



# Inspector Development Program (IDP) Handbook

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# Construction Inspectors Career Development Guide

## *Introduction*

The Inspector Development Program (IDP) represents a training and mentorship program intended to ensure TxDOT Inspectors have the knowledge and experience necessary to adequately monitor and accept quality work on TxDOT construction projects.

The basis of the IDP is still a mentoring program. On-the-job training (OJT) is an important part of developing into a knowledgeable and competent Inspector. Inexperienced Inspectors are routinely trained in the field by more experienced senior Inspectors. As an Inspector, you are responsible for seeking out mentors, actively participating in the program, and using the checklists contained in the handbook to advance your knowledge.

The new updated IDP Handbook is intended as a resource to help find answers to specific inspection questions. The resources shown on each question are a starting point to use in locating the answer. In some cases, specific Specification Articles and Sections are referenced; however, other significant resources are not always referenced, including the following.

- Plans
- Department Standard Specifications bid items and reference items
- Proposal with special provisions and special specifications
- Department test procedures (Tex-XXX-X)
- Departmental Materials Specifications
- American Association of State Highway Transportation Officials (AASHTO) and American Society for Testing and Materials (ASTM) Standards, Test Procedures, and Materials Specifications
- Pertinent manuals such as the Construction Contract Administration Manual (CCAM)

Formal training is an important part of your development as an Inspector. There are many online and classroom courses available. In the next section you will find available training that may fit into your career path as you develop your knowledge and skills as an Inspector. For all training available, go to the HRD Training Catalog.

# Construction Inspectors Career Development Guide

## *Training*

Classroom Training	
<b>BRG100</b>	Bridge Construction Inspection
<b>BRG105</b>	Bridge Workshop
<b>CON105</b>	Intro to Construction/Maintenance Inspection
<b>CON116</b>	Critical Path Scheduling - Construction
<b>CON118</b>	Construction Contract Administration
<b>CON120</b>	Fundamentals of Concrete 201
<b>CON205</b>	Fundamentals of Concrete 101
<b>CON206</b>	Concrete Paving
<b>CON209</b>	Dispute Resolution
<b>CON303</b>	Bridge Deck Workshop
<b>CON404</b>	Hot Mix Asphalt Construction
<b>CON406</b>	Construction of Hydraulic Cement Concrete Paving
<b>CON411</b>	Inspection of Flex Base and Embankments
<b>CON500</b>	Site Manager Inspector Field Reporting
<b>CON501</b>	Site Manager Contract Administration
<b>CON804</b>	Hot Mix Specialist Certification Level 1A
<b>CON805</b>	Hot Mix Specialist Certification Level II
<b>CON806</b>	Hot Mix Specialist Certification Level 1B
<b>DBE100</b>	DBE Compliance Training Program
<b>ENV103</b>	Storm Water Pollution Prevention Plan
<b>ENV300</b>	Stormwater Erosion and Sediment - Day 1
<b>GEO101</b>	Basic Geotechnical Engineering for Roadways
<b>GEO203</b>	Drilled Shaft Inspectors Workshop
<b>MNT414</b>	Construct Thin Hot Mix Asphalt Overlay
<b>MNT702</b>	Seal Coat Inspection and Application
<b>MNT706</b>	Best Practice for Microsurface
<b>SFH110</b>	Confined Space Safety
<b>SFH401</b>	Focus on Safety
<b>SFH610</b>	Excavation and Shoring Safety
<b>TRF203</b>	Risk Management & Tort Liability

### Classroom Training

<b>TRF450</b>	Roadway Illumination & Electrical Installations
<b>TRF502</b>	Design Work Zone Traffic Control Plans
<b>TRF510</b>	Installation & Maintenance of Pavement Markings
<b>TRF520</b>	Work Zone Traffic Control
<b>TRF525</b>	Work Zone Traffic Control Refresher
<b>TRF702</b>	Design Construction and Maintenance of Highway Safety Appurtenances

### Online Training

<b>CON703</b>	Nuclear Gauge Transportation Overview
<b>CON814</b>	Spec Book
<b>CON817</b>	Completing Stormwater Inspection Checklist (Form 2118)
<b>EL1087</b>	Flagging Safety
<b>EL1227</b>	Confined Spaces in Construction
<b>EL7279</b>	Basics Business Math: Using whole Numbers and Fractions
<b>EL7280</b>	Basics Business Math: Percentages and Ratios
<b>EL7281</b>	Basics Business Math: Averages and Equations
<b>ENV414</b>	Environmental Awareness
<b>ENV432</b>	CGP Compliance and Enforcement
<b>ENV433</b>	Storm Water Compliance Requirements in Construction
<b>ENV457</b>	404 Compliance During Construction
<b>MNT415</b>	Re-Vegetation During Construction
<b>SFH733</b>	Temporary Barricades
<b>SFH770</b>	Steel Erection Standards
<b>SFH774</b>	Trenching and Excavation
<b>TCC010</b>	Plans Reading
<b>TCC016</b>	QC/QA for Concrete Pavements
<b>TCC100</b>	Math Module
<b>TCC101</b>	Improving the Daily Diary
<b>TCC107</b>	Basic Materials for Highway and Structures Construction
<b>TCC109</b>	Plans Reading, Grading Plans
<b>TCC110</b>	Plan Reading - Traffic Control Plans

