use with Hot-Poured Joint Sealant	VI	-	-	-	
914.05 Epoxy Binder, For Joint Spall Repair	Test	1 per lot or batch number	See Remark	5 gal	See Special Instructions.
914.06 Epoxy Resin Adhesive and Temporary Seal (Crack Injection)	VI See Remark	-	-	-	Must be a Qualified Product (914.06).
914.07 Transverse Pavement Joints 1. Dowel Bars	Appr Mfr	-	1 bar	1200 bars	Bond Release Agent must be a Qualified Product (914.07A). See Special Instructions 914.07.
2. Dowel Baskets (Load Transfer Assemblies)	Appr Mfr	-	Full size unit	100 assemblies	Field Inspection required, MQAP Manual Section 3.04. See Special Instructions 914.07.
914.07A Coatings for Dowel Bars 1. Epoxy Coating Companies	Appr Mfr *	1 per project per mfr	1 bar	240 bars	
2. Epoxy Coating Material	VI See Remark	-	-	-	Coating must be a Qualified Product (905.03C).
3. Bond Release a. Bituminous Material	Gen Cert	-	-	20 gal max	Must be a Qualified Product (914.07A) or meet Standard Spec 914.07A.
b. Alternate Bond Release Agents	VI See Remark	-	-	-	
914.07C Dowel Bar Expansion Caps	VI	-	-	-	Caps must conform to Standard Plan R-40 Series.
914.08 End-of-Pour Joint Devices	VI	-	-	-	
914.08 Deformed Bars 1. Bars	Appr Mfr *	1 per project per mfr	-	500 lb	Epoxy Coating must be Qualified Product (905.03C).
2. Epoxy Coating	VI See Remark				

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
914.09 Straight and Bent Tie Bars for Longitudinal Pavement Joints (Lane Ties) 1. Bars 2. Epoxy Coating	Appr Mfr * VI See Remark	1 per project per mfr	2 bar	500 lb	Coating must be a Qualified Product (905.03C). See Note.
914.10 Bolts for Structure Expansion Anchors	Gen Cert	-	-	-	
914.11 Preformed Waterproofing Membrane and Joint Waterproofing Membrane	VI See Remark	-	-	-	Must be a Qualified Product (914.11). Do not use on Treated Wood Materials.
914.12A Elastomeric Bearings	Gen Cert	-	-	-	
914.12B Elastomeric Leveling Pads	Gen Cert	-	-	-	
915 Bridge Coating Systems	VI See Remark	-	-	-	Must be a Qualified Product (915).
916.01A Cobblestone	VI	-	-	-	
916.01C Riprap	VI	-	-	-	
916.02 Silt Fence 1. Fabricated Fence 2. Fabric (see 910.04) **NOTE:** Sample to include identifying markings of fabricator. Indicate on sample ID description of markings. Note where markings were found.	Appr Mfr * VI See Remark	See Remark	See Remark	500 ft	1 sample for the first 3000 ft or fraction thereof; 1 sample for each additional 10,000 ft or fraction thereof; 1 piece 8 ft long by full fence height include 2 attached posts and lath. As per 910.04 of Standard Specifications, fabric must be from the Qualified Product List (910.04).
916.07 Turbidity Curtain	VI				
917.03 Nursery Stock	VI	-	-	-	
917.05 Balling Material	VI	-	-	-	
917.06A Wire for Bracing and Guying	VI	-	-	-	
917.06B Hose for Bracing and Guying	VI	-	-	-	

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
917.06C Stakes for Bracing and Guying	VI	-	-	-	
917.08 Compost	VI	-	-	-	
917.10 Chemical Fertilizer for Grass Seed	VI See Remark	-	-	-	Provide the bag label, showing the guaranteed analysis.
917.12 Grass Seeding Mixtures Grass Seed Varieties	VI See Remarks VI See Remark	1 per lot per shipment	1/2 lb	1100 lbs	For projects that include more than 5 acres of seeding, see Grass Seed Testing Special Provision in contract. Varieties of seed must be Qualified Product (917.12).
917.13 Sod	VI	-	-	-	
917.13A Pegs for Sodding	VI	-	-	-	
917.14 Mulching Materials for Nursery Stock	VI	-	-	-	Only shredded hardwood, wood chips or wood products not allowed.
917.15B1 & 2 High Velocity Mulch Blankets and Standard Mulch Blanket	VI See Remark	-	-	-	Must be a Qualified Product (917.15B 1 & 2). High velocity - netting 2 sides. Standard - netting 1 side.
917.15C Mulch Anchoring - Latex, Recycled Newsprint, Wood Fiber, Guar Gum, Other Tackifiers	VI See Remark	-	-	-	Must be a Qualified Product (917.15C).
917.16 Weed Control (Herbicides)	Test Data Cert	-	-	-	
918.01 Flexible Metal Conduit	VI	-	-	-	
918.01A Electrical Conduit, Rigid (Galvanized Steel)	Gen Cert	See Remark	6 ft, include coupling, if applicable	400 ft	1 sample for 2500 ft or fraction thereof; 2 samples over 2500 to 10,000 ft; 1 sample for each additional 10,000 ft.
918.01B & C Electrical Conduit (Polyvinyl Chloride) Schedule 40 and 80	Gen Cert	See Remark	6 ft sample w/ bell end incl coupling	400 ft	1 sample for 2500 ft or fraction thereof; 2 samples over 2500 to 10,000 ft; 1 sample for each additional 10,000 ft.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
918.01D & E Electrical Conduit (Polyethylene/HDPE) Schedule 40 and 80	Gen Cert	See Remark	See Remark	400 ft	1 sample for 2500 ft or fraction thereof; 2 samples over 2500 to 10,000 ft; 1 sample for each additional 10,000 ft; 6 ft plus a separate section consisting of 2- 18 in. long pcs. connected by the joint.
918.01F Electrical Conduit (Rigid Fiberglass)	Gen Cert	See Remark	6 ft sample w/ bell end incl. coupling	400 ft	1 sample for 2500 ft or fraction thereof; 2 samples over 2500 to 10,000 ft; 1 sample for each additional 10,000 ft.
918.02 Grounding System	VI	-	-	-	
918.02C Grounding Rods	VI	-	-	-	
918.03 Electrical Cable	See Note	-	-	-	
NOTE: Suitability and compliance with specifications will be determined by the agency responsible for maintaining the system. This agency shall provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and that the material is acceptable.					
918.06 Precast Concrete Handholes and Manholes for Electrical and Telephone Connections	Appr Mfr *	1 percent per size	-	10 pcs	
918.06D Light Weight Composite Handholes	VI See Remark	-	-	-	Must be a Qualified Product (918.06D).
918.08 Light Standards (Steel and Aluminum Light Standards)	Gen Cert	-	-	-	
918.08C Light Standards, Frangible Transformer Bases	VI See Remark	-	-	-	Must be a Qualified Product (918.08C).
918.09 Luminaries	Gen Cert	-	-	-	
918.10A Tower Lighting Units	Fabrication Inspection	-	-	-	See Section 2.4 of the Structural Fabrication Quality Manual.
918.11A Guy Wire	Gen Cert	1 per size	3 ft	-	
919 Steel Sleeves for Wood Posts	Gen Cert	-	-	-	

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
919.02 Signs (Permanent)	See Remark	-	-	-	General Cert must be attached and inspected at project site.
919.02A1 Metal Sections (Extruded Aluminum)	VI See Remark	-	12 in. long and full width of section	-	Mill Cert must be submitted to the Project Engineer.
919.02A2 Plywood	Gen Cert See Remark	-	-	-	Grade mark on materials serves as certification.
919.02A3 Aluminum Sheet	VI See Remark	-	Min. of 12 in. square	-	Mill Cert must be submitted to the Project Engineer.
919.02B1 Reflective Sheeting	VI See Remark	1 per run or lot	See Remark	1 roll, for less than 3 in. in width	Must be a Qualified Product (919.02B1) 4 pcs each 12 in. square. For rolls less than 12 in. width, at least 7.5 ft.
919.02C Sign Hardware	Gen Cert See Remark	-	-	-	Identifying marks on items may serve as certification.
919.03A Delineators 1. Plastic Reflectors	Gen Cert	1 per shipment per color	21 pcs	25 pcs each color	
919.03B Delineators 2. Reflective Sheeting Reflectors	Gen Cert	1 per shipment per color	2 pcs each color	25 pcs each color	
919.03D Delineator Posts 1. Steel	Gen Cert	1 per project per mfr	1 post	80 post	
919.03D Delineator Posts 2. Plastic	VI See Remark	-	-	-	Must be a Qualified Product (919.03D).
919.04 Steel, Galvanized Sign Posts	Test Data Cert	1 per project per mfr	See Remark	20 posts	Sample 30 in. length min. length. Posts for temporary signs may be painted.
919.05 Wood Sign Posts	Appr Mfr *	Each charge	22 cores	20 posts	General Cert to Construction Field Services. See 912.08.
919.06 Breakaway Column Sign Supports	VI	-	-	-	Mill Cert must be submitted to the Project Engineer.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
919.07 Cantilever Sign Supports	Fabrication Inspection	-	-	-	See Section 2.4 of the Structural Fabrication Quality Manual.
919.08 Truss Sign Supports	Fabrication Inspection	-	-	-	See Section 2.4 of the Structural Fabrication Quality Manual..
920.02 Glass Beads	Gen Cert	1 from each lot	2 lb	500 lbs	
920.02C Wet Reflective Beads/Elements	VI See Remark	-	-	-	Must be a Qualified Product (920.02C).
921.02 Span Wire	Gen Cert	1 per size	3 ft	-	
921.03 Traffic Signals and Mounting Assemblies	See Note	-	-	-	
NOTE: Compliance with specifications will be determined by the agency responsible for maintaining the system. Agency must provide the project engineer with a memo or other appropriate form indicating that the inspection has been made and the material is acceptable.					
921.05 Traffic Signal Strain Pole	Gen Cert	-	-	-	
921.05A Strain Pole Band Clamps	VI See Remark	-	-	-	Must be a Qualified Product (921.05A).
921.08B Traffic Loop Sealant	Gen Cert	2 from each lot	Tubes	-	
922.02 Temporary Traffic Control Temporary Signs	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.02B Temporary Traffic Control Reflective Sheeting (Signs)	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.02D Temporary Traffic Control Sign Covers	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.03 Temporary Traffic Control A. Cones B. Drums	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.03E Temporary Traffic Control Type III Barricade, Reflective Sheeting	See Remark	-	-	-	See MQAP Manual Section 3.07.

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Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
922.04 Temporary Traffic Control Temporary Concrete Barriers (TCB)	Test Data Cert See Remark	Each project	-	-	Contractor must provide certifications and documentation confirming the TCB provided meets the requirements of subsection 922.04.A of the Standard Specifications for Construction.
922.04A Barrier Reflector Markers Temporary	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.04A Barrier Reflector Markers Permanent	VI	-	-	-	
922.06A Temporary Traffic Control Temporary Pavement Markings; Type R and NR Tape	VI See Remark	-	-	-	Must be a Qualified Product (922.06A).
922.06A2 Temporary Traffic Control Temporary Pavement Markings; Paint	VI See Remark	-	-	-	Must be a Qualified Product (811.03D).
922.06B Temporary Traffic Control Temporary Raised Pavement Markers	VI See Remark	-	-	-	Must be a Qualified Product (922.06B).
922.06C Temporary Traffic Control Pavement Marking Cover	VI See Remark	-	-	-	Must be a Qualified Product (922.06C).
922.07A Temporary Traffic Control Lighted Arrows; Type B and C (Solar Assist)	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.07B Temporary Traffic Control Warning Flashers and Lights; Type A, B, C	See Remark	Each project	3 each type	-	See MQAP Manual Section 3.07.
922.07C Temporary Traffic Control Portable Changeable Message Signs	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.11 Temporary Traffic Control Sign Paddles and Vests	See Remark	-	-	-	See MQAP Manual Section 3.07.
922.12A Temporary Traffic Control Dust Palliative 1. Calcium Chloride Solids	Test Data Cert	1 per project	5 lb	5000 lb	

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MATERIALS ACCEPTANCE REQUIREMENTS

See Miscellaneous area at the end of table for materials deleted from the 2012 Standard Specifications for Construction.
*** Must be tested unless provided by an Approved Manufacturer.**
**** When the Basis of Acceptance is not "Test", the sampling criteria below may be used when there are concerns with material quality.**

Spec. No. and Material Name	Basis of Acceptance	Sample Frequency If Required by the Engineer**	Sample Size	Maximum VI Quantity	Remarks (QPL Reference)
922.12A Temporary Traffic Control Dust Palliative 2. Calcium Chloride Solutions	Test Data Cert	1 per project	1 qt	1000 gal	
923 Watermain Materials	Gen Cert	-	-	250 ft of pipe	See contract documents as applicable.
Misc. #2 Culvert, Cast and Ductile Iron	Gen Cert	-	-	250 ft	
Misc. #3 Clay Pipe	Gen Cert	See Remark	See Remark	10 pieces	See Special Instructions.
Misc. #5 Galvanized Slotted Drain Pipe	VI See Remark	-	-	-	MDOT approval of Design is required. Coating thickness checked at project site.
Misc. #8 Corrugated Galvanized Steel Structural Plated	Gen Cert	1 per 100 plates or fraction thereof	1 piece at least 3 in. by 3 in.	10 plates	
Misc. #9 Aluminum Alloy Structural Plates	Gen Cert	-	-	-	
Misc. #13 Pavement Warning Strips	VI	-	-	-	
Misc. #14 Bituminized Cotton Fabric and Fiberglass Fabric	Gen Cert	See Remark	1 piece full width of roll, min of 3 ft	5 rolls	1 per 100 rolls (50 sft per roll) or fraction thereof; for lots of more than 100 rolls - 1 sample plus 1 for each 500 rolls or fraction thereof. Do not sample from first 3-4 ft of roll.

********** See following pages for SPECIAL INSTRUCTIONS **********

SPECIAL INSTRUCTIONS

708.01 Prestressed Concrete

Fabrication inspection is required for all prestressed miscellaneous bridge products, prestressed straight-strand bridge beams, and prestressed deflected-strand bridge beams. The following steel components incorporated into prestressed concrete beams do not require fabrication inspection: dowel bars and sole plates.

712.03L Mechanical Reinforcement Splicing

The contractor must make test splices, witnessed by the Engineer, on the largest bar sizes that are to be spliced. See Bridge Field Services Advisory (BFSA) 2012-03. Test splice consists of 2 pieces of reinforcing bar joined by the coupler with 12 inches of bar exposed on each end of the coupler.

901 Cements and Fly Ash

Samples of fly ash and slag cement must be accompanied by a sample of the Portland cement with which it is being used. The plastic lined cement sample bags furnished by the laboratory will hold 10 pounds when full.

902 Prequalified Aggregate Suppliers

Quality Assurance tests will be conducted by Department personnel at the frequencies stated in Chapter 3 of the MDOT Aggregate Supplier Program, found in the Procedures for Aggregate Inspection Manual.

Every Project Engineer will verify passing quality assurance tests by contacting the Region/Transportation Service Center's Material's Supervisor. Enter a telephone record memo or copy of the test report in the project file.

The statement on each delivery ticket is required documentation of the Pre-Qualified Supplier Program and is to be provided by the supplier. This statement represents the results of quality control testing and does not signify acceptance by MDOT.

904.03A Asphalt Binder for HMA Mixtures

If the Asphalt Binder is supplied from a source currently on the Approved Asphalt Binder Certifier List, a certification meeting the requirements of Section 2.04.05 of the Materials Quality Assurance Procedures Manual is required. See the contract documents for sampling, acceptance, and daily monitoring requirements.

