

## 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 6.01 if the MQAP Manual.

## QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
<b>502.02B</b> Overband Crackfill, Asphalt Rubber	<u>Alt. 2</u> K-T 1190 AR Plus Type 2 Deery 102 Roadsaver 221 Dura-Fill 3405 1190 ColJoint ARS II	Bit-Mat Products Crafcro, Inc. Crafcro, Inc. Crafcro, Inc. P&T Products, Inc. Right Pointe Colas Solutions
<b>603.03B2</b> Adhesive Systems for Grouting Dowel Bars and Tie Bars for Full-Depth Concrete Pavement Repairs  <b>NOTE:</b> 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".	Ultrabond 1, 2, 3 Ultrabond 365 UltraBond HS-200 Ultrabond RT66 Ultrabond Speed Set 2 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 Dural Fast Set Epoxy Gel Futura Bond 566 Hilti RSE DOT 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. 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. Euclid Chemical Company Futura Adhesives & Chemicals Hilti, Inc. 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) Polygen, Inc. Polygen, 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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<b>702.02B</b> Non-Shrinking Mortar and Grout Type H-1(Non-Metallic) Pre Mixed  H-2 eliminated.	MBT 928 Grout MasterFlow 100 Set Grout Boomer Premium Grout Upcon Super Flow Grout Celtite 10-50 Hi-Flow Conspec 100 Enduro 50 Grout Gifford-Hills Supreme Grout 1107 Advantage Grout Sure Grip Grout NS Grout Five Star Grout Pro-Grout 90 SureGrout Crystex Duragrout Quikrete Precision Grout SC Miltipurpose Grout Superb Grout 611 Sealite 588 Grout	BASF Construction Chemical, Shakopee, MN BASF Construction Chemical, Shakopee, MN BASF Construction Chemical, Shakopee, MN Boomer Construction Materials, Detroit, MI Bostik Const. Prod. Co., Cleveland, OH Celtite Inc., Georgetown, KY Conspec by Dayton Superior, Kansas City, KS Conspec by Dayton Superior, Kansas City, KS Cormix, Inc., Cleveland, OH (form. Gifford-Hill) Dayton Superior, Kansas City, KS Dayton Superior, Kansas City, KS Euclid Chemical Co., Cleveland, OH Five Star Products, Inc. G.C.M., Inc., Bensalem, PA Kaufman Products, Inc., Baltimore, MD L&M Construction Chemicals, Inc., Omaha, NE L&M Construction Chemicals, Inc., Omaha, NE Quikrete Technical Center, Atlanta, GA SpecChem Specco Industries, Lemont, IL W. R. Meadows, Inc., Elgin, IL																								
<b>703</b> Prepackaged Hydraulic Fast Set* Mortar  <b>NOTE:</b> *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.	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="text-align: center;">Max. Aggregate Extension, %</th> </tr> </thead> <tbody> <tr><td>MasterEmaco T 1060</td><td style="text-align: center;">60*</td></tr> <tr><td>MasterEmaco T 545</td><td style="text-align: center;">60*</td></tr> <tr><td>Burke Fast Patch 928</td><td style="text-align: center;">50*</td></tr> <tr><td>Chem Speed 65</td><td style="text-align: center;">50*</td></tr> <tr><td>HD-50 Heavy Duty Concrete Patch</td><td style="text-align: center;">60*</td></tr> <tr><td>Express Repair</td><td style="text-align: center;">60*</td></tr> <tr><td>Five Star Highway Patch</td><td style="text-align: center;">60*</td></tr> <tr><td>Durapatch Hiway</td><td style="text-align: center;">50*</td></tr> <tr><td>Planitop 18</td><td style="text-align: center;">60*</td></tr> <tr><td>Commercial Grade Fast Set</td><td style="text-align: center;">45.5*</td></tr> <tr><td>DOT Mix</td><td></td></tr> </tbody> </table>		Max. Aggregate Extension, %	MasterEmaco T 1060	60*	MasterEmaco T 545	60*	Burke Fast Patch 928	50*	Chem Speed 65	50*	HD-50 Heavy Duty Concrete Patch	60*	Express Repair	60*	Five Star Highway Patch	60*	Durapatch Hiway	50*	Planitop 18	60*	Commercial Grade Fast Set	45.5*	DOT Mix		BASF Construction Chemical BASF Construction Chemical Edoco, a Dayton Superior Co., Kansas City, KS Chem Masters Dayton Superior Corp. Euclid Chemical Co. Five Star Products, Inc. L&M Construction Chemicals, Inc. Mapei Corporation Quikrete
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<b>706.03S</b> Protective Coating for Concrete (Penetrating Water Repellent Treatment of Structure Concrete Surfaces)	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="text-align: center;">Application Rate, <u>sq ft/gal</u></th> </tr> </thead> <tbody> <tr><td>MasterProtect H 200</td><td style="text-align: center;">125-200</td></tr> <tr><td>MasterProtect H 400</td><td style="text-align: center;">125-200</td></tr> <tr><td>Barracade Silane 40</td><td style="text-align: center;">125</td></tr> <tr><td>Aquapel Plus 20% Silane</td><td style="text-align: center;">125</td></tr> <tr><td>Stifel S</td><td style="text-align: center;">125</td></tr> <tr><td>Powerseal 40</td><td style="text-align: center;">125-200</td></tr> </tbody> </table>		Application Rate, <u>sq ft/gal</u>	MasterProtect H 200	125-200	MasterProtect H 400	125-200	Barracade Silane 40	125	Aquapel Plus 20% Silane	125	Stifel S	125	Powerseal 40	125-200	BASF Construction Chemical BASF Construction Chemical Euclid Chemical Co. L&M Construction Chemicals, Inc. Nox-Crete Chemicals Vexcon Chemicals										
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<b>707.02</b> Bushings for Pins & Link Plates	CJ Garmax	TriStar Garlock																								