## Online Training

<b>TCC111</b>	Plans Reading, Erosion & Sediment Control Plans
<b>TCC114</b>	Plans Reading, Bridge Plans
<b>TCC115</b>	Plans Reading, Culvert Plans
<b>TCC116</b>	Roller Compacted Concrete Pavement
<b>TCC117</b>	Pipe Installation, Inspection, and Quality
<b>TCC118</b>	Change Orders, Claims, and Dispute Resolutions
<b>TCC131</b>	Introduction to Portland Concrete Construction (PCC) Paving Inspection
<b>TCC134</b>	PCC Pavement Preservation Series - Slab Stabilization and Slab Jacking
<b>TCC135</b>	PCC Pavement Preservation Series -Partial-Depth Repairs
<b>TCC136</b>	PCC Pavement Preservation Series - Full-Depth Repairs
<b>TCC139</b>	PCC Pavement Preservation Series - Diamond Grinding and Grooving
<b>TCC154</b>	Concrete Series - Hardened Concrete Properties: Durability
<b>TCC155</b>	Concrete Series - Fundamentals of Material Used for Concrete Paving Systems
<b>TCC156</b>	Concrete Series - Incompatibility in Concrete Pavement Systems
<b>TCC158</b>	Concrete Series - Early Age Cracking
<b>TCC159</b>	Concrete Series - Basics of Cement Hydration
<b>TCC160</b>	Concrete Series - Fresh Properties
<b>TCC161</b>	Concrete Series - Construction of Concrete Pavements
<b>TCC163</b>	Concrete Series - Troubleshooting for Concrete Pavements
<b>TCC175</b>	Bolted Connections
<b>TRF809</b>	Ground Box Installations
<b>TRF810</b>	Construction Equipment Testing Requirements
<b>TRF811</b>	Conduit Installation Requirement
<b>TRF812</b>	Common Mistakes on TxDOT Electrical
<b>TRF819</b>	Concrete Barrier Illumination Installation

## Module 1

### General Requirements Items 1–9

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for these items and understands what changes it makes to the specifications. <b>Proposal – Special Provisions</b>
2.	Understands the more common definitions and can look-up ones that are not known. <b>Article 1.2.</b>
3.	Can determine from plans and proposal the work to be performed on assigned projects. <b>Article 4.1.</b>
4.	Understands the requirements for beginning work. <b>Article 4.2.</b>
5.	Understands the requirements for partnering. <b>Article 4.3.</b>
6.	Can identify when changes to the work are needed or have occurred. <b>Article 4.4.</b>
7.	Can explain guidelines to identifying significant changes. <b>Article 4.4.</b>
8.	Understands the procedures to follow regarding changes to work and/or scope. <b>Article 4.4.</b>
9.	Can identify major items of the project. <b>Article 4.4.</b>
10.	Understands when price adjustments to items are warranted. <b>Article 4.4.</b>
11.	Can provide examples of the two types of differing site conditions. <b>Article 4.5.</b>
12.	Understands the importance of inspector, Contractor and Engineer notification responsibilities when encountering differing site conditions. <b>Article 4.5.</b>
13.	Demonstrates ability to document necessary details of the different conditions and records added or reduced amounts of time, equipment, labor, and materials involved. <b>Article 4.5.</b>
14.	Can identify when work and/or work sequences are being delayed or interrupted by the contractor, TxDOT, or others, such as utility companies. <b>Article 4.6; Project Schedule.</b>
15.	Demonstrates ability to accurately document actions, materials, manpower, time and equipment assignments, and other vital information regarding delays or interruptions. <b>Article 4.6.</b>

**Read the following statements. Find the answer at the Resource.**

16.	Understands the importance of timely notification by the Contractor of the intent to request additional compensation. <b>Article 4.6.</b>
17.	Understands the importance of responding to Contractor questions in a timely manner. <b>Article 4.6.</b>
18.	Understands the authority of the Engineer. <b>Article 5.1.</b>
19.	Can identify the items of work that typically require working drawings. <b>Article 5.2.</b>
20.	Understands which documents require TxDOT review and the signature and approval requirements for working drawings. <b>Article 5.2.</b>
21.	Understands that work cannot be performed outside the lines and grades shown in the plans without Engineer approval. <b>Article 5.3.</b>
22.	Can identify defective work and who has authority to reject or accept defective or unauthorized work. <b>Article 5.3.</b>
23.	Understands what governs in cases of conflicts between the plans, specifications, and special provisions, and the relationship each has to the others. <b>Article 5.4.</b>
24.	Understands why it is important for the Engineer to receive prompt notification of error, omissions, and discrepancies. <b>Article 5.4.</b>
25.	Understands the Contractor's responsibilities regarding cooperation with the Engineer and others. <b>Article 5.5.</b>
26.	Can identify required Contractor superintendent qualifications and responsibilities. <b>Article 5.5.</b>
27.	Understands Contractor's responsibilities regarding equipment and personnel requirements to perform the work. <b>Article 5.5.</b>
28.	Understands the circumstances by which Contractor and Subcontractor employees and representatives may be removed from the project by the Engineer. <b>Article 5.5.</b>
29.	Understands cooperation with railroads with the railroad right-of-way. <b>Article 5.8.</b>
30.	Can identify the responsibilities of the contractor and railroad concerning work to be completed within the railroad right-of-way. <b>Section 5.8.2; Plans; Proposals.</b>