If the binder is supplied from a source that is **not** currently shown in the Approved Asphalt Binder Certifier List, the asphalt binder must be sampled, tested, and approved for use prior to incorporation into the project. See contract documents for sampling, acceptance, and monitoring requirements.

See Current List of Asphalt Binder Certifiers at Construction Field Services Web Page.

Instructions to Construction Field Services web page: From MDOT home page (michigan.gov/mdot), click on about MDOT (left side), then click on Highway Field Services, and then click Construction Field Services. The Approved Asphalt Binder Certifier List is under Resources & Publications.

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Actual Current List of Approved Asphalt Binder Certifier web page address: http://michigan.gov/documents/AppBinderCertlist_49824_7.pdf

904.03C Emulsified Asphalt

Size of Sample – For CV Sampling see Section 2.05.06 of the *Materials Quality Assurance Procedures Manual*. For all other sampling see contract documents for criteria. Submit the samples in plastic containers only.

905.03 Bar Reinforcement (Uncoated)

Sample size must be 2 pieces, one 24 in. and one 36 in. Sample ID must include the name of the bar manufacturer, lot number, and heat number. Mill Cert must be attached to the Sample ID form.

905.03C Bar Reinforcement (Epoxy Coated)

Sample size must be 2 pieces, one 24 in. and one 36 in. Sample ID must include the name of the epoxy coating company, epoxy resin trade name, name of bar manufacturer, lot number, and heat number. Mill Cert must be attached to the Sample ID form. Epoxy coating must be a Qualified Product (905.03C).

905.06 Welded Steel Wire Reinforcement

Sample size must be one-piece, full width of fabric with two transverse wires. Longitudinal wires must extend 6 in. to 8 in. either side of transverse wires. Sampling not required when larger wire is less than 0.13 in. (w1.5) in dia. Include on sample ID the size that the wires are supposed to be. Sample may be folded or cut into approx. 3 ft. sections. If cut, pieces should be wired together and identified. Mill Cert must be attached to the Sample ID form.

905.07 Strand for Prestressed Concrete

Do not obtain sample from within 5 feet of the end of the reel. Mill Cert must be attached to the Sample ID form.

905.08 Tendons for Post Tensioning of Box Beams – Prestressing Strand

Do not obtain sample from within 5 feet of the end of the reel. Mill Cert must be attached to the Sample ID form.

906.04 Structural Steel

Fabrication inspection is required for all main and secondary bridge members pay items listed in 707.04.

Fabrication inspection is required for structural steel and pipe bridge railing pay items listed in 711.04.

Fabrication inspection is required for the following structural steel bridge rehabilitation pay items listed in 713.04: pin and hanger replacement, bearing stiffeners at temporary supports, retrofit structural steel, and structural steel welded repairs.

The following structural steel components do not require fabrication inspection: plate washers and pier nosing.

906.07 High Strength Steel Bolts

An assembly is typically a combination of a bolt, nut, and washer but may be any combination of a bolt, nut, washer, lock washer, etc. depending on the project specifications. Mill Certs must be included for each component of the assembly and be attached to the Sample ID form. Plate washers are not required to be sampled and tested.

907.04C Steel Chain Link Fence-Posts for Fence and Gates

An alternative zinc/clear coat system will be allowed for pipe sections only. This alternative coating system shall comply with subsection 907.03D of the Standard Specifications for Construction.

907.04C Steel Chain Link Fence-Top Rail, Horizontal Rail

An alternative zinc/clear coat system will be allowed for pipe sections only. This alternative coating system shall comply with subsection 907.03D of the Standard Specifications for Construction.

908.09C Tubing, Steel Railings (Hardware)

An assembly is typically a combination of a bolt, nut, and washer but may be any combination of a bolt, nut, washer, lock washer, etc. depending on the project specifications. Plate washers are not required to be sampled and tested.

908.14 Anchor Bolts, Nuts, and Washers

An assembly is typically a combination of a bolt, nut, and washer but may be any combination of a bolt, nut, washer, lock washer, etc. depending on the project specifications. For Type C, D, E and J cantilevers, the sampling frequency is 1 assembly per heat, per diameter, per foundation, for a max of 3 per project. Full length bolts are required for testing but if the total length is less than 20", a second sample must be submitted for testing. Non MDOT standard plan bolts require shop drawings along with a Mill Cert attached to the Sample ID form. Stainless steel anchors bolts are not required to be sample and tested. Plate washers are not required to be sampled and tested.

908.14D Anchor Bolts and Nuts for Other Purposes

A General Cert is acceptable for stainless steel anchor bolts, pedestal foundations for pedestrian signals, push buttons, controller cabinets, and Hawks signals and repeaters. Anchor bolts for all other purposes require testing. An assembly is typically a combination of a bolt, nut, and washer but may be any combination of a bolt, nut, washer, lock washer, etc. depending on the project specifications. Plate washers are not required to be sampled and tested.

909.04A Reinforced Concrete Pipe
909.04B

Size of Sample - Full size units for strength test. For absorption tests, 26-inch square to 81-inch square in area from the wall of each piece of pipe tested.

Number of Samples - One percent of the number of pieces of each size.

Reinforced concrete pipe 42-inch diameter and larger may be tested by coring. Size of core will be 4-inch nominal diameter (but not less than 3 ¼ inches actual). Up to 1 percent of the number of pieces of pipe for each size, but not less than 3 pieces, will be

selected for coring. One core will be drilled and tested from each of these test pieces. Reinforcement will be inspected prior to incorporation in the pipe.

909.04C Nonreinforced Concrete Pipe

Size of Sample - Same as reinforced concrete pipe.

Number of Samples - One percent of the number of pieces, but not less than 2 pieces of each size except that at the option of the department the following sampling schedule will apply for 4 inches through 24 inches in diameter sewer pipe for quantities of 500 or more:

Sampling Schedule - Per the following:

Concrete Pipe	Number of Samples
500 to 1,000 pieces	6
1,001 to 2,000 pieces	8
2,001 to 5,000 pieces	11
Over 5,000 pieces	2 samples per 1,000 or fraction thereof

909.04.D Precast Concrete Box Sections

The following structural steel components do not require fabrication inspection: plate washers, connection plates, and connection angles used to connect culvert segment, headwall, and wingwall.

909.04.G Precast Concrete Three-Sided or Arch Culverts

The following structural steel components do not require fabrication inspection: plate washers, connection plates, and connection angles used to connect culvert segment, headwall, and wingwall.

909.05A Corrugated Steel Pipe

Size of Sample - A 6-inch by 3-inch (minimum) section cut from the pipe. The sample should be taken from the end of the pipe avoiding the seams. Care should be taken to assure the coating is not damaged during sampling. Mill Cert must be attached to the Sample ID form.

Number of Samples - Per the following:

Diameter of Pipe	Quantity Represented (maximum)
12 inches or less	2500 ft
15 inches through 54 inches	1000 ft
60 inches and over	500 ft

Less than 5 percent of the quantity in the above table may be visually inspected.

909.05A1 Corrugated Galvanized Steel Sheets

Size of Sample - One strip the full width of the sheet and 3 ½ inches in the direction of the length of the sheet. The strip may be cut from the end of the sheet for material coated in coils. If the sheets were individually coated after being cut to length, as indicated by heavy accumulations of zinc at one end, the sample strip shall be cut from the end opposite the heavy accumulation and after cutting 4 inches from the end of the sheet. Mill Cert must be attached to the Sample ID form.

Number of Samples - Per the following:

Diameter of Pipe (max)	Length of Sheet	Quantity Represented
12 inches or less	44 inches or less	2500 ft
15 through 54 inches	50 to 175 inches, approx*	1000 ft
60 inches and over	190 inches and over*	500 ft

*Larger pipe may be made from combination of shorter sheets. Less than 5 percent of the quantity in the table above may be visually inspected.

NOTE: Normally each heat and thickness is to be sampled. Exception may be made where quantities are limited and/or mixtures of heat numbers are excessive.

909.05B Corrugated Aluminum Alloy Sheets

Size of Sample - A transverse strip full width of the sheet and at least 3 inches in length cut from the end of the sheet.

Number of Samples - A sample shall be taken from each of 3 different sheets for lots weighing 5 tons or less, from 4 sheets for lots weighing more than 5 tons and less than 10 tons, and from 5 sheets for lots weighing 10 tons or more.

910.03 Geotextiles

Sampling Frequency - Obtain samples to represent the required quantity of geotextile according to the following schedule:

Geotextile	First Sample	Additional Samples
Blanket	500 to 1500 syd	7,500 syd or less
Liner for Riprap	500 to 1500 syd	5,000 syd or less
Separator/Stabilization	500 to 1500 syd	25,000 syd or less
Liner for Heavy Riprap	500 to 1500 syd	4,000 syd or less

Maximum for VI - 500 syd (4500 sq ft)

Size of Sample - Sample must be a minimum of 75 sft, taken across the full roll width. For rolls over 15 ft wide, sample must be a minimum of 5 ft long, taken across the full roll width.

Geotextile samples submitted for testing must be identified with the lot number and/or roll number, the name of the manufacturer, and the product or style number.

NOTES:

Geotextiles must be unwrapped one full roll circumference prior to sampling.

Geotextiles must be **rolled**, not folded, and shipped in a manner to prevent creases in the fabric.

910.05 Drainage Geocomposites

Size of Sample –

Filter wrap geotextile sample must be a minimum of 75 sft, taken across the full roll width.

Polymer core sample must be a minimum of 6 ft long, taken across the full roll width.
Coupon of the assembled drainage geocomposite must be a minimum of 1 ft long, taken across the full roll width.

NOTES:

Manufacturers and suppliers must provide separate samples of filter wrap geotextile and polymer core for testing. These samples must be taken from the same production lot as the assembled drainage geocomposite intended for use on the project.

Include a coupon of the assembled drainage geocomposite when the separate components are submitted for testing.

Assembled coupon and component samples of the drainage geocomposite submitted for testing must be identified with the lot number and/or roll number, the name of the manufacturer, and the product or style number.

914.05 Epoxy Binder, For Joint Spall Repair

Normal Sampling Frequency - 1 per lot or batch number

Size of Sample - For material mixed at 1:1 ratio - 1 quart of each component: For material mixed at 2:1 ratio - 1/2 gallon of resin and 1 quart of curing agent. Material limited to shelf life of one year from date of manufacture. Material must be labeled with date of manufacture.

914.07 Load Transfer Assemblies; Dowel Baskets

Field Inspection required per Chapter 3.04 of the Materials Quality Assurance Procedures Manual. A Powerpoint in Division 602 of the Construction Manual has been created to assist with the field inspections. Form #0553 is to be used to document the inspections.

Assemblies must meet the requirements of Standard Plan, R-40-H.
All shipments of load transfer assemblies will be accompanied by proper certification documentation.

- Certification from steel (dowel bar) manufacturer.
- Certification from epoxy coating company.
- Documentation on epoxy coating.
- Certification from assembly manufacturer.
- Documentation on bond release.

When shipment is made to a project, each bundle will bear a legible tag with the following information:

- Assembly manufacturer name and plant location.
- Control section/project number.
- Lot number or other identification that will also be shown on the accompanying certification.
- Supplier and/or contractor's name.

Misc. #3 **Clay Pipe**

Normal Sampling Frequency - One percent of the number of pieces, but not less than 2 pieces of each size except that at the option of the department the following sampling schedule will apply for 4-inch through 24-inch diameter sewer pipe for quantities of 500 or more:

Sampling Schedule - Per the following:

Clay Pipe	Number of Samples
500 to 1,000 pieces	6
1,001 to 2,000 pieces	8
2,001 to 5,000 pieces	11
Over 5,000 pieces	2 samples per 1,000 or fraction thereof

Size of Sample - Full size units for strength test. For absorption tests, 26 inches square to 82 inches square in area from the wall of each piece of pipe tested.

APPROVED SUPPLIERS

The firms listed in this section have received written permission from the Construction Field Services Division to recertify material for use on Michigan Department of Transportation projects. Supplying materials is also allowed by manufacturers listed in the Approved Manufacturers List.

When recertification of any materials is made by any firm not found on this list, please notify the Construction Field Services Division, Materials Control, immediately.

See also Section 3.02 of the Materials Quality Assurance Procedures Manual.

APPROVED SUPPLIERS

A.J. Rehmus & Son, Inc., Bay City, MI
ABC Coating Co. of Illinois, Inc., Manteno, IL
ABC Coating Co. of Michigan, Inc., Wyoming, MI
ABC Coating Co. of Minnesota, Inc., Minneapolis, MN
ABC Coating Co. of Oklahoma, Inc., Tulsa, OK
Action Traffic & Maintenance Co., Flint, MI
Allied Seed, L.L.C., Nampa, ID
Alro Steel Corporation, Alpena, MI
Art Thureson, Inc., Waterford, MI
Austin Morgan Companies, Clarkston, MI
B&R Reinforcing, Columbus, OH
BARNSCO, Walled Lake, MI
Bella Concrete Construction, LLC, Houghton Lake, MI
Boomer Construction Materials, Detroit, MI
Burt Forest Products Co., Ann Arbor, MI
C & D Hughes, Inc., Charlotte, MI
C.A. Hull Co., Inc., Walled Lake, MI
Cadillac Culvert, Cadillac, MI
Carroll Distributing and Construction Supply, Inc. (Store 16), Wyoming, MI
Causie Contracting, Inc., Mason, MI
Central Michigan Contracting, Inc., Houghton Lake, MI
Chiles Michigan, Inc., Flat Rock, MI
Cipparrone Contracting, Inc., Southfield, MI
CMA Supply, South Bend, IN
Co-Pipe Products, Taylor, MI
Concrete Central Inc., Grand Rapids and Traverse City, MI
Core and Main LP, Canton, Kentwood and Shelby Twp., MI
Crawford Contracting, Inc., Mt. Pleasant, MI
CSI Geoturf, Inc., Highland, Traverse City, and Byron Center, MI
D.J. McQuestion & Sons, Inc., LeRoy, MI
Dale Dukes & Sons, Inc., Big Rapids, MI
Davis Construction, Lansing, MI
Dayton Superior Corporation, Miamisburg, OH, Oregon, IL, Valparaiso, IN
Diane Dukes, Inc., Big Rapids, MI
Doan Construction, Ypsilanti, MI
Dornbos Sign & Safety Inc., Charlotte, MI
Eastlund Concrete Construction, Holt, MI
East Jordan Iron Works, Inc., Wyoming, MI
Edward R. White Contractor, Inc., Waterford, MI
Elsey Construction Products, Harper Woods, MI
Environmental Protection Products, Williamsburg, MI
ERSCO Construction Supply, Lansing and Wyoming, MI
ETNA Supply Co., Chesterfield, Flint, Grand Ledge, Grand Rapids and Holland, MI
ETNA Supply Co., Jackson, Kalamazoo, Mt. Pleasant and Muskegon, MI
ETNA Supply Co., Saginaw, Sault Ste. Marie, Springfield, Traverse City and Wixom, MI
ETNA Supply Co., South Bend, IN and Toledo, OH
Evergreen Seed Supply, Deshler, OH
F&M Concrete Construction, LLC, Dimondale, MI
Ferguson Enterprises, Inc., Flushing, Kalamazoo, Kentwood, Lansing, and Warren, MI
Firelands Supply Co., Norwalk, OH
Fort Wayne Contracting, Inc., Detroit, MI
Frederick Steel Company, Cincinnati, OH
Future Fence Co., Sterling Heights, MI
G3 Steel Group, Troy, MI