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<p><b>712.03J</b> Adhesive Systems for Structural Anchor &amp; Lane Ties*</p> <p><b>NOTE:</b> *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".</p> <p>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.</p> <p>Note 2. Material is limited to the shelf life recommendations by the manufacturer.</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Name</th> <th style="text-align: left;">Adhesive Type</th> <th style="text-align: left;">Mixing &amp; Inject.</th> </tr> </thead> <tbody> <tr><td>Ultrabond 1</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>HS-200</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Tru-Grip 591</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>HY-150 MAX</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>RE 500</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Hilti HTE 50</td><td>Epoxy</td><td>Capsule</td></tr> <tr><td>Hilti HIT-HY 200-A</td><td>Urethane-Methacrylate</td><td>Yes</td></tr> <tr><td>Hilti HIT-HY 200-R</td><td>Methacrylate</td><td>Yes</td></tr> <tr><td>HVU</td><td>Urethane-Methacrylate</td><td>Capsule</td></tr> <tr><td>Hilti HIT-RE-500v3</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Ceramic 6</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Epcon Acrylic 7</td><td>Methacrylate</td><td>Yes</td></tr> <tr><td>Super Por-Rok</td><td>Non-Shrink Grout</td><td>Yes</td></tr> <tr><td>AC100 Plus</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Acrylic-Tie</td><td>Methacrylate</td><td>Yes</td></tr> <tr><td>EDOT</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Epoxy-Tie</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>SET</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Pro-Poxy 300</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>CIA-Gel 7000</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Rezi Weld Gel</td><td>Epoxy</td><td>Yes</td></tr> <tr><td>Paste State</td><td></td><td></td></tr> </tbody> </table>	Name	Adhesive Type	Mixing & Inject.	Ultrabond 1	Epoxy	Yes	HS-200	Epoxy	Yes	Tru-Grip 591	Epoxy	Yes	HY-150 MAX	Epoxy	Yes	RE 500	Epoxy	Yes	Hilti HTE 50	Epoxy	Capsule	Hilti HIT-HY 200-A	Urethane-Methacrylate	Yes	Hilti HIT-HY 200-R	Methacrylate	Yes	HVU	Urethane-Methacrylate	Capsule	Hilti HIT-RE-500v3	Epoxy	Yes	Ceramic 6	Epoxy	Yes	Epcon Acrylic 7	Methacrylate	Yes	Super Por-Rok	Non-Shrink Grout	Yes	AC100 Plus	Epoxy	Yes	Acrylic-Tie	Methacrylate	Yes	EDOT	Epoxy	Yes	Epoxy-Tie	Epoxy	Yes	SET	Epoxy	Yes	Pro-Poxy 300	Epoxy	Yes	CIA-Gel 7000	Epoxy	Yes	Rezi Weld Gel	Epoxy	Yes	Paste State			<p>Adhesives Technology Corp. Adhesives Technology Corp. J. Dedoes, Inc. Hilti, Inc. Hilti, Inc. Hilti, Inc. Hilti, Inc. Hilti, Inc. Hilti, Inc. Hilti, Inc. ITW Ramset/Red Head ITW Ramset/Red Head Novex Systems International, Inc. Powers Fasteners, Inc. Simpson Strong-Tie Anchor Systems Simpson Strong-Tie Anchor Systems Simpson Strong-Tie Anchor Systems Simpson Strong-Tie Anchor Systems Unitex USP Structural Connectors W.R. Meadows, Inc.</p>
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<p><b>712.03K</b> Structure Expansion Anchors (Mechanical Expansion Anchors)</p> <p>Pull-out Testing is required per MQAP Manual Section 4.03.</p> <p><b>NOTE:</b> 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.</p>	<ol style="list-style-type: none"> <li>1. Pre-Drilled Flush Type               <ol style="list-style-type: none"> <li>a) Hilti HDI (3/8" (10mm), 1/2" (13mm), 3/4" (19mm), dia. anchors only)</li> </ol> </li> <li>2. Pre-Drilled Stud Type - Not suitable for lane ties or for guardrail end shoes because of exposed thread.               <ol style="list-style-type: none"> <li>a) Hilti Kwik-Bolt II or Kwik-Bolt III                   <ul style="list-style-type: none"> <li>3/8" (10mm) dia. anchor - min. embedment = 2 1/2" (65mm)</li> <li>1/2" (13mm) dia. anchor - min. embedment = 3 1/2" (90mm)</li> <li>5/8" (16mm) dia. anchor - min. embedment = 4" (100mm)</li> </ul> </li> </ol> </li> </ol>																																																																						
<p><b>712.03L</b> Mechanical Reinforcement Splicing</p> <p><b>NOTE:</b> Splices used to connect precast structural elements shall be high strength splices.</p>	<p>BPI Barsplicer System Grip-Twist Threaded Position Coupler Taper Threaded Grip-Twist Zap Screwlok Bar-Lock L-Series DB SAE Lenton Lenton Form Saver Lenton Interlok (High Strength) Lenton Position Coupler NMB Splice Sleeve (High Strength)</p>	<p>BarSplice Products, Inc., Dayton, OH BarSplice Products, Inc., Dayton, OH BarSplice Products, Inc., Dayton, OH BarSplice Products, Inc., Dayton, OH Dayton Superior Corp., Miamisburg, OH Dayton Superior Corp., Miamisburg, OH ERICO International Corporation, Solon, OH ERICO International Corporation, Solon, OH ERICO International Corporation, Solon, OH ERICO International Corporation, Solon, OH Splice Sleeve North America, Inc., Livonia, MI</p>																																																																					
<p><b>712.03Y</b> Embedded Galvanic Anodes</p>	<p>MasterProtect CP Models: 8065, 8105, 8150 Sentinel-GL Sika Galvashield XP Sika Galvashield XP+ Galvashield XP Galvashield XP+</p>	<p>BASF Chemical Company Euclid Chemical Co. Sika Corporation Sika Corporation Vector Corrosion Technologies Vector Corrosion Technologies</p>																																																																					
<p><b>713.02B</b> Sealant for Perimeter of Beam Repairs</p> <p><b>NOTE:</b> No silicone materials - only polyurethane (PU) or PU blended materials that are paintable. Typically 1 week cure prior to painting. All non-sag material.</p>	<p>MasterSeal NP 1 Bostik 2020 Duralink (F1200) Loxon H1 Loxon S1 Sikaflex-15LM Vulkem 116 XtraBond 9500</p>	<p>BASF Construction Chemicals, Shakapee, MN Bostik US Chem Link Sherwin-Williams Sherwin-Williams Sika Corporation Tremco, Inc. Premier Industrial Supply</p>																																																																					