**Read the following statements. Find the answer at the Resource.**

31.	Understands TxDOT's responsibilities for obtaining a right-entry-agreement for construction within the railroad right-of-way. <b>Section 5.8.3.</b>
32.	Is familiar with personal safety equipment required when working in railroad ROW. (Same requirements as regular ROW.) <b>Crossroads/ Occupational Safety Division/ OCC Manual, Chapter 7, Section 37.</b>
33.	Understands the surveying responsibilities on the project. (Refer to Surveying Module.) <b>Article 5.9.</b>
34.	Understands the inspector's authority and limits. (Refer to the Construction Contract Administration Manual, Chapter 5, Section 1.) <b>Article 5.10, Crossroads/Construction Division/Construction Contracting/Construction Contract Administration Manual.</b>
35.	Is able to explain the purpose why inspectors cannot alter, change, or waive the contract or plan details. <b>Article 5.10.</b>
36.	Understands the purpose of not directing the contractor staff or work operations, or interfering with the management of the contractor's work. <b>Article 5.10.</b>
37.	Can describe conditions in which performance of inspection may require additional safety devices or measures. <b>Article 5.10.</b>
38.	Knows the limits placed on inspection forces of others such as cities. <b>Article 5.10.</b>
39.	Demonstrates ability to maintain an ongoing list of incomplete work throughout construction of the project and notifies the Contractor.
40.	Understands the importance of maintaining accurate project records including, but not limited to, the project Daily Work Report. (Refer to the Construction Contract Administration Manual, Chapter 4, Section 4 and SiteManager User Guide.) <b>Crossroads/Construction Division/Construction Contracting/Construction Contract Administration Manual.</b>
41.	Understands that all project records are public documents and may be subject to disclosure under the Public Information Act. <b>TxDOT Ethics Policy, ETH101.</b>
42.	Understands why the "Traffic Control Devices Inspection Checklist (Form 599)" should be kept in a file separate from the project files. (Refer to the Construction Contract Administration Manual, Chapter 4, Section 3 and Chapter 5, Section 2.) <b>Crossroads/Construction Division/Construction Contracting/Construction Contract Administration Manual.</b>

**Read the following statements. Find the answer at the Resource.**

43.	Understands TxDOT's final acceptance process, both internal processes and Contractor responsibilities. <b>Article 5.12.</b>
44.	Can identify and communicate to the Contractor their responsibilities concerning final cleanup after completion of all work. <b>Article 5.11.</b>
45.	Understands process for determining if materials meet Contract requirements. <b>Article 6.1.</b>
46.	Can identify and locate TxDOT stamps and marking on pre-approved materials. <b>Crossroads/ Construction Division/ Material Specifications/ DMS-7300; Crossroads/ Construction Division/Training &amp; Development/ Inspector Development Program/Material Producer List/ Precast Nonstressed Member Fabricators and Precast Prestressed Member Fabricators.</b>
47.	Understands the importance of verifying compliance prior to using the material in the work. <b>Article 6.1.</b>
48.	Understands that Buy America provisions apply to steel and iron materials. <b>Section 6.1.1; Crossroads/Construction Division/Emails and Memos/Compliance with "Buy America"; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Inspection Guide.</b>
49.	Can identify U.S. and foreign steel. <b>Crossroads/ Construction Division/Training &amp; Development/Inspector Development Program/ Material Producer List/ Reinforcing Steel Mills.</b>
50.	Understands when it is acceptable to use materials not produced in Texas. <b>Section 6.1.2.</b>
51.	Is able to locate material quality requirements. <b>Article 6.2; Plans; Specifications.</b>
52.	Can identify the Contractor's responsibility when failing quality is found. <b>Article 6.2.</b>
53.	Understands that manufacturer warranties are transferred to TxDOT. <b>Article 6.3.</b>
54.	Can identify items of work that may have manufacturer warranties. <b>Article 6.3.</b>
55.	Understands Inspector's authority to test or retest materials at any time. <b>Article 6.4.</b>
56.	Understands the importance of and maintains detailed records regarding material sampling and testing. <b>Article 6.4, Crossroads/ Construction Division/ SiteManager/ SiteManager Online Manuals/ SiteManager Materials Management Manual.</b>