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Geo Products, Birmingham, MI
Give 'Em-A-Brake Safety, Grandville, MI
Grant Welding Service, Grant, MI
Harbor Pipe and Supply, Traverse City, MI
Harris Rebar/Ambassador Steel Corporation, Comstock Park and Lansing, MI, Bourbonnais, IL
Harris Rebar, Bethlehem, PA
Hunt Brothers Concrete Contractors, Inc., Whittemore, MI
Hymmco, Saginaw, MI
Indiana Material Handling, IMH Products, Inc., Indianapolis, IN
J & J Contracting, Ithaca, MI
J.D. Russell Co., Utica, MI
JISI Group, LLC, Sterling Heights, MI
Jacklin Steel Supply Co., Escanaba, MI
Jensen Bridge and Supply Co., Grand Rapids and Sandusky, MI
John Deere Landscapes, Ann Arbor, and Grand Blanc, MI
John Deere Landscapes, Clinton and Commerce Townships, MI
John Deere Landscapes, Grand Rapids, Holland, and Kalamazoo, MI
John Deere Landscapes, Dimondale, Livonia, Madison Heights, and Saginaw, MI
John Deere Landscapes, Shelby Township
John Deere Landscapes, Taylor, and Traverse City, MI
Kalamazoo Forest Products, Inc., Otsego, MI
Kamminga & Roodvoets, Inc., Grand Rapids, MI
Kenmark, Inc., Buckley, MI
Kerkstra Precast Inc., Grandville, MI
Klein Brothers Hardwood, Inc., Milford, MI
L.J. Construction, Inc., Clifford, MI
L.W. Lamb, Inc., Saugatuck, MI
Lane Enterprises, Inc., Carlisle, PA
Mack Industries, Inc., White Lake, MI
Manthei Development Corp., Charlevoix, MI
Martin J. Concrete, Inc., Coopersville, MI
Meadow Burke, Palisades Park, NJ
Metro Rebar, West Bloomfield, MI
Michigan Highway Signs, Flint, MI
Michigan Pipe and Valve, Jackson, Saginaw, and Traverse City, MI
Midway Contractor Supply, Negaunee, MI
Midwest Pipe Coatings, Schererville, IN
Milbocker & Sons, Inc., Allegan, MI
Miller Products & Supply Company, Iron Mountain, MI
Nationwide Fence & Supply Co., Chesterfield, MI
North Coast Roofing Systems, Grand Rapids, MI
Northern Concrete Pipe, Bay City, Charlotte, Clarkston, and Wyoming, MI; Sylvania, OH
Northern Construction Services Corp., Niles, MI
NuTek Steel, Toledo, OH
OEM Distribution, LLC, Detroit, MI
Oglesby Construction, Inc., Norwalk, OH
One Supply Group, Auburn Hills, MI
P.K. Contracting, Inc., Lake City, MI
Power Line Supply Company, Reed City, MI
Rathco Safety Supply, Inc., Portage, MI
Remington Construction Company, Inc., Mattawan, MI
Rhino Seed and Landscape Supply, Bradley and Brighton, MI
Rightway Fence Co., Sterling Heights, MI
Sanches Construction Company, Lansing, MI

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APPROVED SUPPLIERS

Simcote, Inc., Saint Paul, MN and Marion, OH
Snowden, Inc., Escanaba, MI
Standale Lumber, Grandville, MI
Striker Supply, Traverse City, MI
Sweeney Construction Materials, Novi, MI
Titusville Fabricators, Inc., Franklin, PA
Tri-Valley Landscaping, Inc., Saginaw, MI
UP Concrete Pipe Co., Escanaba, MI
Van Laan Construction Supply, Dutton, MI
Wady Industries, Maqouketa, IA
Watson Bowman Acme Corp., Amherst, NY
Weyand Bros. Inc., Saginaw, MI

APPROVED MANUFACTURERS

The materials in this section may be accepted for use on Michigan Department of Transportation projects on the basis of certification from the suppliers listed under specific materials.

This Approved Manufacturers List is in accordance with the 2012 Standard Specifications for Construction.

See also Section 3.02 of the Materials Quality Assurance Procedures Manual.

APPROVED MANUFACTURERS		
Spec. # and Material Name	Approved Manufacturers	Approved Distribution Facilities (not manufacturer specific)
901 Cement	Argos USA, LLC - Martinsburg, WV Ash Grove - Mississauga, Ontario, Canada; Joliette, Quebec, Canada Buzzi Unicem USA - Chattanooga, TN; Festus MO; Greencastle, IN Central Plains Cement - Sugar Creek, MO Continental Cement Company - Hannibal, MO Fairborn Cement Company - Fairborn, OH Illinois Cement Company - LaSalle, IL Kosmos Cement Company – Louisville, KY LafargeHolcim - Alpena, MI; Paulding, OH; and Bloomsdale, MO LeHigh Cement Company, LLC - Logansport and Mitchell, IN; Picton, Ontario, Canada McInnis Cement - Port Daniel-Gascons, Quebec, Canada St. Mary's Cement - Detroit and Charlevoix, MI; Bowmanville and St. Mary's, Ontario, Canada	Ash Grove - Detroit, and Dundee, MI; Duluth, MN LafargeHolcim - Muskegon and Essexville, MI; Green Bay, WI
901.06 Slag Cement	Ash Grove - Detroit, MI; Mississauga, Ontario, Canada LafargeHolcim - South Chicago, IL Skyway Cement Company, LLC - Chicago, IL St. Mary's Cement - Detroit, MI; Milwaukee, WI	Ash Grove - Dundee, MI LafargeHolcim - Essexville, MI
Spec. # and Material Name	Approved Manufacturers	Approved Distribution Facilities (not manufacturer specific)
901.07 Pozzolanic Admixtures (Fly Ash) for Concrete	Ash Grove - Bell River, St. Clair, MI Boral Resources – Avon Power Plant, Avon Lake, OH; Erickson Power Plant, Lansing, MI; Sammis Power Station, Stratton, OH; Monroe Power Plant, Monroe, Michigan; Schahfer Station, Unit 15, Unit 17 & Unit 18, Wheatfield, IN; Labadie Power Station, Labadie, MO; Rush Island Power Station, Festus, MO Charah, Inc. - Zimmer Power Station, Moscow, OH; Miami Fort Unit 7 & 8, North Bend, OH LafargeHolcim - Will Co. Plant, Romeoville, IL; Elm Road Generating Station, Oak Creek, IL; Columbia, Portage, WI; Edgewater Sta. Unit 5, Sheboygan, WI; Pleasant Prairie, Kenosha, WI; Weston #3, Wausau, WI; Separation Technologies, LLC - Longview Power Plant, Maidsville, WV Waste Mgmt./FlyAsh Direct - Zimmer Power Plant, Moscow, OH; Miami Fort Unit 7 & 8, North Bend, OH; Avon Lake Unit 9, Cleveland, OH; Joppa Generating Station, Joppa, IL	Ash Grove - Dundee, MI

APPROVED MANUFACTURERS		
Spec. # and Material Name	Approved Manufacturers	Manufacturers Location
903.03 Latex Admixture For Concrete	Trinseo BASF Corporation Polytherm Systems, Inc., General Tires	
904.03C Emulsified Asphalt	**See Current List of Emulsified Asphalts at Construction Field Services Web Page.** Instructions to Construction Field Services web page: From MDOT home page (michigan.gov/mdot), click on about MDOT (left side), then click on Highway Field Services, and then click Construction Field Services. The Approved Emulsified Asphalt Suppliers List is under Resources & Publications. Actual Construction Field Services web page address: http://www.michigan.gov/documents/mdot_c&t_emulsionlist_66894_7.pdf	
905.03 Bar Reinforcement (Uncoated)	ABC Coating Co. of MI American Steel & Wire ASI Alton Steel, Inc. Austeel Barbary Coast Byer Steel (formerly A.B. Steel) CMC Steel CMC Steel Florida CMC New Jersey CMC Steel Oklahoma CMC Tennessee CMC Steel Texas CMC Steel Cascade Steel Rolling Mills ERSCO Construction Supply EVRAZ Rocky Mountain Steel Gerdau Ameristeel Corporation Charlotte Steel Mill Div. Jackson Steel Mill Div. Midlothian Steel Mill Div. St. Paul Steel Mill Div. HYMMCO, LLC Nucor Steel Nucor Steel Auburn, Inc. Nucor Steel Birmingham, Inc. Nucor Steel Connecticut, Inc Nucor Steel Jackson, Inc. Nucor Steel Kankakee, Inc. Nucor Steel Marion, Inc. Optimus Steel, LLC Steel Dynamics Inc.	Wyoming, MI Joliet, IL Alton, IL Lemont, IL Mississippi, Norfolk, Illinois Cincinnati, OH Baldwin, FL Sayreville, NJ Durant, OK Knoxville, TN Seguin, TX Cayce, Columbia, SC McMinnville, OR Lansing and Wyoming, MI Pueblo, CO Charlotte, NC Jackson, TN Midlothian, TX St. Paul, MN Saginaw, MI Auburn, NY Birmingham, AL Wallingford, CT Flowood, MS Bourbonnais, IL Marion, OH Vidor, TX Pittsboro, Columbia City, IN; Roanoke, VA

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APPROVED MANUFACTURERS		
Spec. # and Material Name	Approved Manufacturers	Manufacturers Location
905.03C Bar Reinforcement (Epoxy Coated)	ERSCO Construction Supply HYMMCO, LLC Metal Partners International **Epoxy Coating Companies** ABC Coating Co. ABC Coating Co. of OK, Inc. ABC Coating Co. of MI, Inc. ABC Coating Co. of IL, Inc. ABC Coating Co. of MN, Inc., Ambassador Steel Corp./Harris Rebar American Highway CMC Rebar CMC Coating of Texas Co-Steel Sayreville Corrosion Control, Inc. (CCI) Dayton Superior Corporation Harris Rebar Lane Enterprise, Epoxy Coating Div. Midwest Pipe Coatings Simcote Simcote Simcote Titusville Fabricators, Inc. Wady Industries, Inc.	Lansing and Wyoming, MI Saginaw, MI Hammond, IN Tulsa, OK Wyoming, MI Manteno, IL Minneapolis, MN Bourbonnais, IL Kankakee, IL Kankakee, IL; Muncie, IN Waxahachie, TX Sayreville, NJ Auburn, NY Valparaiso, IN Bethlehem, PA Carlisle, PA Schereville, IN Saint Paul, MN Marion, OH Pittsburgh, PA Maquoketa, IA
905.06 Welded Steel Wire Reinforcement (Mesh)	Hallett Wire Products Co. Insteel Wire Products Iowa Steel & Wire Liberty Engineered Wire Products Numesh Nucor Steel Connecticut, Inc. Oklahoma Steel & Wire Co. Inc. Structural Reinforcement Products Inc.	 Kingman, AZ; Jacksonville, FL; Hickman, KY; St Joseph, MO; Mt Airy, NC; Hazelton, PA; Gallatin, TN; Dayton, TX Centerville, IA Upper Sandusky and Warren, OH Glen Falls, NY Wallingford, CT Madill, OK Hazelton, PA
905.07 Strand for Prestressed Concrete **905.08** Tendons for Lateral Post Tensioning	Bekaert Corporation Insteel Wire Products Liberty Strand Tech Manufacturing, Inc. RettCo Steel, LLC Sumiden Wire Products Corporation Wire Mesh Corporation (WMC)	Van Buren, AR Sanderson, FL; Gallatin, TN; Houston, TX Summerville, SC Newnan, GA Stockton, CA; Dickson, TN St. Matthews, SC
908.11A Guardrail, Steel Beam Elements, Anchorage, Bridge, Shoes, Departing End Terminals (End Sections)	Contech Engineered Solutions, LLC Gregory Highway Products Highway Safety Corporation IMH Products, Inc. R.G. Steel Corporation SPIG Industry LLC Trinity Industries, Inc.	 Glastonbury, CT Indianapolis, IN Pulaski, PA Abingdon, VA Lima, OH

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APPROVED MANUFACTURERS

Spec. # and Material Name		Approved Manufacturers	Manufacturers Location
908.11A Guardrail Approach Terminals Remarks: Approach Terminals are proprietary items, accepted as complete units. All systems must be approved by the NCHRP and MDOT Barrier Advisory Commission.	<u>Type1</u> SRT 350 FLEAT - 350 refer to Design Std. Plans 61(X) latest version <u>Type 2</u> ET-Plus SKT - 350 refer to Design Std. Plans 62(X) latest version <u>Type 3</u> CAT FLEAT - MT refer to Design Std. Plans 63(X) latest version	Trinity Industries, Inc. <u>* Road Systems, Inc.</u> Gregory Highway Products R.G. Steel Corporation Highway Safety Corporation Trinity Industries, Inc. <u>* Road Systems, Inc.</u> Gregory Highway Products R.G. Steel Corporation Highway Safety Corporation Trinity Industries, Inc. <u>* Road Systems, Inc.</u> Gregory Highway Products R.G. Steel Corporation Highway Safety Corporation	*NOTES: Road Systems, Inc. (RSI) developed both SKT 350 and FLEAT-350 systems. RSI does not manufacture beams. The 3 listed companies under RSI are distributors and distribute SKT and FLEAT <u>smart</u> parts that make-up the approved approach terminals.
908.12 Steel Posts for Beam Guardrail		Contech Engineered Solutions, LLC Gregory Highway Products Highway Safety Corporation IMH Products, Inc. R.G. Steel Corporation SPIG Industry LLC Trinity Industries, Inc.	 Glastonbury, CT Indianapolis, IN Pulaski, PA Abingdon, VA Lima, OH
909.04A Reinforced Concrete Pipe		Concrete Industries, Inc. Co-Pipe Products, Inc. County Materials Corporation Northern Concrete Pipe Upper Peninsula Pipe Co.	Green Bay, WI Taylor, MI Marathon, WI Bay City, Charlotte, Clarkston, and Wyoming, MI; Toledo (Sylvania), OH Escanaba, MI
909.04C Non-Reinforced Concrete Pipe		Concrete Industries, Inc. Co-Pipe Products, Inc. Northern Concrete Pipe Upper Peninsula Pipe Co.	Green Bay, WI Taylor, MI Bay City, Charlotte, Clarkston, and Wyoming, MI; Toledo (Sylvania), OH Escanaba, MI
909.04D Precast Concrete Box Sections		Co-Pipe Products, Inc. Concrete Industries, Inc. County Materials Corporation Mack Industries Northern Concrete Pipe Upper Peninsula Pipe Co.	Taylor, MI Green Bay, WI Marathon, WI White Lake, MI, and Toledo, OH Bay City, Charlotte, Clarkston, and Wyoming, MI; Toledo (Sylvania), OH Escanaba, MI

APPROVED MANUFACTURERS

Spec. # and Material Name	Approved Manufacturers		Manufacturers Location
909.04E Precast Concrete End Section For Culverts & Sewers	Concrete Industries, Inc. County Materials Corporation Northern Concrete Pipe Upper Peninsula Pipe Co.		Green Bay, WI Marathon, WI Bay City, Charlotte, Clarkston, and Wyoming, MI; Toledo (Sylvania), OH Escanaba, MI
909.04G Precast Concrete Three-Sided or Arch Culverts **NOTES:** **1)** Manufacturers are only approved for the culvert design(s) listed. **2)** Approved on an experimental basis and will require evaluation during and after construction. Contact the department's Structural Fabrication Unit to coordinate evaluation process. **3)** Use is restricted to models 42/0-3 and 48/0-1 and is only permitted when detailed on the plans and when analyzed by the department's Hydraulics Unit. 4) Use is restricted to Arch-Box (AB) Series up to 48 feet in span length. ** Effective January 1, 2011, all manufacturers must be certified by the Precast/Prestressed Concrete Institute (PCI), the National Precast Concrete Association (NPCA), or the American Concrete Pipe Association (ACPA).		Design[1] Ecospan[2, 4] Adspan BEBO[2, 3] Conspan Conspan Northern Arch Hyspan Conspan	 Portland, MI Highland, MI Huber Heights, OH Huber Heights, OH White Lake, MI Bay City, MI Bay City, MI Escanaba, MI
909.05A Corrugated Steel Pipe	Armco Steel Corporation Bark River Culvert & Equipment Co. Contech Engineered Solutions, LLC Jensen Bridge & Supply Co. Lane Enterprises, Inc. Cadillac Culvert St. Regis Culvert, Inc. Worthington Steel		South Bend, IN Escanaba, MI Mason, MI, Mitchell and South Bend, IN, Portage, WI, Shakopee, MN, Ashland and Winchester, KY, Anderson, SC, and Canfield, OH Grand Rapids and Sandusky, MI Pulaski, PA Cadillac, MI Charlotte, MI Delta, OH
909.07B Pipe for Underdrains Corrugated Plastic Tubing (Perforated & Non-Perforated) (Wrapped & Non-Wrapped)	Advanced Drainage Systems, Inc. Baughman Tile Co., Inc. Cervell Drainage Products Hancor, Inc. Haviland Drainage Prinsco, Inc.		Napoleon, OH, and Owosso, MI Paulding, OH Lordstown, OH Findlay, OH Haviland, OH Chatsworth, IL