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<b>715.02</b> Coating Systems for New Hanger Assemblies	See Coating Systems for Steel Structures, Hanger Assemblies and End Diaphragms QPL 915	
<b>715.02</b> Abrasive, Low Dusting  <b>NOTE:</b> 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 GMA Garnet Blast Black Shot Granulated Slag StarBlast XL Emerald Creek Garnet Blackjack MSM, Waupaca Materials Blast Away Superior Blast Hornet Abrasive Ebony Grit Black Beauty Norblast E-1015 M-1015 Sharpshot XL	U.S. Minerals, Dyer, IN GMA Garnet Pty Ltd, Narngulu, WA, Australia Bell & MacKenzie Co. Ltd, Hamilton, Ontario Dupont, Wilmington, DE Emerald Creek Garnet, Fernwood, ID Faulks Brothers Constr. Co., Inc., Waupaca, WI Gibbco, Inc. Lesktech Limited Mohawk Garnet, Inc., Wahnapiatae, ON Opta Minerals Inc. Reed Minerals Division, Highland, IN Transtech Inc., Covington, KY Universal Ground Cullets, Inc., Brook Park, OH Universal Ground Cullets, Inc., Brook Park, OH Universal Minerals Kentucky, Inc., Louisville, KY
<b>803.02B</b> Detectable Warning Surfaces (ADA Compliant Sidewalk Ramps), 1. Cast-in-Place	Access Tile Cast In Place Replaceable AlertCast Cast in Place Truncated Dome Warning System Composite Wet Set Replaceable, Rectangular and Radius DetecTile Replaceable Tactile Panel EJIW Detectable Warning Plate Armor-Tile Cast in Place Stainless Armor-Tile Cast in Place Composite NF Detectable Warning Plate TufTile	Access Products, Inc., Buffalo, NY AlertTiles, Wilmington, NC ADA Solutions, North Billerica, MA  ADA Solutions, North Billerica, MA  DetecTile Corporation East Jordan Iron Works, East Jordan, MI Engineered Plastics, Inc., Williamsville, NY Engineered Plastics, Inc., Williamsville, NY Neenah Foundry Company, Neenah, WI TufTile
2. Surface Applied*  *NOTE: Surface applied detectable warning surfaces may only be used to retrofit existing concrete	Surface Applied Panel System with Beveled Edges Alerttile Armor-Tile Surface Applied Composite Warning System TopMark	ADA Solutions, North Billerica, MA  Detectable Warning Systems, Wilmington, NC Engineered Plastics, Inc., Williamsville, NY  Ennis-Flint
<b>811.03D1</b> Waterborne, Liquid Pavement Marking Material	<u>Product ID</u> <u>Color</u> BP-5760                              White TM-2204                              White P8479                                    Yellow TM-2205                              Yellow 982211                                White 982212                                Yellow 982221                                White 982222                                Yellow 982201                                White 982202                                Yellow 985205                                Blue 985203                                Black	Sherwin-Williams Sherwin-Williams Sherwin-Williams Sherwin-Williams Ennis-Flint Ennis-Flint Ennis-Flint Ennis-Flint Ennis-Flint Ennis-Flint Ennis-Flint Ennis-Flint Ennis-Flint
<b>811.03D2</b> Low Temperature Waterborne, Liquid Pavement Marking Material	<u>White</u> <u>Lead Free Yellow</u> 985251                                  985252 TM2372                                  TM2373	Ennis-Flint Sherwin-Williams
<b>811.03D3</b> Regular Dry Paint, Liquid Pavement Marking Material	<u>White</u> <u>Lead Free Yellow</u> TM-5604                                TM-5607 982271                                982282	Sherwin-Williams Ennis-Flint