**Read the following statements. Find the answer at the Resource.**

57.	Is familiar with the Guide Schedule of Sampling and Testing and understands that the Guide Schedule sets the minimum testing frequency. Understands the need for testing described in the Quality Assurance Program. <b>Crossroads/Construction Division/Guide Schedule, Crossroads/Construction Division/Materials Engineering/Quality Assurance Program for Design-Bid-Build Projects.</b>
58.	Understands how to enter sampling and testing information in SiteManager. <b>Crossroads/ Construction Division/ SiteManager/SiteManager Online Manuals/SiteManager Materials Management Manual.</b>
59.	Understands the conditions that the facility and plant must satisfy in order for a TxDOT inspector to provide plant inspection of materials. <b>Article 6.5.</b>
60.	Understands the proper storage techniques for various materials to be used on the project and where to locate storage criteria. <b>Article 6.6.</b>
61.	Understands ROW storage safety requirements, specifically when adjacent to traffic. <b>Plans – BC Standard Sheets.</b>
62.	Understands that storage for material on private property is the Contractor’s responsibility. <b>Article 6.6.</b>
63.	Can determine if TxDOT furnishes materials. <b>Article 6.7; Plans.</b>
64.	Is able to keep an accurate account of the materials provided to the Contractor, and checks to make sure the Contractor does not remove from stock more than specified.
65.	Understands that materials cannot be obtained from along the project ROW, or any other ROW, unless specifically noted in the plans. <b>Article 6.8.</b>
66.	Understands that recycled materials containing hazardous waste are not allowed on the project. <b>Article 6.9.</b>
67.	Knows to refer requests to use nonhazardous recyclable materials to the Engineer for approval. <b>Article 6.9.</b>
68.	Understands how to identify potentially hazardous materials that may be encountered on the project. <b>Article 6.10.</b>
69.	Understands which hazardous materials require special handling or special Contractors. <b>Article 6.10.</b>
70.	Knows who to contact if unidentified or potentially hazardous materials are encountered. <b>Article 6.10.</b>
71.	Understands how to determine if surplus materials are to remain property of the State or be disposed of by the Contractor. <b>Article 6.11; Plans.</b>

**Read the following statements. Find the answer at the Resource.**

72.	Knows to ask the Contractor where materials will be disposed and whether to request written documentation for the project files. <b>Article 6.11.</b>
73.	Understands and practices TxDOT's ethics policies, which the Contractor must also honor. <b>Article 7.1; Crossroads/Construction Division/Construction Contracting/Construction Contract Administration Manual, Chapter 9, Section 3; Crossroads/ Human Resources Division/Human Resources Manual, Chapter 8, Section 1.</b>
74.	Knows the duties and responsibilities of the Contractor Safety Point of Contact. <b>Section 7.2.1.</b>
75.	Understands the Contractor is required to maintain public safety and convenience throughout the duration of the project. <b>Section 7.2.4.</b>
76.	Understands when closures of roadways are allowed. <b>Section 7.2.4; Plans.</b>
77.	Understands good and passable conditions. <b>Section 7.2.4.</b>
78.	Understands that ingress and egress to adjoining properties must be maintained. <b>Section 7.2.4.</b>
79.	Knows that equipment and materials should be stored so as not to interfere with traveling public. <b>Section 7.2.4.</b>
80.	Understands the contractor's responsibility regarding traffic control. <b>Section 7.2.6.</b>
81.	Understands the types of laws and ordinances that must be observed, including any permits or licenses required of the Contractor. <b>Articles 7.3 and 7.4.</b>
82.	Can identify if the project has possible permitting requirements or special areas of concern (navigable waterway, recharge zone, PSL, etc.) Can locate such requirements or concerns in the plans. <b>Article 7.7; Plans.</b>
83.	Knows what action must be taken if a historical artifact is discovered on the project. <b>Section 7.7.1.</b>
84.	Is aware of permitting requirements needed prior to performing work in waters of the U.S. <b>Section 7.7.3.</b>
85.	Can determine if proper toilet facilities are being provided. <b>Article 7.9.</b>
86.	Understands contractor responsibilities regarding noise abatement. <b>Article 7.10.</b>
87.	Understands how to handle complaints from the public. <b>Construction Contract Administration Manual.</b>
88.	Knows blasting plan requirements, if applicable. <b>Article 7.11.</b>

**Read the following statements. Find the answer at the Resource.**

89.	Understands the Contractor's responsibilities regarding hazardous materials they create or dispose of. <b>Article 7.12.</b>
90.	Can recognize potential impacts on adjacent property and buried and aboveground utilities. <b>Article 7.14.</b>
91.	Can explain the importance of protecting adjacent property. <b>Article 7.14.</b>
92.	Understands that any damages caused by the contractor to adjacent property must be repaired. <b>Article 7.14.</b>
93.	Understands the contractor's responsibility for damage claims. <b>Article 7.15.</b>
94.	Understands the contractor's responsibilities regarding underground utilities. <b>Article 7.15.</b>
95.	Understands the vehicle and equipment weight limits with which the contractor must comply and that overweight permits do not allow loads to be carried on the interstate highway system. <b>Article 7.16.</b>
96.	Is aware that any damages caused by the contractor require repair. <b>Article 7.16.</b>
97.	Understands the steps required by the contractor before they can route overweight loads over pavements or structures. <b>Section 7.16.1.</b>
98.	Knows how to check if a vehicle is exempt from the normal weight restrictions. <b>Article 7.16.</b>
99.	Can identify in the plans and standards and through TMUTCD the appropriate traffic control details that need be applied. (Refer to the BC sheets, TCP sheets and TMUTCD.) <b>Plans – BC and TCP Sheets, Crossroads/Traffic Division/Traffic Engineering Section/Policy and Standards Branch.</b>
100.	Can determine if traffic control is placed according to the plans, standards, and TMUTCD. <b>Plans – BC and TCP Sheets; Crossroads/Traffic Division/Traffic Engineering Section/Policy and Standards Branch.</b>
101.	Understands that the contractor is responsible to protect the work at all times until final acceptance. <b>Article 7.17.</b>
102.	Can identify reimbursable and non-reimbursable repairs to work. <b>Article 7.17.</b>
103.	Can identify work that is considered electrical work and that which is not. <b>Section 7.18.1.1.</b>
104.	Can identify when specialized electrical work is required. <b>Section 7.18.1.2.</b>
105.	Knows how to verify the licensing requirements for electrical work. <b>Sections 7.18.1.3 and 7.18.1.4.</b>
106.	Can distinguish the qualifications needed for the various types of electrically related work. <b>Section 7.18.2.</b>