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APPROVED MANUFACTURERS		
Spec. # and Material Name	Approved Manufacturers	Manufacturers Location
909.07C Pipe for Underdrains Underdrain Outlet 2. Corrugated Steel Pipe	Armco Steel Corporation Bark River Culvert & Equipment Co. Contech Engineered Solutions, LLC Jensen Bridge & Supply Co. Lane Enterprises, Inc. Michigan Culvert Co. Cadillac Culvert St. Regis Culvert, Inc.	South Bend, IN Escanaba, MI Mason, MI, Mitchell & South Bend, IN, Portage, WI, Shakopee, MN, Ashland and Winchester, KY, Anderson, SC, and Canfield, OH Grand Rapids and Sandusky, MI Pulaski, PA Mason, MI Cadillac, MI Charlotte, MI
909.08B Downspouts from Other Bridge Decks 1. Corrugated Steel Pipe	Armco Steel Corporation Bark River Culvert & Equipment Co. Contech Engineered Solutions, LLC Jensen Bridge & Supply Co. Lane Enterprises, Inc. Michigan Culvert Co. Cadillac Culvert St. Regis Culvert, Inc.	South Bend, IN Escanaba, MI Mason, MI, Mitchell and South Bend, IN, Portage, WI, Shakopee, MN, Ashland and Winchester, KY, Anderson, SC, and Canfield, OH Grand Rapids and Sandusky, MI Pulaski, PA Mason, MI Cadillac, MI Charlotte, MI
912.05 Structural Timber & Lumber	American Timber and Steel Co., Inc. Central Nebraska Wood Preservers, Inc. Iowa Wood Preservers, Inc. John Biewer Lumber Company Straits Wood Treating, Inc. Midwest Timber Woodstock, Inc.	Norwalk, OH Sutton, NE Oskaloosa, IA Lansing and St Clair, MI Bay City, MI Edwardsburg, MI West Branch, MI
912.08 Wood Posts and Blocks for Guardrail and Highway Signs (Dimension Sawed)	American Timber and Steel Co., Inc. Central Nebraska Wood Preservers, Inc. Iowa Wood Preservers, Inc. John Biewer Lumber Company Straits Wood Treating, Inc. Midwest Timber Woodstock, Inc.	Norwalk, OH Sutton, NE Oskaloosa, IA St. Clair, MI Bay City, MI Edwardsburg, MI West Branch, MI
913.06 Precast Reinforced Concrete Units for Drainage Structures (Tops, Risers and Sump Bases)	Advance Concrete Products Co. Bush Concrete Products, Inc. Carlesimo Products, Inc. Concrete Industries, Inc. Consumers Concrete Products Co-Pipe Products, Inc. County Materials Corporation Elmer's Grand Valley Concrete Products Kerkstra Precast, Inc. Mack Industries Mack Vault of Toledo-a Div. of Mack Industries Northern Concrete Pipe Norwalk Concrete Industries Quality Precast, Inc. Upper Peninsula Pipe Co.	Highland, MI (Specialty Items) Muskegon, MI Farmington, MI Green Bay, WI Kalamazoo, MI Taylor, MI Marathon, WI Traverse City, MI Grand Rapids, MI Grandville and Jenison, MI White Lake, MI Bowling Green, OH Bay City, Charlotte, Clarkston, and Wyoming, MI; Toledo (Sylvania), OH Norwalk, OH Kalamazoo, MI Escanaba, MI
913.07 Precast Concrete Bases	See Spec. 913.06, Drainage list	

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APPROVED MANUFACTURERS		
Spec. # and Material Name	Approved Manufacturers	Manufacturers Location
913.09 Slope Pavement Blocks	4D, Inc. Bark River Concrete Products Best Block Company Carlesimo Products, Inc. Concrete Service, Inc. Consumers Concrete Products Fendt Builder's Supply, Inc. Ferguson Block Co., Inc. Grand Blanc Cement Products Jansen Block Co. Northern Concrete Pipe	Midland, MI Bark River, MI Warren, MI Farmington, MI Traverse City, MI Kalamazoo and South Haven, MI Ann Arbor and Farmington Hills, MI Davison, MI Grand Blanc, MI Grand Rapids, MI Grand Rapids, MI
914.07 Transverse Pavement Joints 1. Dowel Bars For coating info. See QPL 905.03C for approved material and manufacturers. See Spec. 905.03C for Epoxy Coating Manufacturers (Coaters).	American Highway American Steel & Wire ASI Alton Steel, Inc. Austeel Barbary Coast Barnsco Bayou Steel Corporation Boomer Construction Materials Byer Steel (formerly A.B. Steel) <u>CMC Steel</u> CMC Steel Florida CMC New Jersey CMC Tennessee CMC Steel Texas CMC Steel CMT Manufacturing, Highway Division Cascade Steel Rolling Mills Erect-A-Line ERSCO Construction Supply <u>Gerdau Ameristeel Corporation</u> Charlotte Steel Mill Div. Jackson Steel Mill Div. Midlothian Steel Mill Div. St. Paul Steel Mill Div. Metal Partners International <u>Nucor Steel</u> Nucor Steel Auburn, Inc. Nucor Steel Kankakee, Inc. Nucor Steel Marion, Inc. Nucor Steel Utah, Inc. Roadway Construction Products Steel Dynamics, Inc.	Kankakee, IL Joliet, IL Alton, IL Lemont, IL Mississippi, Norfolk, Illinois Detroit, MI Harriman, TN Detroit, MI Cincinnati, OH Baldwin, FL Sayreville, NJ Knoxville, TN Seguin, TX Cayce-West, Columbia, SC Durant, IA McMinnville, OR Dallas, TX Wyoming, MI Charlotte, NC Jackson, TN Midlothian, TX St. Paul, MN Hammond, IN Auburn, NY Bourbonnais, IL Marion, OH Plymouth, UT Clarkson, KY Pittsboro, IN
914.07 Load Transfer Assemblies; Dowel Baskets	American Highway Barnsco CMT Manufacturing, Highway Division Dayton Superior Corporation Boomer Construction Materials Erect-A-Line Roadway Construction Products	Kankakee, IL Detroit, MI Durant, IA Valparaiso, IN Detroit, MI Dallas, TX Clarkson, KY
914.08 Transverse End of Pour Joint Devices B. Deformed Bars	<u>Bar Manufacturers</u> See Reinforcement Bar Manufacturers Spec. 905.03	<u>Epoxy Coating Material</u> See Reinforcement Bar, Spec 905.03C and QPL 905.03C.

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APPROVED MANUFACTURERS		
Spec. # and Material Name	Approved Manufacturers	Manufacturers Location
914.09 Straight and Bent Tie Bars for Longitudinal Pavement Joints, (Lane Ties)	Bar Manufacturers See Reinforcement Bar Manufacturers Spec. 905.03	Epoxy Coating Material See Reinforcement Bar, Spec 905.03C and QPL 905.03C.
916.02 Silt Fence Qualified Geotextile Fabric products listed in the QPL 910.04.	American Excelsior Co. Inc. C.S.I. / Geo Turf, Inc. DGI Industries Environmental Protection Products Geo-Synthetics Geoproducts, Inc. Hanes Geo Components. Jensen Bridge & Supply Co. Klein Brothers Hardwood Inc. Pallen Enterprises Rhino Seed and Landscape Supply Willacoochee Industrial Fabrics, Inc.	Westland, MI Highland, MI Bennington, NH Williamsburg, MI Waukesha, WI Birmingham, MI Charlotte, NC, Wixom and Wyoming, MI Wauseon, OH, Grand Rapids and Sandusky, MI Milford, MI Conyer, GA Bradley, MI Willacoochee, GA
918.06 Precast Concrete Handholes & Manholes for Electrical & Telephone Connections	Advance Concrete Products Bush Concrete Products, Inc. Carlesimo Products, Inc. Consumers Concrete Products Elmer's Grand Valley Concrete Products, Inc. Hartford Concrete Products, Inc. Kerkstra Precast, Inc. Mack Industries Northern Concrete Pipe Norwalk Concrete Industries Quality Precast, Inc. Upper Peninsula Pipe Co.	Highland, MI Muskegon, MI Farmington, MI Kalamazoo, MI Traverse City, MI Grand Rapids, MI Hartford City and Ashley, IN Jenison, MI White Lake, MI Bay City, Charlotte, Clarkston, and Wyoming, MI; Toledo (Sylvania), OH Norwalk, OH Kalamazoo, MI Escanaba, MI
919.05 Wood Sign Posts	American Timber and Steel Co., Inc. John Biewer Lumber Company Straits Wood Treating, Inc. Midwest Timber Woodstock, Inc.	Norwalk, OH St. Clair, MI Bay City, MI Edwardsburg, MI West Branch, MI

QUALIFIED PRODUCTS LIST

The materials in this section may be accepted for use on Michigan Department of Transportation projects based on the trade name, model number, etc., as listed.

This Qualified Products List is in accordance with the 2012 Standard Specifications for Construction.

Also see Section 5.01 if the MQAP Manual.

QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
502.02B Overband Crackfill	K-T 1190 AR Plus Type 2 Deery 102 Deery 103 Roadsaver 211 Roadsaver 221 Dura-Fill 3405 RP 1190 ColJoint ARS II	Bit-Mat Products Crafco, Inc. Crafco, Inc. Crafco, Inc. Crafco, Inc. Crafco, Inc. P&T Products, Inc. Right Pointe Colas Solutions
603.03B2 Adhesive Systems for Grouting Dowel Bars and Tie Bars for Full-Depth Concrete Pavement Repairs **NOTE:** Use these Qualified Products for grouting repairs to existing concrete in the same direction of traffic in the same lane of repair. For grouting lane ties (deformed bars positioned transverse to the direction of traffic located between traffic lanes) use QPL 712.03J, "Adhesive Systems for Structural Anchors and Lane Ties".	ASF-1000 Ultrabond 1 Ultrabond 2 UltraBond HS-200 Inject-Tite Standard Set Inject-Tite Fast Set Aka Bond Aka Bond 550XP Aka Bond 550XPP Sonneborn Rapid Gel BHS-1250 BHS-1250XP CanRez 800 Araldite AW / HW 8561 Spec Bond 201 Highway Fast Set Epoxy TRU Grip HI-Modepoxy 590 Tru-Grip 591 AWA Gel Dural Fast Set Epoxy Gel Dural HS Gel Futura Bond 566 Hilti RSE DOT Redhead A7+ Redhead C6+ Redhead G5+ Epcon A7 Epcon-Ceramic 6 SurePoxy 117 Kelipoxy II Dynapoxy EP-430 FAST Poly-Carb Mark 198.4 Polyject/Polybac 1257 Polyject/Polybac 1295 AC 50 Silver AC 100+ Gold PE 1000+ Pure 50+ Pure 110+ T308+ Speed Bond #1 Sikadur Injection Gel Sikadur 881 DBA Sikadur DOT-SP13 Arcylic -Tie AT Epoxy Tie Dowel Bar Adhesive #5 Pro Poxy 300 Pro Poxy 300 FAST CIA Gel 7000 Rezi-Weld Gel Paste Rezi-Weld Gel Paste State	Adhesives Technology Corp. Adhesives Technology Corp. Adhesives Technology Corp. Adhesives Technology Corp. ANKR-Tite Fastening Systems ANKR-Tite Fastening Systems Axson North America (Formerly Akemi Plastics) Axson North America (Formerly Akemi Plastics) Axson North America (Formerly Akemi Plastics) BASF Construction Chemical Blackhawk Sales Company, Inc. Blackhawk Sales Company, Inc. Cansto Coatings Ciba Specialty Chemicals Corp. Conspec by Dayton Superior, Inc. Dayton Superior Corp. J. Dedoes, Inc. J. Dedoes, Inc. E-Chem Euclid Chemical Company Euclid Chemical Company Futura Adhesives & Chemicals Hilti, Inc. ITW Commercial Construction ITW Commercial Construction ITW Commercial Construction ITW Ramset/Red Head ITW Ramset/Red Head Kaufman Products Kelken Construction Systems Pecora Corporation Olin Epoxy-Poly-Carb (Blue Cube Operations LLC) Olin Epoxy-Poly-Carb (Blue Cube Operations LLC) Polygem, Inc. Polygem, Inc. Powers Fasteners, Inc. Powers Fasteners, Inc. Powers Fasteners, Inc. Powers Fasteners, Inc. Powers Fasteners, Inc. Powers Fasteners, Inc. Prime Resins, Inc. Sika Corporation Sika Corporation Sika Corporation Simpson Strong-Tie Company, Inc. Simpson Strong-Tie Company, Inc. Superior Epoxies & Coatings Unitex Unitex USP Structural Connectors W.R. Meadows, Inc. W.R. Meadows, Inc.