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<b>811.03D4</b> Cold Plastic Tape, Permanent (Long Line, Legends & Crosswalks)	<b>Wet Reflective Long Line:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>White</u></td> <td style="text-align: center;"><u>Yellow</u></td> <td style="text-align: center;"><u>Adhesive</u></td> </tr> <tr> <td style="text-align: center;">380 AW</td> <td style="text-align: center;">381 AW</td> <td style="text-align: center;">P50</td> </tr> <tr> <td style="text-align: center;">DeltaLine XRP-R</td> <td style="text-align: center;">DeltaLine XRP-R</td> <td style="text-align: center;">D-20</td> </tr> </table>	<u>White</u>	<u>Yellow</u>	<u>Adhesive</u>	380 AW	381 AW	P50	DeltaLine XRP-R	DeltaLine XRP-R	D-20	3M Brite-line Technologies, LLC									
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	<b>Shadow Tape:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Black</u></td> <td style="text-align: center;"><u>Adhesive</u></td> </tr> <tr> <td style="text-align: center;">385 ES</td> <td style="text-align: center;">P50</td> </tr> <tr> <td style="text-align: center;">Director 60</td> <td style="text-align: center;">DP-E4</td> </tr> </table>	<u>Black</u>	<u>Adhesive</u>	385 ES	P50	Director 60	DP-E4	3M Swarco												
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Director 60	Director 60	DP-E4																		
Director 60 HPT	Director 60 HPT	DP-E4																		
<b>811.03D5</b> Thermoplastic, Liquid Pavement Marking Material	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>White</u></td> <td style="text-align: center;"><u>Yellow</u></td> </tr> <tr> <td style="text-align: center;">884285</td> <td style="text-align: center;">884685</td> </tr> <tr> <td style="text-align: center;">Swarcotherm EWH 131</td> <td style="text-align: center;">Swarcotherm EYH 132</td> </tr> <tr> <td style="text-align: center;">Viatherm E413W</td> <td></td> </tr> </table>	<u>White</u>	<u>Yellow</u>	884285	884685	Swarcotherm EWH 131	Swarcotherm EYH 132	Viatherm E413W		Ennis-Flint Swarco Cleansol										
<u>White</u>	<u>Yellow</u>																			
884285	884685																			
Swarcotherm EWH 131	Swarcotherm EYH 132																			
Viatherm E413W																				
<b>811.03D5</b> Thermoplastic, Blocks Rumble Strips	E411W (Block) Rumble Strip	Cleansol																		
<b>811.03D6</b> Thermoplastic, Sprayable, Liquid Pavement Marking Material	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>White</u></td> <td style="text-align: center;"><u>Yellow</u></td> </tr> <tr> <td style="text-align: center;">01-WAK-BADA</td> <td style="text-align: center;">01-YAK-AADA</td> </tr> <tr> <td style="text-align: center;">01-WHK-BADA</td> <td style="text-align: center;">01-YHK-AADA</td> </tr> <tr> <td style="text-align: center;">W1SS7056</td> <td style="text-align: center;">Y1SS7006</td> </tr> <tr> <td style="text-align: center;">W2SS7056</td> <td style="text-align: center;">Y2SS7006</td> </tr> <tr> <td style="text-align: center;">884822</td> <td style="text-align: center;">883241</td> </tr> <tr> <td style="text-align: center;">884824</td> <td style="text-align: center;">883240</td> </tr> <tr> <td style="text-align: center;">1157MWHSI</td> <td style="text-align: center;">2798MYHSI</td> </tr> <tr> <td style="text-align: center;">3023MWASI</td> <td style="text-align: center;">3021MYASI</td> </tr> </table>	<u>White</u>	<u>Yellow</u>	01-WAK-BADA	01-YAK-AADA	01-WHK-BADA	01-YHK-AADA	W1SS7056	Y1SS7006	W2SS7056	Y2SS7006	884822	883241	884824	883240	1157MWHSI	2798MYHSI	3023MWASI	3021MYASI	Crown Technology Crown Technology Dobco-Sherwin Williams Dobco-Sherwin Williams Ennis-Flint Ennis-Flint Swarco Swarco
<u>White</u>	<u>Yellow</u>																			
01-WAK-BADA	01-YAK-AADA																			
01-WHK-BADA	01-YHK-AADA																			
W1SS7056	Y1SS7006																			
W2SS7056	Y2SS7006																			
884822	883241																			
884824	883240																			
1157MWHSI	2798MYHSI																			
3023MWASI	3021MYASI																			
<b>811.03D7</b> Polyurea, Liquid Pavement Marking Material	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">5000 LPM</td> <td style="text-align: center;">White</td> </tr> <tr> <td style="text-align: center;">5001 LPM</td> <td style="text-align: center;">Yellow</td> </tr> <tr> <td style="text-align: center;">LS90</td> <td style="text-align: center;">White and Yellow</td> </tr> <tr> <td style="text-align: center;">HPS-5</td> <td style="text-align: center;">White and Yellow</td> </tr> </table>	5000 LPM	White	5001 LPM	Yellow	LS90	White and Yellow	HPS-5	White and Yellow	3M 3M Epo-Plex Ennis Flint										
5000 LPM	White																			
5001 LPM	Yellow																			
LS90	White and Yellow																			
HPS-5	White and Yellow																			
<b>811.03D8</b> Modified Urethane, Liquid Pavement Marking Material	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">HPS-4</td> <td style="text-align: center;">White and Yellow</td> </tr> <tr> <td style="text-align: center;">MFUA-10</td> <td style="text-align: center;">White and Yellow</td> </tr> </table>	HPS-4	White and Yellow	MFUA-10	White and Yellow	Ennis-Flint Swarco														
HPS-4	White and Yellow																			
MFUA-10	White and Yellow																			
<b>811.03D9</b> Preformed Thermoplastic, Preformed Pavement Marking Material	PreMark HotTape SWARCO Preformed Thermoplastic	Ennis-Flint Ennis-Flint 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
<b>903.01</b> Air Entraining Admixtures	<b><u>BASF CONSTR. CHEM.</u></b> MasterSet DELVO	D	Water-reducer retarder	3
	MasterGlenium 3400	F	High-range water-reducer	3
<b>903.02</b> Water Reducing and Water Reducing Retarding Admixtures for Concrete	MasterGlenium 7500	A	Water-reducer	1.5
	MasterGlenium 7700	F	High-range water-reducer	3 - 15
	MasterGlenium 7710	F	High-range water-reducer	4 - 15
	MasterGlenium 7710	F	High-range water-reducer	4
<b>903.04</b> Concrete Accelerators	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
		A	Water-reducer	3
	MasterPolyheed 997	MR	Mid-range water-reducer	6
		F	High-range water-reducer	10
		A	Water-reducer	2.5 - 4
		MR	Mid-range water-reducer	5.5 - 7
	MasterPolyheed 1725	F	High-range water-reducer	8 - 12
		A	Water-reducer	4
	MasterPolyheed 100	MR	Mid-range water-reducer	8
		A	Water-reducer	2
	MasterPozzolith 200	D	Water-reducer retarder	4
		A	Water-reducer	2
	MasterPozzolith 700	D	Water-reducer retarder	5
C		Accelerator (non-chloride)	10	
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	