**Read the following statements. Find the answer at the Resource.**

107.	Knows when time charges start. <b>Article 8.3.</b>
108.	Knows what constitutes a working day. <b>Section 8.3.1.</b>
109.	Can locate in the contract the method of time charge for the project. <b>Proposal.</b>
110.	Knows any restrictions on work hours. <b>Section 8.3.2; Plans.</b>
111.	Understands the definition of nighttime work. <b>Section 8.3.3.</b>
112.	Understands how and when to suspend work or suspend working day charges. <b>Article 8.4.</b>
113.	Is aware of default and termination procedures and processes and who can initiate these actions. <b>Article 8.7.</b>
114.	Understands how to make Diary Entries in SiteManager. <b>Crossroads/Construction Division/SiteManager/SiteManager Contract Administration Manual; Construction Contract Administration Manual.</b>
115.	Understands how to make Milestone Entries in SiteManager. <b>Crossroads/Construction Division/SiteManager/SiteManager Contract Administration Manual. Construction Contract Administration Manual.</b>
116.	Understands the Contractor is responsible for Subcontractor work quality and actions. <b>Article 8.2.</b>
117.	Knows that Subcontractors must be approved by the Engineer before they can begin work on a project. <b>Article 8.2.</b>
118.	Knows that at least 30% of the actual work must be performed by the Contractor on construction projects. <b>Section 8.2.1.</b>
119.	Is aware of the process for handling Subcontractor complaints, including issues associated with prompt payment requirements. <b>Crossroads/Construction Division/Construction Contracting/Construction Contract Administration Manual.</b>
120.	Understands responsibilities associated with Disadvantaged Business Enterprise (DBE) Program requirements (i.e., Commercially Useful Function [CUF] reviews). <b>Crossroads/ Construction Division/ Construction Contracting/ Construction Contract Administration Manual.</b>
121.	Understands how to associate Subcontractors to items of work in SiteManager. <b>Crossroads/ Construction Division/SiteManager/SiteManager Online Manuals/SiteManager; Construction Contract Administration Manual.</b>

**Read the following statements. Find the answer at the Resource.**

122.	Understands responsibilities associated with labor and EEO compliance (i.e., labor interviews, employee complaints and safety issues). Refer to the Construction Contract Administration Manual, Chapter 15. <b>Crossroads/ Construction Division/Construction Contracting/Construction Contract Administration Manual, Chapter 15.</b>
123.	Understands how to associate workers and equipment in SiteManager. <b>Crossroads/ Construction Division/ SiteManager/SiteManager Online Manuals/SiteManager; Construction Contract Administration Manual.</b>
124.	Can explain what the term “neat dimensions” means and when they are applied. <b>Article 9.1.</b>
125.	Understands the importance of keeping measurements on a daily basis. <b>Construction Contract Administration Manual.</b>
126.	Can measure haul vehicle for volume, compute volume, and explain when it is necessary to do so. <b>Section 9.1.2; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Mathbook.</b>
127.	Can describe the differences between gross weight, tare weight, and net weight. <b>Section 9.1.3.</b>
128.	Knows to determine legal gross weight limits along the haul route for hauls carried on public travel ways. <b>Section 9.1.3.1.</b>
129.	Can calculate net weight of materials measured by weight when the gross vehicle weight exceeds maximum weight limits of the haul route. <b>Section 9.1.3.1.</b>
130.	Understands why certified scales are required to determine weight measurements. <b>Section 9.1.3.</b>
131.	Knows basic mathematics for calculating payment of bid items. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Mathbook 1.</b>
132.	Understands how to pay for items of work in SiteManager. <b>Crossroads/Construction Division/SiteManager/ SiteManager Online Manuals/SiteManager, Construction Contract Administration Manual.</b>
133.	Understands how to identify “plan quantity items” and why they are used. <b>Article 9.2; Plans.</b>
134.	Understands when it is necessary to measure a “Plans Quantity Item” <b>Article 9.2.</b>
135.	Understands that payment is not acceptance of the work. <b>Article 9.4.</b>