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name		Manufacturers or Suppliers
702.02B Non-Shrinking Mortar and Grout Type H-1(Non-Metallic) Pre Mixed H-2 eliminated.	MBT 928 Grout		BASF Construction Chemical, Shakopee, MN
	MasterFlow 100		BASF Construction Chemical, Shakopee, MN
	Set Grout		BASF Construction Chemical, Shakopee, MN
	Boomer Premium Grout		Boomer Construction Materials, Detroit, MI
	Upcon Super Flow Grout		Bostik Const. Prod. Co., Cleveland, OH
	Celtite 10-50 Hi-Flow		Celtite Inc., Georgetown, KY
	Conset Grout-XT		ChemMasters, Madison, OH
	Conspec 100		Conspec by Dayton Superior, Kansas City, KS
	Enduro 50 Grout		Conspec by Dayton Superior, Kansas City, KS
	Gifford-Hills Supreme Grout		Cormix, Inc., Cleveland, OH (form. Gifford-Hill)
	1107 Advantage Grout		Dayton Superior, Kansas City, KS
	Sure Grip Grout		Dayton Superior, Kansas City, KS
	NS Grout		Euclid Chemical Co., Cleveland, OH
	Five Star Grout		Five Star Products, Inc.
	Pro-Grout 90		G.C.M., Inc., Bensalem, PA
	SureGrout		Kaufman Products, Inc., Baltimore, MD
	Crystex		L&M Construction Chemicals, Inc., Omaha, NE
	Duragrout		L&M Construction Chemicals, Inc., Omaha, NE
	Quikrete Precision Grout		Quikrete Technical Center, Atlanta, GA
	SC Miltipurpose Grout		SpecChem
	Superb Grout 611		Specco Industries, Lemont, IL
	Sealite 588 Grout		W. R. Meadows, Inc., Elgin, IL
703 Prepackaged Hydraulic Fast Set* Mortar **NOTE:** *Percentage based upon weight of prepackaged bag containing both cement and sand. Example Calculation: 50 lb bag approved at 60% extension = 50 x 0.60 = 30 lb coarse aggregate per bag.		Max. Aggregate Extension, %	
	MasterEmaco T 1060	60*	BASF Construction Chemical
	MasterEmaco T 545	60*	BASF Construction Chemical
	Burke Fast Patch 928	50*	Edoco, a Dayton Superior Co., Kansas City, KS
	Chem Speed 65	50*	Chem Masters
	HD-50 Heavy Duty Concrete Patch	60*	Dayton Superior Corp.
	Express Repair	60*	Euclid Chemical Co.
	Five Star Highway Patch	60*	Five Star Products, Inc.
	Durapatch Hiway	50*	L&M Construction Chemicals, Inc.
	Planitop 18	60*	Mapei Corporation
	Planitop 18ES	40*	Mapei Corporation
	Commercial Grade Fast Set DOT Mix	45.5*	Quikrete
706.03S Penetrating Water Repellent Treatment for Concrete Surfaces (Protective Coating for Concrete)		Application Rate, sq ft/gal	
	ATS-200	150-200	Advanced Chemical Technologies, Inc.
707.02 Bushings for Pins & Link Plates	CJ		TriStar
	Garmax		Garlock

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name			Manufacturers or Suppliers
712.03J Adhesive Systems for Structural Anchor & Lane Ties* **NOTE:** *Lane Ties defined as deformed bars positioned transverse to the direction of traffic located between lanes. For grouting dowel bars and tie bars (bars positioned to existing concrete in the direction of the traffic in the same lane as the repair) use QPL 603.03B2, "Adhesive Systems for Grouting Dowel Bars for Full-Depth Concrete Pavement Repairs". Note 1. Anchors shall be installed per manufacturer's recommendations with a minimum embedment depth of 12 diameters for reinforcing steel and 9 diameters for threaded bolts. Note 2. Material is limited to the shelf life recommendations by the manufacturer.	Name	Adhesive Type	Mixing & Inject.	
	Ultrabond 1	Epoxy	Yes	Adhesives Technology Corp.
	HS-200	Epoxy	Yes	Adhesives Technology Corp.
	Hilti HIT-HY 100	Urethane-Methacrylate	Yes	Hilti, Inc.
	Hilti HIT-HY 200-A	Urethane-Methacrylate	Yes	Hilti, Inc.
	Hilti HIT-HY 200-R	Methacrylate	Yes	Hilti, Inc.
	Hilti HIT RE-10	Epoxy	Yes	Hilti, Inc.
	Hilti HIT-RE-500v3	Epoxy	Yes	Hilti, Inc.
	Redhead A7+	Epoxy	Yes	ITW Commercial Construction
	Super Por-Rok	Non-Shrink Grout	Yes	CGM, Inc.
	DeWALT Pure 110+	Epoxy	Yes	Powers Fasteners, Inc.
	Sika AnchorFix 500	Epoxy	Yes	Sika Corporation
	AT-XP	Acrylic	Yes	Simpson Strong-Tie Anchor Systems
	Acrylic-Tie	Methacrylate	Yes	Simpson Strong-Tie Anchor Systems
	SET	Epoxy	Yes	Simpson Strong-Tie Anchor Systems
	Pro-Poxy 300	Epoxy	Yes	Unitex
	CIA-Gel 7000	Epoxy	Yes	USP Structural Connectors
	Rezi Weld Gel Paste State	Epoxy	Yes	W.R. Meadows, Inc.
712.03K Structure Expansion Anchors (Mechanical Expansion Anchors) Pull-out Testing is required per MQAP Manual Section 3.03. **NOTE**: Mechanical Expansion Anchors shall be set by applying the manufacturer's specified torque. The turn of the nut method will not be an acceptable alternative.	1. Pre-Drilled Flush Type a) Hiliti HDI (3/8", ½" , 3/4" dia. anchors only) 2. Pre-Drilled Stud Type - Not suitable for lane ties or for guardrail end shoes because of exposed thread. a) Hilti Kwik-Bolt II or Kwik-Bolt III 3/8" dia. anchor - min. embedment = 2 ½" 1/2" dia. anchor - min. embedment = 3 ½" 5/8" dia. anchor - min. embedment = 4" b) Simpson Strong-Tie Wedge-All 1/2" dia. anchor - min. embedment = 4 ½"			
712.03L Mechanical Reinforcement Splicing **NOTE:** Splices used to connect precast structural elements shall be high strength splices.	BPI Barsplicer System			BarSplice Products, Inc., Dayton, OH
	Grip-Twist Threaded Position Coupler			BarSplice Products, Inc., Dayton, OH
	Taper Threaded Grip-Twist			BarSplice Products, Inc., Dayton, OH
	Zap Screwlok			BarSplice Products, Inc., Dayton, OH
	Bar-Lock L-Series			Dayton Superior Corp., Miamisburg, OH
	DBDI			Dayton Superior Corp., Miamisburg, OH
	Lenton			PENTAIR, Solon, OH
	Lenton Form Saver			PENTAIR, Solon, OH
	Lenton Interlok (High Strength)			PENTAIR, Solon, OH
	Lenton Position Coupler			PENTAIR, Solon, OH
	NMB Splice Sleeve (High Strength)			Splice Sleeve North America, Inc., Livonia, MI
712.03Y Embedded Galvanic Anodes	MasterProtect CP Models: 8065, 8105, 8150			BASF Chemical Company
	Sentinel-GL			Euclid Chemical Co.
	Sika Galvashield XP			Sika Corporation
	Sika Galvashield XP+			Sika Corporation
	Sika FerroGard 650, 670, 675			Sika Corporation
	Galvashield XP			Vector Corrosion Technologies
	Galvashield XP+			Vector Corrosion Technologies
	Galvashield XPC			Vector Corrosion Technologies
	Galvashield XPT			Vector Corrosion Technologies

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
713.02B Sealant for Perimeter of Beam Repairs **NOTE:** No silicone materials - only polyurethane (PU) or PU blended materials that are paintable. Typically 1 week cure prior to painting. All non-sag material.	MasterSeal NP 1 Bostik 2020 Duralink (F1200) Loxon H1 Loxon S1 Sikaflex-15LM SikaHyflex-150 LM Vulkem 116 XtraBond 9500	BASF Construction Chemicals, Shakapee, MN Bostik US Chem Link Sherwin-Williams Sherwin-Williams Sika Corporation Sika Corporation Tremco, Inc. Premier Industrial Supply
715.02 Coating Systems for New Hanger Assemblies	See Coating Systems for Steel Structures, Hanger Assemblies and End Diaphragms QPL 915	
715.02 Abrasive, Low Dusting **NOTE:** The blasting profile produced by these abrasives will depend on the equipment used. It is the responsibility of the contractor to produce a profile within the 1.0 to 2.8 mils specified range. The abrasive additive, Blastox may be used with any of the listed low-dusting abrasives.	Black Diamond Abrasive - Coal Slag GMA Garnet Blast Black Shot Granulated Slag Jetmag 32B4 StarBlast XL Emerald Creek Garnet Blackjack MSM, Waupaca Materials Alluvial River Garnet Ebony Grit - Copper Slag International Garnet 20-40 International Garnet 30-60 Galaxy Garnet 30-60 Black Beauty Sharpshot XL - Iron Silicate	U.S. Minerals, Tinley Park, IL GMA Garnet Pty Ltd, Narngulu, WA, Australia Bell & MacKenzie Co. Ltd, Hamilton, Ontario Carpenter Brothers Inc., Mequon, WI the Chemours Company, Wilmington, DE Emerald Creek Garnet, Fernwood, ID Faulks Brothers Constr. Co., Inc., Waupaca, WI Marco Group International, Beaver Falls, PA Opta Minerals Inc. Opta Minerals Inc. Opta Minerals Inc. Opta Minerals Inc. Harsco Minerals International, Gary, IN Universal Minerals Kentucky, Inc., Louisville, KY
803.02B Detectable Warning Surfaces (ADA Compliant Sidewalk Ramps), 1. Cast-in-Place	Access Tile Cast In Place Replaceable Advantage Classic Advantage Premier AlertCast ADA Solutions Cast in Place Paver - Composite ADA Solutions Cast in Place Replaceable - Rectangular & Radius - Composite ADA Solutions Iron Dome© - Cast in Place Replaceable - Cast Iron DetecTile Replaceable Tactile Panel Duralast® Detectable Warning Plates Armor-Tile Cast in Place Composite NF Detectable Warning Plate TufTile TufTile Galvanized Steel Tile TufTile Polymer Tactile Tile	Access Products, Inc., Buffalo, NY Advantage Tactile Systems, Buffalo, NY Advantage Tactile Systems, Buffalo, NY AlertTiles, Wilmington, NC ADA Solutions, Wilmington, MA ADA Solutions, Wilmington, MA ADA Solutions, Wilmington, MA DetecTile Corporation East Jordan Iron Works, East Jordan, MI Engineered Plastics, Inc., Williamsville, NY Neenah Foundry Company, Neenah, WI TufTile, Inc. TufTile, Inc. TufTile, Inc.
2. Surface Applied* *NOTE: Surface applied detectable warning surfaces may only be used to retrofit existing concrete	ADA Solutions Surface Applied - Composite Alerttile Armor-Tile Surface Applied Composite Warning System	ADA Solutions, Wilmington, MA Detectable Warning Systems, Wilmington, NC Engineered Plastics, Inc., Williamsville, NY

QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name			Manufacturers or Suppliers
811.03D1 Waterborne, Liquid Pavement Marking Material	Product ID	Color		
	TM-2582	White		Sherwin-Williams
	TM-2204	White		Sherwin-Williams
	TM-2583	Yellow		Sherwin-Williams
	TM-2205	Yellow		Sherwin-Williams
	982211	White		Ennis-Flint
	982212	Yellow		Ennis-Flint
	982221	White		Ennis-Flint
	982222	Yellow		Ennis-Flint
	982201	White		Ennis-Flint
	982202	Yellow		Ennis-Flint
	985205	Blue		Ennis-Flint
	985203	Black		Ennis-Flint
	14228	White		Ozark Materials, LLC
	24228	Yellow		Ozark Materials, LLC
811.03D2 Low Temperature Waterborne, Liquid Pavement Marking Material	White	Lead Free Yellow		
	985351	985352		Ennis-Flint
	TM2372	TM2373		Sherwin-Williams
811.03D3 Regular Dry Paint, Liquid Pavement Marking Material	White	Lead Free Yellow		
	TM-5604	TM-5607		Sherwin-Williams
	982271	982282		Ennis-Flint
811.03D4 Cold Plastic Tape, Preformed Pavement Marking Material, Permanent (Long Line, Legends & Crosswalks)	**Wet Reflective Long Line:**			
	White	Yellow	Adhesive	
	380 AW	381 AW	P50	3M
	DeltaLine XRP-R	DeltaLine XRP-R	D-20	Brite-line Technologies, LLC
	Standard Long Line:			
	White	Yellow	Adhesive	
	380I ES	381I ES	P50	3M
	Director 60	Director 60	DP-E4	Swarco
	Director 60 HPT	Director 60 HPT	DP-E4	Swarco
	Shadow Tape:			
	Black		Adhesive	
	385 AW		P50	3M
	385 ES		P50	3M
	Director 60		DP-E4	Swarco
	Special Markings (symbols, legends, stop bars, crosswalks, crosshatching):			
	White	Yellow	Adhesive	
	270 ES	271 ES	P50	3M
	380I ES	381I ES	P50	3M
	ATM 300	ATM 300	ATM Permanent Primer	Advanced Traffic Markings
	Director 60	Director 60	DP-E4	Swarco
	Director 60 HPT	Director 60 HPT	DP-E4	Swarco
811.03D5 Thermoplastic, Liquid Pavement Marking Material	White	Yellow		
	884285	884685		Ennis-Flint
	Swarcotherm EWH 131	Swarcotherm EYH 132		Swarco
	Viatherm E413W			Geveko Markings
811.03D5 Thermoplastic, Blocks Rumble Strips	Viatherm E411W			Geveko Markings

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name		Manufacturers or Suppliers
811.03D6 Thermoplastic, Sprayable, Liquid Pavement Marking Material	White	Yellow	
	01-WAK-BADA	01-YAK-AADA	Crown Technology
	01-WHK-BADA	01-YHK-AADA	Crown Technology
	0321012	0321212	Crown Technology
	W1SS7056	Y1SS7006	Ennis-Flint
	W2SS7056	Y2SS7006	Ennis-Flint
	617496 Thermodrop	617369 Thermodrop	Ennis-Flint
	884822	883241	Ennis-Flint
	884822PT	883241PT	Ennis-Flint
	884824	883240	Ennis-Flint
	11128	21128	Ozark Materials, LLC
	1157MWHSI	2798MYHSI	Swarco
	3023MWASI	3021MYASI	Swarco
811.03D7 Polyurea, Liquid Pavement Marking Material	5000 LPM	White	3M
	5001 LPM	Yellow	3M
	LS90	White and Yellow	Epo-Plex
	HPS-5	White and Yellow	Ennis Flint
811.03D8 Modified Urethane, Liquid Pavement Marking Material	HPS-4	White and Yellow	Ennis-Flint
	MFUA-10	White and Yellow	Swarco
811.03D9 Preformed Thermoplastic, Preformed Pavement Marking Material	PreMark		Ennis-Flint
	PreMark XF		Ennis-Flint
	HotTape		Ennis-Flint
	Preformed Thermoplastic		Ozark Materials, LLC
	SWARCO Preformed Thermoplastic		Swarco

QUALIFIED PRODUCTS LIST (QPL)

ADMIXTURES FOR CONCRETE
Air Entraining - ASTM C 260; Chemical - ASTM C 494
(See Notes Following Listing of Admixtures)

Spec. # and Material Name	Manufacturer or Supplier and Trade Name	Type	Producer and Description	Recommended Dosage min. or range fl oz/cwt
	EUCLID CHEMICAL CO.			
903.01 Air Entraining Admixtures	Eucon AEA 92	AE	Air-entraining	1.5
	Accelguard G3	E	Water-reducer accelerator (non-chloride)	16 - 90
903.02 Liquid Chemical Admixtures	Accelguard NCA	C	Accelerator (non-chloride)	15
	Eucon Air Mix 200	AE	Air-entraining	3
	EUCON Air MAC6	AE	Air-entraining	0.5 - 4
	EUCON MR	A	Water-reducer	4.5
		MR	Mid-range water-reducer	5.5
		F	High-range water-reducer	12
	EUCON MRX	MR	Mid-range water-reducer	3.5
		F	High-range water-reducer	7.5
	EUCON SE	A	Water-reducer	2.5
		D	Water-reducer retarder	4.5
	EUCON WR	A	Water-reducer	2.5 - 10
		D	Water-reducer retarder	2.5 - 10
	EUCON WR-91	A	Water-reducer	3
		MR	Mid-range water-reducer	5
		D	Water-reducer retarder	6
	EUCON A+	A	Water-reducer	3.5
		MR	Mid-range water-reducer	4.5
	EUCON Retarder75	D	Water-reducer retarder	3.5
	EUCON Stasis	D	Water-reducer retarder	1 - 16
	EUCON AIR MAC12	AE	Air-entraining	1.5 - 4
	PLASTOL 5700	F	High-range water-reducer	2 - 10
	PLASTOL 6400	F	High-range water-reducer	4.5 - 12
	PLASTOL 6420	MR	Mid-range water-reducer	2 - 5.5
		F	High-range water-reducer	5.5 - 10
	PLASTOL ULTRA 209	F	High-range water-reducer	3.5 - 12

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QUALIFIED PRODUCTS LIST (QPL)

ADMIXTURES FOR CONCRETE
Air Entraining - ASTM C 260; Chemical - ASTM C 494
(See Notes Following Listing of Admixtures)