**(Continued)**

## 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
<b>903.01</b> Air Entraining Admixtures  <b>903.02</b> Water Reducing and Water Reducing Retarding Admixtures for Concrete  <b>903.04</b> Concrete Accelerators	<b><u>EUCLID CHEMICAL CO.</u></b>			
	Eucon AEA 92	AE	Air-entraining	1.5
	Accelguard 80	C	Accelerator (non-chloride)	18 - 32
	Accelguard G3	E	Water-reducer accelerator (non-chloride)	16 - 90
	Accelguard NCA	C	Accelerator (non-chloride)	15
	Eucon Air Mix 200	AE	Air-entraining	3
	EUCON Air MAC6	AE	Air-entraining	1 - 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 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 AIR MAC12	AE	Air-entraining	1.5 - 4
	PLASTOL 341	F	High-range water-reducer	7.5
	PLASTOL 5500	F	High-range water-reducer	3
PLASTOL 6400	F	High-range water-reducer	4.5 - 12	
PLASTOL SPC	F	High-range water-reducer	5 - 12	
PLASTOL ULTRA 209	F	High-range water-reducer	3.5 - 12	
<b>(Continued)</b>				



## 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
<b>903.01</b> Air Entraining Admixtures  <b>903.02</b> Water Reducing and Water Reducing Retarding Admixtures for Concrete  <b>903.04</b> Concrete Accelerators	<b><u>GENERAL RESOURCE</u></b>			
	<b><u>TECHNOLOGY (GRT)</u></b>			
	KB-1200	A	Water-reducer	3 - 5
		MR	Mid-range water-reducer	5 - 8
	Melchem	F	High-range water-reducer	8 - 20
	Polychem VR	AE	Air-entraining (vinsol resin)	0.5
	Polychem AE	AE	Air-entraining	1
	Polychem SA	AE	Air-entraining	0.5
	Polychem SA-50	AE	Air-entraining	1 - 3
	Polychem 400 NC	A	Water-reducer	3 - 5
	Polychem Super Set	C	Accelerator (non-chloride)	16 - 32
	Polychem R	D	Water-reducer retarder	3 - 5
	Polychem SPC	F	High-range water-reducer	5.5
<b>(Continued)</b>				

## 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
<b>903.01</b> Air Entraining Admixtures	<b><u>PREMIERE CONCRETE</u></b> <b><u>ADMIXTURES</u></b>			
<b>903.02</b> Water Reducing and Water Reducing Retarding Admixtures for Concrete	EcoFlo Green	F	High-range water-reducer	8 - 16
	Optiflo 700	A	Water-reducer	3 - 5
<b>903.04</b> Concrete Accelerators	OptiFlo 50	MR	Mid-range water-reducer	5 - 10
		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 Plus	MR	Mid-range water-reducer	5 - 12
		E	Water-reducer accelerator (non-chloride)	12 - 90
	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 4600	MR	Mid-range water-reducer	7 - 12	
	F	High-range water-reducer	12 - 20	
UltraFlo 5600	MR	Mid-range water-reducer	6 - 10	
	F	High-range water-reducer	10 - 24	
UltraFlo DP	F	High-range water-reducer	5 - 12	
NitroCast K	E	Water-reducer accelerator (non-chloride)	10 - 90	
ProLong L	D	Water-reducer retarder	4 - 8	
<b>(Continued)</b>				

## 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
<b>903.01</b> Air Entraining Admixtures  <b>903.02</b> Water Reducing and Water Reducing Retarding Admixtures for Concrete  <b>903.04</b> Concrete Accelerators	<b><u>RUSSTECH</u></b> LC-400R RSA-10 Superflo 2000 RM	D AE F	Water-reducer retarder Air-entraining High-range water-reducer	3.5 - 6 1 8 - 20
	<p><b>(Continued)</b></p>			