**Read the following statements. Find the answer at the Resource.**

136.	Understands the use of items of work for payment and the importance of using the appropriate item for payment. <b>Article 9.4.</b>
137.	Understands how to measure daily quantities to determine payment to the contractor on a monthly basis. <b>Article 9.5.</b>
138.	Can identify proper pay items to apply when payment is justified and details of measurement, location and dates for payment records. <b>Article 9.5; Plans; Specifications; Construction Contract Administration Manual.</b>
139.	Can identify the materials allowed payment under MOH. <b>Article 9.6.</b>
140.	Understands the importance of verifying and documenting labor, materials and equipment for force account work. <b>Article 9.7.</b>
141.	Proves ability to keep detailed and accurate records of start/stop times, crew members, equipment use times, equipment descriptions, and material quantities used for force account work. <b>Article 9.7.</b>
142.	Knows how to obtain the Rental Rate Blue Book rates and adjustment factors. <b>Section 9.7.1.4.1.</b>
143.	Knows that labor rates can be verified through the certified payroll. <b>Section 9.7.1.1.</b>
144.	Understands allowed Force Account markups. <b>Article 9.7</b>
145.	Knows the importance of keeping accurate account of materials in MOH inventory. <b>Article 9.6.</b>
146.	Knows to periodically check the status of MOH inventory. <b>Article 9.6.</b>
147.	Understands why copies of paid invoices for MOH items are required within 60 days of payment under MOH. <b>Article 9.6.</b>

## Module 2

### Scheduling

Read the following statements. Find the answer at the **Resource**.

1.	Understands the purpose of requiring the contractor to submit a baseline schedule and updates as required. <b>Section 8.5.2.</b>
2.	Understands the role of the schedule in the administration of the contract time. <b>Article 8.5.</b>
3.	Knows the process by which schedules are handled in the area office. <b>Construction Contract Administration Manual; CON510; Section 8.5.5.2.1.</b>
4.	Knows the difference between a bar chart and critical path method schedule. <b>Construction Contract Administration Manual; CON510; CON116; Sections 8.5.5.1 and 8.5.5.2.</b>
5.	Understands the correlation of the items of work to activities shown on the schedule. <b>CON510; CON116; Daily Work Report; Section 8.5.5.2.3.</b>
6.	Knows the different levels of schedule requirements and where they can be found in the contract. <b>Article 8.5; Proposal.</b>
7.	Knows the timeframe requirements for the schedule submittal and review. <b>Article 8.5.</b>
8.	Knows the calendar requirements. <b>Article 8.5.</b>
9.	Knows the activity ID and description requirements. <b>Section 8.5.4.</b>
10.	Can identify the critical path/principal unit of work and understands the concept of float. <b>CON510; CON116; Construction Contract Administration Manual.</b>
11.	Can check actual dates reported by the contractor. <b>SiteManager Daily Work Reports.</b>
12.	Understands that critical path can change if other non-critical activities are delayed beyond the duration of critical activities scheduled in the same time period. <b>CON116; CON510; Article 5.2; Construction Contract Administration Manual.</b>

**Read the following statements. Find the answer at the **Resource**.**

13. Possesses the ability to review schedule updates and determine why a schedule gained or lost time. **Article 8.5; CON116; CON510.**

## Module 2

### Plan Reading

**Read the following statements. Find the answer at the Resource.**

1. Knows and can identify project limits and other pertinent information on the Plan Profile Sheet. **Plans.**
2. Can use the index of sheets to navigate the plan set. **Plans.**
3. Can identify and describe the purpose of: Typical Sections, General Notes, Estimate and Quantities Sheets, Plan & Profile Sheets, Summary Sheets, Standard Sheets, Job Specific Plan Sheets, Special Details. **Plans.**
4. Knows where to find and identify pavement section of all lanes being constructed. **Plans.**
5. Can identify percent slope and direction of all drainage. **Plans/SWPPP.**
6. Can locate and identify lane widths for all travel lanes, shoulders, ramps, and frontage roads. **Plans.**
7. Is able to read and understand the information on the Estimate and Quantities sheet. **Plans.**
8. Can read summaries of quantities and locate on the pertinent Plan and Profile sheet. **Plans.**
9. Knows what information is contained on the Plan and Profile sheets and how to disseminate it. **Plans.**
10. Can identify the Title Block and understand what information is provided. **Plans.**
11. Can identify a Standard Sheet and what item(s) of work it applies to. **Plans.**
12. Can find and read the General Notes and knows the priority they have. **Plans; Article 5.4.**
13. Knows how to read and apply the information contained on roadway cross sections. **Plans.**
14. Can match drainage details with the Plan and Profile sheets. **Plans.**
15. Can identify the Project Proposal and understands the purpose of: Reference Items, Special Provisions, and Special Specifications. **Plans – Special Provisions; Articles 5.3 and 5.4.**