Spec. # and Material Name	Manufacturer or Supplier and Trade Name	Type	Producer and Description	Recommended Dosage min. or range fl oz/cwt
903.01 Air Entraining Admixtures	**GCP APPLIED TECHNOLOGIES, INC.**			
	ADVA 140M	A	Water-reducer	5 - 9
903.02 Liquid Chemical Admixtures		F	High-range water-reducer	9 - 16
	ADVA 405	F	High-range water-reducer	11 - 18
	ADVA Cast 198	F	High-range water-reducer	4 - 15
	ADVA Cast 575	F	High-range water-reducer	3.5 - 10
	ADVA Cast 585	F	High-range water-reducer	4 - 10
	ADVA Cast 600	A	Water-reducer	2 - 4
		F	High-range water-reducer	4 - 10
	Daraset 400	C	Accelerator (non-chloride)	15
	Daravair 1400	AE	Air-entraining	1
	Darex II AEA	AE	Air-entraining	1 - 5
	MIRA 62	A	Water-reducer	4.5
		MR	Mid-range water-reducer	6 - 12
		F	High-range water-reducer	12 - 15
	MIRA 95	F	High-range water-reducer	10 - 15
	MIRA 110	MR	Mid-range water-reducer	9 - 12
		F	High-range water-reducer	12 - 15
	Polarset	C	Accelerator (non-chloride)	8 - 60
	Recover	D	Water-reducer retarder	2.5 - 6
	Terapave AEA	AE	Air-entraining	1.5
	WRDA 82	A	Water-reducer	3
	ZYLA 630	A	Water-reducer	4 - 7
		D	Water-reducer retarder	2 - 7
	ZYLA R	D	Water-reducer retarder	6 - 12

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QUALIFIED PRODUCTS LIST (QPL)

ADMIXTURES FOR CONCRETE
Air Entraining - ASTM C 260; Chemical - ASTM C 494
(See Notes Following Listing of Admixtures)

Spec. # and Material Name	Manufacturer or Supplier and Trade Name	Type	Producer and Description	Recommended Dosage min. or range fl oz/cwt
	MAPEI CORPORATION			
903.01 Air Entraining Admixtures	Dynamon SX	F	High-range water-reducer	6 - 12
		MR	Mid-range water-reducer	3.5 - 6
903.02 Liquid Chemical Admixtures	KB-1200	A	Water-reducer	3 - 5
		MR	Mid-range water-reducer	5 - 8
	Polychem Paver Plus	A	Water-reducer	2 - 8
	Polychem VR	AE	Air-entraining (vinsol resin)	0.5
	Polychem SA	AE	Air-entraining	0.4 - 3.0
	Polychem SA-14	AE	Air-entraining	0.5 - 3.0
	Polychem SA-50	AE	Air-entraining	1 - 3
	Polychem 400 NC	A	Water-reducer	2 - 5
	Polychem Super Set	C	Accelerator (non-chloride)	16 - 32
	Polychem Super Set Plus	C	Accelerator (non-chloride)	16 - 90
	Polychem R	D	Water-reducer retarder	3 - 5
	Polychem SPC	F	High-range water-reducer	5.5

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QUALIFIED PRODUCTS LIST (QPL)

ADMIXTURES FOR CONCRETE
Air Entraining - ASTM C 260; Chemical - ASTM C 494
(See Notes Following Listing of Admixtures)

Spec. # and Material Name	Manufacturer or Supplier and Trade Name	Type	Producer and Description	Recommended Dosage min. or range fl oz/cwt
903.01 Air Entraining Admixtures	**MASTER BUILDER SOLUTIONS US LLC.**			
	MasterSet DELVO	D	Water-reducer retarder	3
903.02 Liquid Chemical Admixtures	MasterGlenium 3400	F	High-range water-reducer	3
	MasterGlenium 7500	A	Water-reducer	1.5
		F	High-range water-reducer	3 - 15
	MasterGlenium 7700	F	High-range water-reducer	4 - 15
	MasterGlenium 7710	F	High-range water-reducer	4
	MasterGlenium 7720	A	Water-reducer	1.7
		MR	Mid-range water-reducer	2.6
		F	High-range water-reducer	3.2
	MasterGlenium 7920	F	High-range water-reducer	4
		MR	Mid-range water-reducer	2
	MasterGlenium 7925	F	High-range water-reducer	4
		MR	Mid-range water-reducer	2
	MasterAir AE 90	AE	Air-entraining	1
	MasterAir AE 200	AE	Air-entraining	1
	MasterPolyheed 900	A	Water-reducer	4
		MR	Mid-range water-reducer	7
	MasterPolyheed 997	A	Water-reducer	3
		MR	Mid-range water-reducer	6
		F	High-range water-reducer	10
	MasterPolyheed 1725	A	Water-reducer	2.5 - 4
		MR	Mid-range water-reducer	5.5 - 7
		F	High-range water-reducer	8 - 12
	MasterPolyheed 100	A	Water-reducer	4
		MR	Mid-range water-reducer	8
	MasterPozzolith 200	A	Water-reducer	2
		D	Water-reducer retarder	4
	MasterPozzolith 700	A	Water-reducer	2
		D	Water-reducer retarder	5
	MasterSet AC 534	C	Accelerator (non-chloride)	10
	MasterSet FP 20	C	Accelerator (non-chloride)	10
	MasterGlenium 7511	A	Water-reducer	2 - 4
		MR	Mid-range water-reducer	4 - 6
		F	High-range water-reducer	6 - 15
	MasterRheobuild 1000	MR	Mid-range water-reducer	9
		F	High-range water-reducer	13

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QUALIFIED PRODUCTS LIST (QPL)

ADMIXTURES FOR CONCRETE
Air Entraining - ASTM C 260; Chemical - ASTM C 494
(See Notes Following Listing of Admixtures)

Spec. # and Material Name	Manufacturer or Supplier and Trade Name	Type	Producer and Description	Recommended Dosage min. or range fl oz/cwt
903.01 Air Entraining Admixtures	**PREMIERE CONCRETE ADMIXTURES**			
	EcoFlo Green	F	High-range water-reducer	8 - 16
903.02 Liquid Chemical Admixtures		A	Water-reducer	2 - 4
		MR	Mid-range water-reducer	5 - 8
	Optiflo 700	A	Water-reducer	3 - 5
		MR	Mid-range water-reducer	5 - 10
	OptiFlo 50	A	Water-reducer	3 - 5
		MR	Mid-range water-reducer	5 - 6
		D	Water-reducer retarder	6
	OptiFlo 500	A	Water-reducer	2 - 3.5
		D	Water-reducer retarder	3.5 - 5
	OptiFlo MR	A	Water-reducer	3 - 5
		MR	Mid-range water-reducer	5 - 12
		F	High-range water-reducer	12 - 16
	OptiFlo N2A	A	Water-reducer	3 - 6
		MR	Mid-range water-reducer	6 - 9
		G	High-range water-reducer retarder	13 - 15
	OptiFlo Plus	MR	Mid-range water-reducer	5 - 12
	OptiFlo 100R	D	Water-reducer retarder	3 - 5
	ConAir	AE	Air-entraining	0.5 - 4
	ConAir 260	AE	Air-entraining	0.5 - 4
	ConAir X	AE	Air-entraining	0.5 - 4
	UltraFlo 2000	A	Water-reducer	2 - 4
		MR	Mid-range water-reducer	4 - 6
		F	High-range water-reducer	6 - 12
	UltraFlo 5600	MR	Mid-range water-reducer	6 - 10
		F	High-range water-reducer	10 - 24
		A	Water-reducer	3 - 6
	UltraFlo DP	F	High-range water-reducer	5 - 12
	NitroCast K	E	Water-reducer accelerator (non-chloride)	10 - 90
	NitroCast NC	E	Water-reducer accelerator (non-chloride)	10 - 90
	ProLong L	D	Water-reducer retarder	2.5 - 6.5

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QUALIFIED PRODUCTS LIST (QPL)

ADMIXTURES FOR CONCRETE
Air Entraining - ASTM C 260; Chemical - ASTM C 494
(See Notes Following Listing of Admixtures)

Spec. # and Material Name	Manufacturer or Supplier and Trade Name	Type	Producer and Description	Recommended Dosage min. or range fl oz/cwt
	RUSSTECH			
903.01 Air Entraining Admixtures	LC-400R	D	Water-reducer retarder	3.5 - 6
	RSA-10	AE	Air-entraining	1
903.02 Liquid Chemical Admixtures	Superflo 2000 RM	F	High-range water-reducer	8 - 20

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QUALIFIED PRODUCTS LIST (QPL)

ADMIXTURES FOR CONCRETE
Air Entraining - ASTM C 260; Chemical - ASTM C 494
(See Notes Following Listing of Admixtures)

Spec. # and Material Name	Manufacturer or Supplier and Trade Name	Type	Producer and Description	Recommended Dosage min. or range fl oz/cwt
	SIKA CORP.			
903.01 Air Entraining Admixtures	Sika Plastocrete-10N	A	Water-reducer	2
		D	Water-reducer retarder	3.5
903.02 Liquid Chemical Admixtures	Sika Plastocrete-161	A	Water-reducer	3
		D	Water-reducer retarder	6
	Sika Plastocrete-250	A	Water-reducer	2
		D	Water-reducer retarder	5
	Sika Plastiment XR	D	Water-reducer retarder	3
	Sika AEA-14	AE	Air-entraining	2
	Sika AIR 260	AE	Air-entraining	2
	Sika AIR 360	AE	Air-entraining	1
	SikaControl Air-160	AE	Air-Entraining	1
	Sikament AFM	A	Water-reducer	2
		MR	Mid-range water-reducer	5
		F	High-range water-reducer	10
	Sikament SPMN	MR	Mid-range water-reducer	6.5
		F	High-range water-reducer	10
	Sikament 475	A	Water-reducer	3
		F	High-range water-reducer	7
		MR	Mid-range water-reducer	5
	Sikament 686	A	Water-reducer	3
		MR	Mid-range water-reducer	5.5
		F	High-range water-reducer	8
	SikaPlast 200	A	Water-reducer	3
		G	High-range water-reducer retarder	13
		MR	Mid-range water-reducer	6.5
	Sikaplast 300 GP	A	Water-reducer	5
		MR	Mid-range water-reducer	7.5
	SikaSet NC	C	Accelerator (non-chloride)	10
		E	Water-reducer accelerator (non-chloride)	10
	Sikatard 440	D	Water-reducer retarder	3
	Rapid - 1	C	Accelerator (non-chloride)	20
	ViscoCrete 1000	A	Water-reducer	1.5
		MR	Mid-range water-reducer	3
		F	High-range water-reducer	8
	ViscoCrete 2100	F	High-range water-reducer	5
	ViscoCrete 4100	F	High-range water-reducer	5
	ViscoCrete 6100	F	High-range water-reducer	5
	Viscoflow-2020	A	Water-reducer	3
		MR	Mid-range water-reducer	6

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SPEC. 903 ADMIXTURE NOTES:

1. Dosage Rate

   The dosage rate indicated is that recommended by the producer or that used in qualification tests for approval of the admixture. There is no assurance that the desired water-reduction and/or retardation will be achieved with these dosages with a particular cement being used, as the effect is dependent on the cement chemistry, concrete temperature, and other factors. Increasing the dosage appreciably above that recommended may result in abnormal behavior of the concrete, such as extremely long or very short setting times. Reducing the dosage below that recommended may have the effect of substantially no change from concrete without the admixture. The dosage shown for retarding admixtures will normally produce a 1- to 3-hour retardation in the setting of the concrete, compared to similar concrete without the admixture, when used at normal temperatures (approximately 70°F). Increased dosage, within reasonable limits, will usually increase the retardation. Use of a retarding admixture will not slow the stiffening of concrete due to loss of slump.

2. Air-Entraining Admixtures

   The contractor is responsible for verifying the compatibility of all chemical admixtures and the air-entraining admixture. If admixtures are from more than one manufacturer, run a trial batch prior to concrete placement. Provide test results for slump, air-entrainment and seven-day compression for two (2) cylinders. Actual dosage for Air-Entrainers may vary from those listed on the Qualified Products List as required by the mix design.

3. Lignin Type Admixtures

   Lignin (or lignosulfonate) admixtures typically will cause the entrainment of additional air in air-entrained concrete. This type admixture does not generally entrain air by itself, but makes other air-entraining materials much more efficient. Thus, a change in dosage of either the chemical admixture or the air-entraining admixture may have a more significant effect on the air content than normally expected. It is the contractor's responsibility to be sure the specific admixture proposed for use is compatible with his operations so that excessive air content in the concrete is not developed. Most lignosulfonate type water-reducers will provide a moderate retardation if used at higher dosage rates.

4. High-Range Water-Reducers

   Type F and G high range water-reducing (HRWR) admixtures (frequently called "superplasticizers") are capable of greater water reduction and greater strength gain than regular Type A water-reducers, or can provide substantial increase in slump while maintaining a cohesive concrete without loss of strength. Type G admixtures will also provide retardation of setting similar to Type D admixtures. Problems with this type of admixture include the following: (a) Loss of slump is frequently much more rapid than with plain concrete or when other admixtures are used, especially for older formulations of superplasticizers; (b) Effectiveness depends on the chemistry of the Portland cement, and the cements generally available in Michigan do not have the most favorable chemistry; (c) The air-void system may be adversely affected. Type F and G admixtures are to be used only according to the provisions of the Standard Specifications.

5. Admixtures Containing Chlorides

   Some Type A and D admixtures may contain chlorides, as noted in the above listing. Section 903.03 of the Standard Specifications permits the use of these admixtures, except they are prohibited in concrete for bridge superstructure, prestressed concrete, and concrete containing galvanized steel or aluminum.

(End of Admixture Notes)

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name		Manufacturers or Suppliers
905.03C Bar Reinforcement (Epoxy Coating) **NOTE:** Epoxy Coating Material Only. The Coating Applicator and Bar Manufacturer can be Approved Manufacturers, see Approved Manufacturers List.	Epoxy Coating Product Name	Repair Coating Product Name	
	Scotchkote FBEC 413	Scotchkote 323R	3M
	Resicoat RB-600	Thermal Chem BarPatch #803	Akzo Nobel Powder Coatings
	Nap-Gard 7-2719 Rebar FBE	Nap-Gard 7-1868	Axalta Coating Systems
	Nap-Gard 7-2750	Nap-Gard 7-1868	Axalta Coating Systems
	Pureflex Green		IFS Coatings, Inc.
	Greenbar 720A009	Greenbar 920966S	Valspar (Sherwin Williams)
	Greenbar 720A009LG		Valspar (Sherwin Williams)
	Vectrashield PFY80006	Vectrashield Patch Kit	Valspar (Sherwin Williams)
906.09 Shear Developers (Studs)	Markings		
	B		Bluearc Stud Welding
	C		Cox Industries
	N		Nelson Stud Welding Co. (Div. of Gregory Ind.)
	X		Stud Welding Associates, Inc.
	TW		Tru-Weld from Tru-Fit Products Corp.
909.01 Recycled Rubber Adjusting Rings for Manholes and Drainage Structures	Flex-O-Ring		American Highway Products
	Pivoted Turnbuckle		American Highway Products
	Pro-Ring		Cretex Specialty Products
	Infra-Riser		East Jordan Iron Works
	Ladtech HDPE		Ladtech, Inc.
	HDPE Recycled Manhole Adjusting Ring		P. Spear Company
	UGT Grade Ring		Underground Technologies
	Whirlygig		Whirlygig, Inc.