## 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
<b>903.01</b> Air Entraining Admixtures	<b><u>SIKA CORP.</u></b> MultiAir 25	AE	Air-entraining	1
	Plastocrete 10N	A	Water-reducer	2
<b>903.02</b> Water Reducing and Water Reducing Retarding Admixtures for Concrete	Plastocrete 161	D	Water-reducer retarder	3.5
		A	Water-reducer	3
	Plastiment XR	D	Water-reducer retarder	6
		D	Water-reducer retarder	3
<b>903.04</b> Concrete Accelerators	Sika AEA-14	AE	Air-entraining	2
	Sika AIR 260	AE	Air-entraining	2
	Sika AIR 360	AE	Air-entraining	1
	Sikament AFM	A	Water-reducer	2
		MR	Mid-range water-reducer	6
		F	High-range water-reducer	11
		MR	Mid-range water-reducer	6.5
	Sikament SPMN	F	High-range water-reducer	10
		A	Water-reducer	3
		MR	Mid-range water-reducer	5.5
		F	High-range water-reducer	8
	Sikament 686	A	Water-reducer	3
		MR	Mid-range water-reducer	5.5
		F	High-range water-reducer	8
		MR	Mid-range water-reducer	6.5
	SikaPlast 200	A	Water-reducer	3
		G	High-range water-reducer	13
		MR	Mid-range water-reducer	6.5
		C	Accelerator (non-chloride)	10
	SikaSet NC	D	Water-reducer retarder	3
C		Accelerator (non-chloride)	20	
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	
	F	High-range water-reducer	5	
ViscoCrete 2100	F	High-range water-reducer	5	
ViscoCrete 4100	F	High-range water-reducer	5	
ViscoCrete 6100	F	High-range water-reducer	5	
<b>(Continued)</b>				

## 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
<b>903.01</b> Air Entraining Admixtures	<b><u>GCP APPLIED TECHNOLOGIES, INC.</u></b>			
	ADVA 405	F	High-range water-reducer	11 - 18
<b>903.02</b> Water Reducing and Water Reducing Retarding Admixtures for Concrete	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
<b>903.04</b> Concrete Accelerators	Daracem 19	F	High-range water-reducer	12.5
	Daracem 65	A	Water-reducer	4
		MR	Mid-range water-reducer	6 - 9
	Daraset 400	C	Accelerator (non-chloride)	15
	Daratard 17	D	Water-reducer retarder	2
	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
	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	
ZYLA R	D	Water-reducer retarder	6 - 12	

## **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)

## QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name		Manufacturers or Suppliers
<b>905.03C</b> Bar Reinforcement (Epoxy Coating)  <b>NOTE:</b> Epoxy Coating Material Only. The Coating Applicator and Bar Manufacturer can be Approved Manufacturers, see Approved Manufacturers List.	<u>Epoxy Coating Product Name</u>	<u>Repair Coating Product Name</u>	
	Scotchkote 413	Scotchkote 323R	3M
	Resicoat RB-600	Thermal Chem BarPatch #803	Akzo Nobel Powder Coatings
	Nap-Gard 7-2719	Nap-Gard 7-1870 or 7-2727	Axalta Coating Systems (Dupont Powder Coating)
	Nap-Gard 7-2750	Nap-Gard 7-1868	Axalta Coating Systems (Dupont Powder Coating)
	Greenbar 720A009	Greenbar 920-G-966/ 920-C-966	Valspar
	Vectrashield PFY80006	Vectrashield Patch Kit	Valspar
<b>906.09</b> Shear Developers (Studs)	<u>Markings</u>		
	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.
<b>909.01</b> 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
<b>909.03</b> 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	Hamilton Kent In-Line Bell Spring Seal	12 thru 15	Lane Enterprises
	Corrugated Polyethylene Pipe	SpringSeal Gasket	18 thru 24	Lane Enterprises
	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 Super SeaPress 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	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.	



## QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
<b>909.05A1</b> Polymer Coated Corrugated Steel Pipe	Trenchcoat Protective Film	Valfilm USA
<b>909.06</b> Class B Bury Plastic Pipe Smooth Lined Corrugated Plastic Pipe (CPE/HDPE); Corrugated Polyvinyl Chloride Pipe (CPV)	Size: 12 – 24 inch (CPE/HDPE) Size: 12 – 24 inch Blue Seal (CPE/HDPE)  Size: 12 – 24 inch A-2000 PVC (CPV) Size: 12 – 24 inch HDPE Corrugated Class B (CPE/HDPE) Size: 12 – 24 inch Lane HDPE (CPE/HDPE) Size: 12 – 24 inch GoldFlo WT HDPE (CPE/HDPE)	Advanced Drainage Systems (ADS) Advanced Drainage Systems (ADS) - Hancor Contech Engineered Solutions, LLC Lane Enterprises  Lane Enterprises Prinsco, Inc.
<b>909.10</b> Drainage Marker Post	See Delineator Posts 2. Plastic Material, QPL 919.03D	
<b>910.04</b> 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
<b>912.08Q</b> Recycled Plastic Or Rubber Guardrail Offset Blocks	<u>Model</u> <b>Type B/BD, MGS-8 and MGS-8D</b> Dura-Bull Bloclout SPI #4 Diamond Block Eco-Block Mondo Block #NREC P-Block Thrie Beam Block EDEN Block Polylumber PL6814R King Block <b>Type T/TD</b> Mondo Block Steel Post Model #NREC Thrie Beam Block EDEN Block Polylumber King Size King Block	Creative Building Products Diamond Roadway Products Eco-Composites LLC Mondo Polymer Technologies Monroeville Industrial Moldings Monroeville Industrial Moldings Project Back to EDEN Ramco International Trinity Industries, Inc.  Mondo Polymer Technologies Monroeville Industrial Moldings Project Back to EDEN Ramco International Trinity Industries, Inc.
<b>914.03B</b> Recycled Rubber Joint Filler	Reflex	The J D Russell Company