## Module 2

### *Basic Surveying*

**Read the following statements. Find the answer at the **Resource**.**

1.	Can identify and apply the geometric components (i.e., horizontal and vertical alignment data, typical sections, cross-sections) of construction plans to determine lines, grades and locations. <b>Plans.</b>
2.	Has a basic understanding of project control points, how control points are established and how control points are used to set the construction baseline and to establish bench marks for vertical control of work. <b>Crossroads/Support/TxDOT Surveying and Mapping/TxDOT Survey Manual, Chapter 3.</b>
3.	Thorough knowledge of construction staking practices. How to read and use offsets to check horizontal placement. How to use blue tops, string lines, and levels to check grades. Understands cut/fill stakes. <b>TCC106.</b>
4.	Understands the importance of using good surveying techniques and performs sufficient checks to provide confidence in accuracy. <b>TCC106.</b>
5.	Can use a self-leveling (automatic) level and level rod (Philadelphia and/or Lenker) to establish or check grades.
6.	Ensures contractor staking is spot checked for accuracy. <b>Crossroads/Support/TxDOT Surveying and Mapping/ TxDOT Survey Manual, Chapter 7.</b>

## Module 3

### SWP3 and Environmental Requirements

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Understands the Texas Pollution Discharge Elimination System (TPDES), TCEQ Website; Construction General Permit (CGP), Crossroads/Environmental Affairs/Natural Resources/Water Resources Management/Stormwater Resources Website/Construction General Permit or Project SW3P Binder in CGP Section; and the contract requirements regarding the project's Storm Water Pollution Prevention Plan (SWP3). <b>Project PS&amp;E or Project SW3P Binder.</b>
3.	Knows the project's posting requirements as they relate to the Construction Site Notice (CSN). <b>TCEQ Website; Crossroads/Library &amp; Education/ SharePoint/Divisions/ Environmental Affairs/Stormwater/Stormwater Hub/Construction Stormwater/Construction Stormwater Forms; Construction General Permit pg. 17; Project SW3P Binder in CGP Section.</b>
4.	Knows the relationship between the SWP3 and the associated items of work. <b>Project Site Plan in SW3P Binder.</b>
5.	Knows the department's delegation of signature authority. <b>Project SW3P Binder or Construction Contract Administration Manual.</b>
6.	Can properly complete Form 2118, "Construction Storm Water Pollution Prevention Plan Field Inspection and Maintenance Report." <b>Project SW3P Binder; CON817.</b>
7.	Knows when a Contractor's facility or site must be associated with the project SWP3. <b>Project Site Plan in SW3P Binder; Crossroads/ Environmental Affairs/ Natural Resources/ Water Resources Management/Stormwater Resources Website/Memos/Amadeo Saenz on 5/12/03.</b>
8.	Can evaluate and update the site map that identifies all of the Best Management Practices (BMPs), PSLs, and other necessary information on the project. <b>Project SW3P Binder.</b>
9.	Knows to notify the Engineer when a Notice of Change (NOC) may be required. <b>Construction General Permit, pg. 18.</b>

**Read the following statements. Find the answer at the Resource.**

10.	Knows how to determine if final stabilization (70% perennial vegetation coverage) has been obtained. <b>Plans – General Notes; ENV300; ENV433.</b>
11.	Knows how to document the SWP3 requirements and changes to the SWP3. <b>Construction General Permit, pg. 31 and 33.</b>
12.	Understands the use and requirements of rock filter dams. <b>Sections 506.2.1.1 and 506.4.4.1; Plans – EC(2)-16.</b>
13.	Understands the use and types of temporary pipe slope drains. <b>Sections 506.2.2 and 506.4.4.2; Plans – EC(7)-16.</b>
14.	Understands the use and requirements for temporary paved flumes. <b>Sections 506.2.3 and 506.4.3; Plans – EC(8)-16.</b>
15.	Understands the use of construction exits. <b>Sections 506.2.4 and 506.4.4.4; Plans – EC(3)-1.</b>
16.	Understands the use and requirements for construction perimeter fence. <b>Sections 506.2.7 and 506.4.4.8; Plans; Project SW3P Binder.</b>
17.	Understands the use and requirements for sandbags for erosion or sediment control. <b>Sections 506.2.8 and 506.4.4.7.</b>
18.	Understands the use and requirements for net-reinforced fence and woven geo-textile fabric used in temporary sediment control fence and that materials involved must be from an approved source. <b>Sections 506.2.9 and 506.4.4.8; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List/Silt Fence, Filter Fabric, and Fabric Underseal.</b>
19.	Understands when the installation, maintenance, and removal of erosion, sedimentation, and environmental control devices should occur. <b>Construction General Permit, pg. 28–30; Section 506.4.4.</b>
20.	Knows when to remove accumulated sediment and debris from BMPs. <b>Section 506.4.4; CGP, pg. 31–32.</b>
21.	Knows the Contractor's responsibilities in the implementation of the BMPs. <b>Plans and Project SW3P Binder.</b>
22.	Knows when BMPs are functioning properly. <b>ENV300; ENV 433.</b>
23.	Can identify the unit of measure. <b>Article 506.6; Plans.</b>
24.	Can measure and calculate quantities for every unit of measure. <b>Article 506.5.</b>
25.	Knows the types of work that are and are not paid (subsidiary) under this item. <b>Article 506.6; Plans – General Notes and Special Provisions.</b>