QUALIFIED PRODUCTS LIST (QPL)

Spec. #	Pipe Material	Joint System	Pipe Diameter (Inches)	Approved Manufacturers
909.03 Watertight Joint Systems	Corrugated Polyethylene Pipe	Bell/Spigot N-12WT Pro-Link Ultra WT Rubber Gasket	12 thru 60	ADS – Hancor
	Corrugated Polyethylene Pipe	Compression Gasket	12 thru 24	Baughman Tile Co.
	Corrugated Polyethylene Pipe	Haviland Smooth-Flow WT Compression Gasket	12 thru 36	Haviland Drainage Products Co.
	Corrugated Polyethylene Pipe	MaxSeal Gasket	12 thru 60	JM Eagle
	Corrugated Polyethylene Pipe	Gold Flow Corrugated SLCP Compression Gasket	12 thru 36	Prinsco, Inc.
	Corrugated Polyethylene Pipe	Gold Flow WT w/SpringSeal gaskets	12 thru 36	Prinsco, Inc
	Corrugated Polyethylene Pipe	Bell/Spigot Polyisoprene Gaskets	12 thru 60	Southeast Culvert, Inc.
	Corrugated Polyethylene Pipe	Vertex Single Compression Gasket	12 thru 60	Southeast Culvert, Inc.
	Corrugated Polyvinyl Chloride Pipe (PVC)	Integrally Formed Elastomeric Gasket, Bell/Spigot	12 thru 36	Contech Engineered Solutions, LLC
	Concrete Pipe	Single Offset Self-Lubricating Gasket, Tylox - Hamilton Kent	12 thru 24	Co-Pipe Products Inc.
	Concrete Pipe	Press Seal Gasket Corp.-4G, 4F; Hamilton Kent-Tylox Super Seal; Universal Polymer & Rubber-Profile Gasket	12 thru 33	Northern Concrete Pipe, Inc.
	Concrete Pipe	Press Seal Gasket Corp.-4G, 4F, O-ring, M875;	36 thru 72	Northern Concrete Pipe, Inc.
	Concrete Pipe	Hamilton Kent-Tylox SuperSeal Press Seal Gasket Corp.O-ring, M875;	78 thru 144	Northern Concrete Pipe, Inc.
	Concrete Pipe	Compression Gasket, Profile Cross Section, O-Ring Cross Section, Pipe Gasket & Supply	12 thru 24	Upper Peninsula Concrete Pipe Co.
	Concrete Pipe	Hamilton Kent Tylox SuperSeal Models 135 and 185 Tongue-and-Groove, Single Offset	12 thru 72	Concrete Industries, Inc.
	Concrete Pipe	Profile X-Section Gasket, Hamilton Kent	12 thru 36	County Materials Corp.
	Corrugated Metal Pipe	H12 Hugger Band with Single Bolt Bar and Strap with Compression Gasket	12 thru 24	Contech Engineered Solutions, LLC
	Corrugated Metal Pipe	Gasket-Bidco Wrap 12 x 3/8 Band	12 thru 18 Band 7 24 thru 30 Band 12 & larger Band 21	Jensen Bridge & Supply Co.
	Corrugated Metal Pipe	12 Bolted Band Angle with Compression Gasket Bidco Wrap 6 x 1/8 Band	12 thru 72	Cadillac Culvert
	Corrugated Metal Pipe	Bolted Corrugated Steel Band with Compression Gasket Ensolite IV Series	12 thru 24	St. Regis Culvert Inc.

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
909.05A1 Polymer Coated Corrugated Steel Pipe	Trenchcoat Protective Film	Valfilm USA
909.06 Class A, B and F Bury Plastic Pipe Smooth Lined Corrugated Plastic Pipe (CPE/HDPE); Corrugated Polyvinyl Chloride Pipe (CPV)	N12 Dual Wall (CPE/HDPE) A-2000 PVC (CPV) Smooth Flow (CPE) GoldFlo WT HDPE (CPE/HDPE)	Advanced Drainage Systems (ADS) Contech Engineered Solutions, LLC Haviland Drainage Products Prinsco, Inc.
909.10 Drainage Marker Post	See Delineator Posts 2. Plastic Material, QPL 919.03D	
910.04 Silt Fence (Geotextile Fabric only)	Belton 940 Geoturf S1200 Geoturf S1240 Geoturf S1240OR Geoturf S1400 Kintex SF-3 GTF - 180 Propex 2130 SKAPS W100 TerraTex SF-D Willacoochee, Style 1210 WINFAB 105SF	Belton Industries, Inc., Norcross, SC CSI Geoturf, Inc., Highland, MI CSI Geoturf, Inc., Highland, MI CSI Geoturf, Inc., Highland, MI CSI Geoturf, Inc., Highland, MI Geoproducts, Inc., Birmingham, MI LinQ Industrial Fabrics Propex Fabrics, Inc., Austell, GA Skaps Industries, Athens, GA Hanes Geo Components, Winston-Salem, NC Willacoochee Industrial Fabrics, Inc., Willacoochee, GA Willacoochee Industrial Fabrics, Inc., Willacoochee, GA
912.08Q Recycled Plastic Or Rubber Guardrail Offset Blocks	Model **Type B/BD, MGS-8 and MGS-8D** Dura-Bull Bloclout SPI #4 Diamond Block Eco-Block Mondo Block P-Block Thrie Beam Block EDEN Block Polylumber PL6814R King Block 8 in. King MASH-16 Composite Block **Type T/TD** Mondo Block Thrie Beam Block EDEN Block Polylumber King Size King Block 8 in. King MASH-16 Composite Block	 Creative Building Products Diamond Roadway Products Eco-Composites LLC Mondo Polymer Technologies, Inc. Monroeville Industrial Moldings Monroeville Industrial Moldings Project Back to EDEN Ramco International Trinity Industries, Inc. Trinity Industries, Inc. Mondo Polymer Technologies Monroeville Industrial Moldings Project Back to EDEN Ramco International Trinity Industries, Inc. Trinity Industries, Inc.
914.03B Recycled Rubber Joint Filler	Reflex	The J D Russell Company
914.04A Hot-Poured Rubber Joint Sealant (Joint and Crack Sealer in Concrete Pavements, Bridges, Other Structures and HMA Rout and Seal applications)	Deery 101 ELT Roadsaver 522 Elastoflex 72 MACSEAL 6690-4 MOD Dura-Fill 3725 RP Type 3725 3405-M Michigan	Crafco Crafco Maxwell Products McAsphalt, Ind. P & T Products Right Pointe W.R. Meadows

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
914.06 Epoxy Resin Adhesive & Temporary Seal (Crack Injection)	Crackbond LR321 Crackbond SLV302 Akabond 817 Akabond 818 Akabond 819 MasterInject 1380 MBT P&R Concresive 1360 BHS-1617 BHS-1618 BHS-1619 Arndite 8560 EP-SLV True Grip 150 NIP124LV CI 060 Dynapoxy EP-450 E Bond 550 Sikadur 35, Hi-Mod LV Sikadur 52 Pro Poxy 50 Super LV	Adhesives Technology Corp. Adhesives Technology Corp. Axson, Eaton Rapids, MI (formerly Akemi Corp.) Axson, Eaton Rapids, MI (formerly Akemi Corp.) Axson, Eaton Rapids, MI (formerly Akemi Corp.) BASF Construction Chemical, Shakopee, MN BASF Construction Chemical, Shakopee, MN Blackhawk Sales Co, Inc., Rock Island, IL Blackhawk Sales Co, Inc., Rock Island, IL Blackhawk Sales Co, Inc., Rock Island, IL Ciba Corporation, East Lansing, MI E-Chem, LLC J. Dedoes, Inc., Milford, MI Epoxy Unlimited, Harrison Twp, MI Hilti Inc., Columbus, OH Pecora Corporation Ridgemoor Supply, Kentwood, MI Sika Corporation, Lyndhurst, NJ Sika Corporation, Lyndhurst, NJ Unitex, Kansas City, MO
914.07A Transverse Pavement Joint 1. Dowel Bar Coating (Epoxy) 2. Bond Release	See Reinforcement Bar Coating, QPL 905.03C	
	Bond Release Agent - Tectyl 506 BCG Protec 6116 DS MA	Daubert Chemical Bradley Coatings Group
914.08 Transverse Pavement Joint, Deformed Dowel Bar Coating	See Reinforcement Bar Coating, QPL 905.03C	
914.09 Straight & Bent Tie Bars for Longitudinal Pavement Joints (Lane Ties), Coating	See Reinforcement Bar Coating, QPL 905.03C	
914.11 Preformed Waterproofing Membrane **NOTE:** Not to be used on Treated Wood Materials.	Carlisle CCW 711-Highway and Bridge Membrane Geotac Waterproofing Membrane Geotac Polyester HS Petrotac 4591 Protecto Wrap M400 AR Sealtight Mel-Dek	Carlisle Coatings and Waterproofing Crafco Inc. Crafco Inc. Propex Operating Company Protecto Wrap Co. W.R. Meadows, Inc.

QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Coats	Manufacturers or Suppliers
915 Coating Systems for Steel Structures, Hanger Assemblies and End Diaphragms **NOTES:** *Indicates product can be used on faying surfaces of slip critical bolted connections which require Class "B". +Information from the Slip Coefficient and Creep Resistance Test Certificate is given for use with primed bolted connections to meet Class "B" requirements.	*Carbozinc 859 *+100 hrs min cure, 6 mils max DFT, 10 oz/gal max thin* Carboguard 893 Carbothane 133 VOC	1st 2nd 3rd	Carboline Company
	*Interzinc 315B *+48 hrs min cure, 4 mils max DFT, no thinner allowed* Intergard 475HS Interthane 870UHS	1st 2nd 3rd	International Protective Coatings
	*Amercoat 68HS *+168 hrs min cure, 3 mils max DFT, 4 oz/gal max thin* Amercoat 399 Amercoat 450H	1st 2nd 3rd	PPG Industries
	*Zinc Clad III HS *+168 hrs min cure, 5 mils max DFT, 12 oz/gal max thin* Macropoxy 646 Fast Cure Epoxy Acrolon 218 HS	1st 2nd 3rd	Sherwin-Williams
	*Zinc Clad 4100 *+72 hrs min cure, 5 mils max DFT, 6 oz/gal max thin* Macropoxy 646 Fast Cure Epoxy Acrolon 218 HS	1st 2nd 3rd	Sherwin-Williams
	*Zinc Clad 4100 *+72 hrs min cure, 5 mils max DFT, 6 oz/gal max thin* Macropoxy 646 Fast Cure Epoxy Hi-Solids Polyurethane 250	1st 2nd 3rd	Sherwin-Williams

Spec. # and Material Name	*Kentucky Blue Grass	*Perennial Ryegrass	*Hard Fescue	*Creeping Red Fescue	*Fults Salt Grass
917.12 Seed Varieties Varieties of Seed on QPL Date of Testing Not to Exceed One Year Approved MDOT seed mixtures, see Table 917-1 in the Spec Book. *Species	Arc Baron Bristol Cannon Corsair Diva Fielder Guiness Midnight Nassau NuBlue NuBlue Plus Parade Raven RugbyII SR 2100 SR 2150 Touchdown Wildwood	Advent Accent II Charger II Fiesta 4 Manhattan 5 Palmer III Pennant III Prelude III Prelude IV Premium Quickstart II Sideways SR 4650 SR 4660ST	Aurora II Aurora Gold Eureka II Gladiator Matterhorn Nordic Reliant II Reliant IV Rescue Rescue 911 Scaldis II Spartan II SR 3150 Sword	Cindy Lou Dawson Epic Hector Kent Ruddy Seabreeze GT Shademaster II Shoreline SR 5250	Fults Fults II Salty

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
917.15B1 Turf Mulch Blankets, High Velocity Mulch Blankets (Two Sided Net)	AEC Premier Straw Highway Double Net Curlex II Contech High Velocity ERO-MAT ECS-2 Mulch Blanket Enviroscape HV Straw Mulch Blanket S2000 ECB EX32 ECB S32 S2 Erosion Control Blanket ECS-2D Erosion Control Blanket DS-150 Erosion King High Velocity Double Net Excel SS-2 (Regular) WinterStraw HVW	American Excelsior Co. American Excelsior Co. Contech Engineered Solutions, LLC East Coast Erosion Control Blankets Enviroscape ECM ErosionControlBlanket ErosionControlBlanket S.I. Geosolutions / Land Hanes Geo Components North American Green Rhino Seed & Landscape Supply Western Excelsior Corp. Winters Excelsior Company
917.15B2 Turf Mulch Blankets, Mulch Blankets (Single Sided Net)	AEC Premier Straw Highway Single Net Curlex 1-CL Curlex I Contech ERO-MAT Futerra Mulch Blanket ECS-1 Mulch Blanket ECS-1D Mulch Blanket Enviroscape Straw Mulch Blanket S1000 ECB EX31 ECB S31 Erosion Control Blanket DS-75 Erosion King Mulch Blanket S1 Erosion Control Blanket ERO-MAT V75S Excel SR-1 (Regular) WinterStraw SNW	American Excelsior Co. American Excelsior Co. American Excelsior Co. Contech Engineered Solutions, LLC Profile Products, LLC East Coast Erosion Control East Coast Erosion Control Enviroscape ECM ErosionControlBlanket ErosionControlBlanket North American Green Rhino Seed & Landscape Supply Synthetic Ind. / BonTerra America Verdyol-Canada Western Excelsior Corp. Winters Excelsior Company
917.15C Mulch Binders (Tackifiers)	<u>1. Latex Base Adhesive</u> BUTOFAN NS 268 EZ Straw Seeding Mulch w/Tack <u>2. Paperfiber Mulch Binders</u> Applegate Mulch Cellin Fiber Mulch Geoturf Hydro Mulch Geoturf Hydro Mulch Plus Geopro Basis Plus Hydro Green Hydroseeding Mulch Hydro Green Hydroseeding Mulch Rhino Greenstar Rhino Greenstar Plus <u>3. Excelsior/Guar Gum Base Adhesive</u> Excel Fiber Mulch Profile Wood Fiber with Tackifier <u>4. Guar Gum Base Adhesive</u> Geotack EcoTak-OP5 Finn A500 Hydro-Stik Landtack ConTack Lawn Tack <u>5. Hydrophilic Polymers</u> Agro Tack MP Exact-Tac (E-T) Geotack II Con-Tack A/T Eco-Tak-SAT 11 RMB Plus .	 BASF Corp. Rhino Seed & Turf Supply Applegate Insulation System Cellin Manufacturing, Inc. CSI Geoturf, Inc. CSI Geoturf, Inc. Hanes Geo Components Nu-Wool, Inc. Nu-Wool, Inc. Rhino Seed & Landscape Supply Rhino Seed & Landscape Supply American Excelsior Co. Profile Products, LLC CSI Geoturf, Inc. Eastern Products, Inc. Finn Corporation Midwest Land Supply, Inc. Profile Products, LLC Rhino Seed & Landscape Supply Agro Diversified Industries American Excelsior Co. CSI Geoturf, Inc. Profile Products, LLC Eastern Products, Inc. Reinco Mulch Binder Corp