## QUALIFIED PRODUCTS LIST (QPL)

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

## QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers			
<p><b>915</b> Coating Systems for Steel Structures, Hanger Assemblies and End Diaphragms</p> <p><b>NOTES:</b> *Indicates product can be used on faying surfaces of slip critical bolted connections which require Class "B".</p> <p>+Information from the Slip Coefficient and Creep Resistance Test Certificate is given for use with primed bolted connections to meet Class "B" requirements.</p> <p>#Alternative primer can only be used on faying surfaces of slip critical bolted connections which require Class "B".</p>	<p>*Carbozinc 859 +100 hrs min cure, 6 mils max DFT, 10 oz/gal max thin</p> <p>Carboguard 893 Carbothane 133 VOC #Carbozinc 11 HS Inorganic Zinc Primer +18 hrs min cure, 6 mils max DFT, 15 oz/gal max thin</p>	<b>Coats</b>	<p><b>Carboline Company</b> Approved for use on projects let prior to 05/31/19</p> <p><b>Carboline Company</b> Approved for use on projects let prior to 06/30/17</p> <p><b>International Protective Coatings</b> Approved for use on projects let prior to 12/04/16</p> <p><b>PPG Industries</b> Approved for use on projects let prior to 10/30/21</p> <p><b>Sherwin-Williams</b> Approved for use on projects let prior to 07/31/20</p>		
	<p>*Carbozinc 859 +100 hrs min cure, 6 mils max DFT, 10 oz/gal max thin</p> <p>Carboguard 893 Carbothane 133 LH #Carbozinc 11 HS Inorganic Zinc Primer +18 hrs min cure, 6 mils max DFT, 15 oz/gal max thin</p>	1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup>			
	<p>Interzinc 52 Intergard 475 HS Interthane 990HS #Interzinc® 22 Inorganic Zinc-Rich Silicate +24 hrs min cure, 5 mils max DFT, No thinner Allowed</p>	1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup>			
	<p>*Amercoat 68HS +168 hrs min cure, 3 mils max DFT, 4 oz/gal max thin</p> <p>Amercoat 399 Amercoat 450H #Dimelcote 9VOC Zinc-Rich Primer +24 hrs min cure, 4 mils max DFT, 7 oz/gal max thin</p>	1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup>			
	<p>*Zinc Clad III HS +168 hrs min cure, 5 mils max DFT, 12 oz/gal max thin</p> <p>Macropoxy 646 Fast Cure Epoxy Acrolon 218 HS #Corothane I GalvaPac One Pack Zinc Primer +24 hrs min cure, 4 mils max DFT, 0 oz/gal max thin</p>	1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup>			
<p><b>917.12</b> Seed Varieties</p> <p>Varieties of Seed on QPL Date of Testing Not to Exceed One Year</p> <p>Approved MDOT seed mixtures, see Table 917-1 in the Spec Book.</p> <p>*Species</p>	<p>*<u>Kentucky Blue Grass</u> Arc Baron Bristol Cannon Corsair Diva Guinness Midnight Nassau NuBlue NuBlue Plus Parade Raven RugbyII Touchdown Wildwood</p>	<p>*<u>Perennial Ryegrass</u> Advent Accent II Charger II Fiesta 4 Manhattan 5 Palmer III Pennant III Prelude III Prelude IV Premium Quickstart II SR 4220 SR 4420</p>	<p>*<u>Hard Fescue</u> Aurora II Aurora Gold Matterhorn Nordic Reliant II Reliant IV Rescue Rescue 911 Scaldis II Spartan II SR 3100 SR 3150</p>	<p>*<u>Creeping Red Fescue</u> Cindy Lou Dawson Epic Hector Kent Seabreeze GT Sea Link Shademaster II SR 5210</p>	<p>*<u>Fults Salt Grass</u> Fults Fults II Salty</p>

## QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
<b>917.15B1</b> 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 Enviroscap HV Straw Mulch Blanket S2000 ECB EX32 ECB S32 ETRS-2 RD S2 Erosion Control Blanket WS072B 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 Enviroscap ECM ErosionControlBlanket ErosionControlBlanket Erosion Tech S.I. Geosolutions / Land Green Fix America Hanes Geo Components North American Green Rhino Seed & Landscape Supply Western Excelsior Corp. Winters Excelsior Company
<b>917.15B2</b> 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 Enviroscap Straw Mulch Blanket S1000 ECB EX31 ECB S31 ETRS-1 RD WS05 Erosion Control Blanket DS-75 Xcel Excelior Erosion Control Blankets 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 Enviroscap ECM ErosionControlBlanket ErosionControlBlanket Erosion Tech Green Fix America North American Green PPS Packaging Co. Rhino Seed & Landscape Supply Synthetic Ind. / BonTerra America Verdyol-Canada Western Excelsior Corp. Winters Excelsior Company
<b>917.15C</b> 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 ConWed 2000 <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.

## QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers																												
<b>918.06D</b> 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 Synertech Underground Enclosure S1730B12FA & Cover S1730HBB0A	Arborcast Products Company  Highline Products, Inc. Hubbell NewBasis  Synertech Molded Products																												
<b>918.08C</b> 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.																												
<b>919.02B1</b> Reflective Sheeting	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Type III</u> Series</th> <th style="text-align: center;"><u>Type IV</u> Series</th> <th style="text-align: center;"><u>Type IX</u> Series</th> <th style="text-align: center;"><u>Type XI</u> Series</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3870</td> <td style="text-align: center;">3930</td> <td style="text-align: center;">3990</td> <td style="text-align: center;">4000</td> </tr> <tr> <td style="text-align: center;">--</td> <td style="text-align: center;">T-6500 Series</td> <td style="text-align: center;">T-9500 Series</td> <td style="text-align: center;">T-11500 Series</td> </tr> <tr> <td style="text-align: center;">Nikkalite Ultralite Grade II</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> </tr> </tbody> </table>	<u>Type III</u> Series	<u>Type IV</u> Series	<u>Type IX</u> Series	<u>Type XI</u> Series	3870	3930	3990	4000	--	T-6500 Series	T-9500 Series	T-11500 Series	Nikkalite Ultralite Grade II	--	--	--	3M  Avery Dennison  Nippon Carbide												
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Nikkalite Ultralite Grade II	--	--	--																											
<b>919.03D</b> Delineator Post, Plastic, Flexible 1. Ground Mount         2. Surface 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  IRS Multipurpose Delineator Post City Post Flexi-Guide FG 300 Model UR Flexi-Guide FG 300 Model EFX K71 Flexible Marker Post SM 700 Series TM 750 Series TSM Series Flexible Delineator Post Shur-Flex Surface Mount Delineator	Carsonite PEXCO, Davidson Traffic Control Products PEXCO, Davidson Traffic Control Products Flexstake Flexstake Flexstake Safe-Hit Shur-Tite Trinity Highway/Safe-Hit  Impact Recovery Systems PEXCO, Davison Traffic Control Products PEXCO, Davison Traffic Control Products PEXCO, Davison Traffic Control Products US Reflector Flexstake Flexstake New Direction Mfg., Inc. Shur-Tite																												
<b>921.05A</b> Steel Clamps for Traffic Signal Strain Poles	Strain Clamps	Utility Metals																												
<b>922.06A</b> 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	<table style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><u>White (Type)</u></th> <th style="text-align: left;"><u>Yellow (Type)</u></th> </tr> </thead> <tbody> <tr> <td>5160 (NR)</td> <td>5161 (NR)</td> </tr> <tr> <td>710 (WR)</td> <td>711 (WR)</td> </tr> <tr> <td>620 (R)</td> <td>621 (R)</td> </tr> <tr> <td>ATM 200 (R)</td> <td>ATM 200 (R)</td> </tr> <tr> <td>Deltaline TWR (WR)</td> <td>Deltaline TWR (WR)</td> </tr> <tr> <td>Series 100 (R)</td> <td>Series 100 (R)</td> </tr> <tr> <td>Flex-O-Line 200 (NR)</td> <td>Flex-O-Line 200 (NR)</td> </tr> <tr> <td>Prismoline (R)</td> <td>Prismoline (R)</td> </tr> <tr> <td>RW-140 (R)</td> <td>RY-140 (R)</td> </tr> <tr> <td>Aztec 100-W (NR)</td> <td>100-Y (NR)</td> </tr> <tr> <td>Aztec 102 (R)</td> <td>390 (R)</td> </tr> <tr> <td>Director-2 (R)</td> <td>Director-2 (R)</td> </tr> <tr> <td>Visaline CG (NR)</td> <td>Visaline CG (NR)</td> </tr> </tbody> </table>	<u>White (Type)</u>	<u>Yellow (Type)</u>	5160 (NR)	5161 (NR)	710 (WR)	711 (WR)	620 (R)	621 (R)	ATM 200 (R)	ATM 200 (R)	Deltaline TWR (WR)	Deltaline TWR (WR)	Series 100 (R)	Series 100 (R)	Flex-O-Line 200 (NR)	Flex-O-Line 200 (NR)	Prismoline (R)	Prismoline (R)	RW-140 (R)	RY-140 (R)	Aztec 100-W (NR)	100-Y (NR)	Aztec 102 (R)	390 (R)	Director-2 (R)	Director-2 (R)	Visaline CG (NR)	Visaline CG (NR)	3M 3M 3M ATM Brite-line Technologies, LLC Brite-line Technologies, LLC FOL Tape, LLC Linear Dynamics/ Carrier & Gable Market Manager Rd Tape, Trelleborg Ind. AB Tape4, LLC Tape4, LLC Volare/ Swarco Industries, Inc. Volare/ Swarco Industries, Inc.
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## QUALIFIED PRODUCTS LIST (QPL)

Spec. # and Material Name	Product Name	Manufacturers or Suppliers
<b>922.06B</b> Temp. Raised Pavement Markers	Type 1: Model 932 Chip Seal Marker TRPM Chip Seal Marker	Apex Universal, Inc. PEXCO, Davidson Traffic Control Prod
	Type 2: Model 932 Overlay Marker Temporary Overlay Marker	Apex Universal, Inc. PEXCO, Davidson Traffic Control Prod
	Type 3: Stimsonite Model 88	Stimsonite Corporation
<b>922.06C</b> Temporary Pavement Marking, Pavement Marking Cover	<u>Black (Type)</u> ATM-19-285 3M-715	<u>Other (Type)</u> ATM 3M