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QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
918.06D Light Weight Composite Handholes	Armorcast Box and Cover Assembly A6001640TAPCX12 PHA Series Hand Holes Quazite Box PG1730BA12 & Cover PG1730HA Polymer Concrete Pull Box & Cover FCA 173012 Duralite – 1118-18, 1212-12, 1730-24, 2436-36, & 3048-36 Synertech Underground Enclosure S1730B12FA & Cover S1730HBB0A	Arborcast Products Company Highline Products, Inc. Hubbell NewBasis Oldcastle Infrastructure Synertech Molded Products
918.08C Light Standards, Frangible Transformer Bases	<u>11 Inch Bolt Circle</u> TB1-17 Modified TB2-17 <u>13 Inch Bolt Circle</u> TB1-17 TB1-17 Modified	Akron Foundry Co. Akron Foundry Co.
919.02B1 Reflective Sheeting	<u>Type III</u> Series 3870 -- Nikkalite Ultralite Grade II <u>Type IV</u> Series 3930 T-6500 Series Nikkalite CRG 94000 Series 5900 Series <u>Type IX</u> Series 3990 T-9500 Series -- 7900 Series <u>Type XI</u> Series 4000 T-11500 Series --	3M Avery Dennison Nippon Carbide Industries (USA) Inc. ORAFOL Americas Inc.
919.03D Delineator Post, Plastic, Flexible 1. Ground Mount	Survivor Delineator Post Flexi-Guide 400 Series Flexi-Guide 500 Series Flexstake HD 600 Series Flexstake HD 650 Series Flexstake TM 750 Series SH248GP3 Shur-Flex Driveable Delineator SQR-LOC Flexible Delineator	Carsonite PEXCO, Davidson Traffic Control Products PEXCO, Davidson Traffic Control Products Flexstake Flexstake Flexstake Safe-Hit Shur-Tite Trinity Highway/Safe-Hit
2. Surface Mount	IRS Multipurpose Delineator Post City Post Flexi-Guide FG 300 Model UR Flexi-Guide FG 300 Model EFX TSM Series Flexible Delineator Post K71 Flexible Marker Post SM 700 Series TM 750 Series Shur-Flex Surface Mount Delineator	Impact Recovery Systems PEXCO, Davison Traffic Control Products PEXCO, Davison Traffic Control Products PEXCO, Davison Traffic Control Products PEXCO, Davison Traffic Control Products US Reflector Flexstake Flexstake Shur-Tite
920.02C Wet Reflective Beads/Elements	Connected Roads All Weather Elements Series 50/51 Reflective Elements Series All Weather 50/51 Visi-Ultra Duralux	3M 3M Potters Industries LLC Swarco Industries, Inc.
921.05A Steel Clamps for Traffic Signal Strain Poles	Strain Clamps	Utility Metals

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QUALIFIED PRODUCTS LIST (QPL)		
Spec. # and Material Name	Product Name	Manufacturers or Suppliers
922.06A Temporary Traffic Control, Temporary Pavement Markings Type R and NR Tape **Paint** - See Specific Paint Type in QPL 811.03D *WR Tape is wet-night retro reflective	White (Type) / Yellow (Type) 710 (WR) (R) / 711 (WR) (R) Deltaline TWR (R) / Deltaline TWR (R) Visaline TWR (NR) / Visaline TWR (NR)	3M Brite-line Technologies, LLC Volare/ Swarco Industries, Inc
922.06B Temp. Raised Pavement Markers	Type 1: Model 932 Chip Seal Marker TRPM Chip Seal Marker Type 2: Model 932 Overlay Marker Temporary Overlay Marker Type 3: Stimsonite Model 88	Apex Universal, Inc. PEXCO, Davidson Traffic Control Products Apex Universal, Inc. PEXCO, Davidson Traffic Control Products Stimsonite Corporation
922.06C Temporary Pavement Marking, Pavement Marking Cover	Black (Type) / Other (Type) ATM-19-285 3M-715	ATM 3M

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SELECTING AND SHIPPING SAMPLES

The following instructions will apply for the selection, identification, and shipment of samples unless otherwise specified:

1. Samples shall be selected with care and shall be representative of the material sampled.

2. Pack samples to withstand rough shipment. Liquid materials shall be shipped in screw-top cans or friction-top cans with lids soldered in place unless otherwise specified or required. Friction-top cans with lids not soldered in place and glass jars must be surrounded and packed with suitable absorbent material in sufficient quantity to absorb all the liquid if the tops of the cans should come off or the glass jars should become broken. All packages containing liquid samples shall be marked "Fragile-Liquid."

   Mark pipe, tile, and concrete test specimens conspicuously, "Handle with Care-Fragile."

3. The sample identification form must be legibly prepared and filled out in detail. All available information for proper identification of the sample shall be given including the lot number, batch number, serial number, or other identification marks.

   The sample identification form shall be securely attached to the container in which the sample is shipped by means of a tag envelope. Also, include duplicate identification sheet inside wrappings, or if shipped in cloth sack, inside the sack.

4. Aggregate samples shipped to the Testing Laboratory shall be shipped in a closely woven bag. Do not use sacks which have contained sugar.

5. Cement and Pozzolanic Admixtures shall be shipped in plastic lined cloth bags.

6. The method of transportation of the samples will depend on the size, weight or quantity of material being shipped, and the time element. Small and light-weight samples shall be sent via UPS, bus, parcel post, or express. Large and heavy-weight samples shall be sent by motor freight. The sampler, being familiar with conditions, shall make shipment in the manner deemed most appropriate and economical.

7. Cloth bags, plastic liners, screw-top cans and friction-top cans may be obtained from the Laboratory. All containers must be clean and free from foreign materials. Cloth bags or sacks must be clean, free from tears or holes, and tightly woven to prevent loss of fine material.

8. All samples shall be consigned to the Michigan Department of Transportation, Construction Field Services Division, Secondary Governmental Complex, 8885 Ricks Road, Lansing, Michigan 48909, unless otherwise noted.

APPENDIX

Visual Inspection Items - Alphabetical

This list is intended as a quick reference, alphabetical by material name, for materials which normally require some form of testing but have VI quantities listed. It does not include materials which are accepted by VI basis only.

Visual Inspection Items - By Specification Number

This list is intended as a quick reference, by specification number for materials which normally require some form of testing but have VI quantities listed. It does not cover materials which are accepted on a VI basis only.

This Visual Inspection Items List is in accordance with the 2012 Standard Specification for Construction.

VISUAL INSPECTION ITEMS - Alphabetical

SEC.	MATERIAL	MAXIMUM V.I.
909	Acrylonitrile-Butadiene-Styrene (ABS) Pipe for Underdrain	600 ln ft
919	Aluminum Sheet	100 sq ft
902	Aggregate, Coarse	100 tons
902	Aggregate, Dense-Graded	500 tons
902	Aggregate, Fine	100 tons
902	Aggregate, Open-Graded	100 tons
904	Asphalt, Liquid (RC-250)	5 gal - 150 lbs
905	Bar Reinforcement (all)	500 lbs
914	Bituminous Fiber Joint Filler	150 sq ft
501	Bituminous Mixtures	500 tons/project/mix
914	Bolts for Structure Exp. Anchor	250 units
914	Bond Release	20 gal max
922	Calcium Chloride Solids	5000 lbs
922	Calcium Chloride Solutions	1000 gals
Misc.	Cast & Ductile Iron Pipe	250 ft
901	Cement	45 tons
Misc.	Clay Pipe	10 pcs
913	Clay and Sand Lime Brick	1000 pcs
913	Concrete Block	1000 pcs
913	Concrete Brick	1000 pcs
909	Concrete Pipe, Non-Reinforced	10 pcs
909	Concrete Pipe, Reinforced & Elliptical	5 pcs of 42” dia or less
Misc.	Corrugated Galv. Steel Plates	10 plates
909	Corrugated Aluminum Sheets	25 sheets
909	Corrugated Aluminum Alloy Pipe	250 ln ft
909	Corrugated Plastic Pipe	<12 in dia 250 ft
	“ “	>12 in dia 100 ft
909	Corrugated Plastic Pipe, Smooth Lined	Same as CPP
909	Corrugated Plastic Tubing for Underdrains	250 ft
909	Corrugated Steel Pipe	*
	12" or less	125 ln ft
	15" to 54"	50 ln ft
	60” or greater	25 ln ft
909	Corrugated Steel Pipe for Underdrains	*
909	Corrugated Steel Sheets	*
	12" or less	125 ln ft
	15” to 54”	50 ln ft
	60" or greater	25 ln ft
909	Coupling Bands	5 pcs
914	Deformed Bars	500 lbs
919	Delineator Posts, Steel	80 posts
919	Delineator Reflectors (Plastic and Reflective Sheeting)	25 pcs each color
914	Dowel Bars	1200 pcs
918	Electrical Conduit, Plastic	400 ln ft
918	Electrical Conduit, Rigid	400 ln ft
914	Epoxy Binder	5 gals
Misc.	Fiberglass and Bit. Cotton Fabric	5 rolls
910	Geotextile Blanket	500 sq yd
910	Geotextile Liner/ Riprap	500 sq yd
910	Geotextile Liner/Heavy Riprap	500 sq yd
910	Geotextile Stabilizer/Separator	500 sq yd
916	Geotextile Silt Fence	500 ln ft
920	Glass Beads	500 lbs

(Continued)

VISUAL INSPECTION ITEMS - Alphabetical

SEC.	MATERIAL	MAXIMUM V.I.
902	Granular, Class I	100 tons
902	Granular, Class II (Subbase)	500 cu yd
902	Granular, Class II (Abutment b.f.)	100 cu yd
902	Granular, Class IIA	500 cu yd
902	Granular, Class III	500 cu yd
902	Granular, Class IIIA	100 cu yd
908	Guardrail Beam Elements/End Sections	125 ln ft
908	Guardrail Posts, Steel	25 posts
918	Handholes, Precast Concrete	10 pcs
907	High Tensile Wire Fence (Wire)	250 ft
903	Insulating Blanket	10 sheets
903	Interim Curing (Linseed Based)	50 gals
914	Joint Assemblies	Fab. Insp. Req./100 assemblies
909	Mastic (Cold-Applied Joint Sealer)	10 gals
903	Membrane Curing Compound	200 gals
908	Metallic Waterstop (Sheet Lead & Copper)	25 sq ft
902	Mineral Filler (Bit. Mixes)	10 tons
909	Polyethylene Pipe (Downspouts)	<12 in dia 250 ft
	" "	>12 in dia 100 ft
913	Precast Concrete Bases and Sumps	10 pcs total
918	Precast Concrete Handholes	10 pcs
909	Precast Concrete End Sections	10 pcs
913	Precast Units for Dr. Structures	10 pcs total
909	PVC Pipe (Sanitary Sewer)	600 ft
907	Rail for Braces (Chain Link)	250 ft
919	Reflective Sheeting	1 roll for less than 3" width
905	Reinforcement Steel	500 lbs
917	Seed and Seeding Mixtures	100 lbs
913	Slope Paving Blocks	1000 pcs
909	Smooth Plastic Pipe for Underdrains (Outlet)	250 ft
907	Steel Chain Link Fence Fabric	250 ft
909	Steel End Sections	4 pcs
919	Steel, Galvanized Sign Posts	20 posts
907	Steel Posts/Chain Link Fence	25 line, 25 gate posts
919	Steel Posts/Delineator	80 posts
905	Steel Wire Fabric (Mesh)	500 sq yds
913	Structural Tile	1000 tiles
907	Top Rail (Chain Link)	250 ft
907	Tension Wire	500 ft
914	Tie Bars (Lane Ties)	500 lbs
910	Wall Drain	100 sq ft
919	Wood Sign Posts	20 posts

*See Remarks in Acceptance Requirements Section

VISUAL INSPECTION ITEMS – by Specification Number

SEC.	MATERIAL	MAXIMUM V.I.
501	Bituminous Mixtures	500 tons/project/mix
901	Cement	45 tons
902	Coarse Aggregate	100 tons
902	Dense-Graded Aggregate	500 tons
902	Open-Graded Aggregate	100 tons
902	Granular, Class I	100 tons
902	Granular, Class II (Subbase)	500 cu yds
902	Granular, Class II (Abutment b.f.)	100 cu yds
902	Granular, Class IIA	500 cu yds
902	Granular, Class III	500 cu yds
902	Granular, Class IIIA	100 cu yds
902	Fine Aggregate	100 tons
902	Mineral Filler (Bit. Mixes)	10 tons
903	Membrane Curing Compound	200 gals
903	Insulating Blanket	10 sheets
903	Interim Curing (Linseed Based)	50 gals
904	Liquid Asphalt (RC-250)	5 gals
905	Bar Reinforcement (all)	500 lbs
905	Steel Wire Fabric (Mesh)	500 sq yds
907	High Tensile Wire Fence (Wire)	250 ft
907	Steel Chain Link Fence Fabric	250 ft
907	Tension Wire	500 ft
907	Top Rail (Chain Link)	250 ft
907	Steel Posts/Chain Link Fence	25 line, 25 gate posts
907	Rail for Braces (Chain Link)	250 ft
908	Metallic Waterstop (Sheet Lead & Copper)	25 sq ft
908	Guardrail Beam Elements/End Sections	125 ft
908	Guardrail Posts, Steel	25 posts
909	Reinforced Concrete Pipe & Elliptical RCP	5 pcs of 42 in dia or less
909	Non-Reinforced Concrete Pipe	10 pcs
909	Corrugated Steel Pipe	*
	12" or less	125 ln ft
	15" to 54"	50 ln ft
	60" or greater	25 ln ft
909	Corrugated Steel Sheets	*
	12" or less	125 ln ft
	15" to 54"	50 ln ft
	60" or greater	25 ln ft
909	Steel End Sections	4 pcs
909	Coupling Bands	5 pcs
909	Corrugated Aluminum Sheets	25 sheets
909	Corrugated Aluminum Alloy Pipe	250 ln ft
909	PVC Pipe (Sanitary Sewer)	600 ln ft
909	Corrugated Plastic Pipe	<12 in dia - 250 ft
	" "	>12 in dia 100 ft
909	Corrugated Plastic Pipe, Smooth Lined	Same as CPP
909	Mastic (Cold-Applied Joint Sealer)	10 gals
909	Precast Concrete End Sections	10 pcs
909	Acrylonitrile-Butadiene-Styrene (ABS) Pipe for Underdrain	600 ln ft
909	Corrugated Steel Pipe for Underdrains	*
909	Smooth Plastic Pipe for Underdrains (Outlet)	250 ln ft
909	Corrugated Plastic Tubing for Underdrains	250 ln ft
909	Polyethylene Pipe (Downspouts)	<12 in dia 250 ft
	" "	>12 in dia 100 ft

(Continued)

VISUAL INSPECTION ITEMS – by Specification Number

SEC.	MATERIAL	MAXIMUM V.I.
910	Geotextile Blanket	500 sq yd
910	Geotextile Liner/Riprap	500 sq yd
910	Geotextile Stabilizer/Separator	500 sq yd
910	Geotextile Liner/Heavy Riprap	500 sq yd
910	Wall Drain	250 sq ft
913	Clay and Sand Lime Brick	1000 pcs
913	Concrete Brick	1000 pcs
913	Concrete Block	1000 units
913	Precast Units for Dr. Structures	10 pcs total
913	Precast Concrete Bases and Sumps	10 pcs total
913	Structural Tile	1000 tiles
913	Slope Paving Blocks	1000 pcs
914	Bituminized Fiber Joint Filler	150 sq ft
914	Epoxy Binder	5 gals
914	Dowel Bars	1200 bars
914	Joint Assemblies	Fab. Insp. Req./100 assemblies
914	Bond Release	20 gal max
914	Deformed Bars	500 lbs
914	Tie Bars	500 lbs
914	Bolts for Structure Exp. Anchor	250 units
916	Geotextile Silt Fence	500 ft
917	Seed and Seeding Mixtures	100 lbs
918	Precast Concrete Handholes	10 pcs
918	Electrical Conduit, Polyethylene	400 ft
918	Electrical Conduit, Rigid	400 ft
919	Aluminum Sheet	100 sq ft
919	Reflective Sheeting	1 roll for less than 3” width
919	Delineator Reflectors (Plastic & Reflective Sheeting)	25 pcs each color
919	Steel Delineator Posts	80 posts
919	Galvanized Steel Sign Posts	20 posts
919	Wood Sign Posts	20 posts
920	Glass Beads	500 lbs
922	Calcium Chloride Solids	5000 lbs
922	Calcium Chloride Solutions	1000 gals
Misc.	Clay Pipe	10 pcs
Misc.	Cast & Ductile Iron Pipe	250 ft
Misc.	Fiberglass and Bit. Cotton Fabric	5 rolls
Misc.	Corrugated Galvanized Steel Plates	10 plates

*See Remarks in Acceptance Requirements Section