## Module 3

### Traffic Control

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows to reference the Compliant Work Zone Traffic Control Device List for approved products and understands that this list only addresses crashworthiness of properly installed devices. <b>Crossroads/ Traffic Division/ Compliant Work Zone Traffic Control Devices.</b>
3.	Understands that all devices must be placed in accordance with the Traffic Control Plans. <b>Plans – Traffic Control Plan Standards / Traffic Control Plans.</b>
4.	Understands that Contractor proposed changes to the TCP must be signed and sealed by a licensed professional engineer and submitted for approval. <b>Article 502.2.</b>
5.	Understands the 5 different categories of work duration and how to apply each to the project. <b>Plans – Barricade and Construction Standards (BC Sheets).</b>
6.	Can verify and document that the traffic control setup being used by the contractor is correct for the operation being performed is set up correctly and is maintained throughout the duration of the set-up. <b>Plans – BC Sheets and Traffic Control Plans.</b>
7.	Knows to document in the Daily Work Report the location and duration of lane closures and the phase of work the project is in. <b>CON 500; Plans.</b>
8.	Understands when and how to remove or cover sign messages. <b>Plans – BC Sheets.</b>
9.	Can recognize the proper color and reflective sheeting used for signs. <b>Plans – BC Sheets.</b>
10.	Understands the requirement for and can properly perform barricade inspections after initial set-up, after traffic alignment changes and a daytime and nighttime inspection each month. <b>Crossroads/Construction Division/ Construction Contracting/Construction Contract Administration Manual.</b>

**Read the following statements. Find the answer at the Resource.**

11.	Can properly complete Barricade Inspection Forms (Form 599) and understands correct procedures for filing and disclosure. <b>Crossroads/Construction Division/Construction Contracting/Construction Contract Administration Manual.</b>
12.	Can recognize the proper color and application of work zone pavement markings. <b>Plans - WZ (STPM) Standards, Traffic Control Plans.</b>
13.	Knows to obtain all contact information of the designated Contractor's Responsible Person (CRP). <b>Section 7.2.6.1.</b>
14.	Knows to obtain a list of qualified flaggers before flagging activities begin. <b>Section 7.2.6.2.</b>
15.	Knows the required mounting height of signs according to the work duration. <b>Plans – BC Sheets.</b>
16.	Understands when speed reductions may be posted and when to remove. <b>Plans – BC Sheets; Work Zone Speed Limit Standards.</b>
17.	Knows all types of work that is and is not paid under this item. <b>Look under PAYMENT in the Spec Book for each item used.</b>

## Module 4

### *Traffic Signals and Illumination*

**Read the following statements. Find the answer at the **Resource**.**

- |    |   |
|----|---|
| 1. | Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>  |
| 2. | Can find website and identify pre-qualified materials on Material Producer list for Traffic Signal Products, Roadway Illumination and Electrical Supplies. <b>Crossroads/ Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>  |
| 3. | Knowledgeable of specifications for Highway Traffic Signal Installation according to spec book, Texas Manual on Uniform Traffic Control Devices (TMUTCD). <b>Crossroads/Traffic Division/Traffic Engineering Section/Policy and Standards Branch</b> ; Departmental Material Specifications (DMS). <b>Crossroads/Construction Division/Materials Specifications</b> ; Traffic Operations Division (TRF) special specs, and standard sheets. <b>TS- FD, TS-CF Crossroads/Traffic Division/Traffic Engineering.</b> |
| 4. | Understands requirement for sampling of traffic signal cabinets, with completed CST Form 202, for environmental testing by Traffic Operations Division. <b>Article 680.2; Crossroads/Construction Division/Test Methods/Tex-1170-T.</b>   |
| 5. | Knowledgeable of specifications for traffic signal poles, heads, flashing beacons, and detectors according to spec book. <b>Articles 682.2, 685.2, and 686.2.</b> DMS. <b>Crossroads/Construction Division/Materials Specifications.</b> Standard sheets. <b>Plans – SP, SMA, DMA, MA, LUM-A, CFA, LMA, RFBA, SPRFBA, and LD Standards.</b>   |
| 6. | Knowledgeable of specifications for traffic signal cable, conduit, conductors, tray cable, duct cable, ground boxes, and electrical services according to spec book. <b>Articles 618.2, 620.2, 621.2, 622.2, 624.2, and 628.2.</b> Standard sheets. <b>Plans – ED Standards.</b> DMS. <b>Crossroads/Construction Division/Materials Specifications.</b>   |
| 7. | Knowledgeable of specifications for roadway illumination assemblies according to spec book. <b>Article 610.2.</b> DMS. <b>Crossroads/Construction Division/Materials Specifications.</b> Standard sheets. <b>Plans – RID Standards.</b>   |
| 8. | Understands requirement for sampling of luminaires with completed CST Form 202 for testing by TRF. <b>Article 610.3; Crossroads/Construction Division/Test Methods/Tex-1110-T.</b>  |

**Read the following statements. Find the answer at the Resource.**

9.	Knowledgeable of National Electrical Code (NEC) requirements for grounding. <b>Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
10.	Knows the requirements of Article 7.18. <b>Article 7.18; TRF450; Plans.</b>
11.	Knowledgeable of proper conductor splicing. <b>Plans – ED Standard sheets.</b>
12.	Can verify that contractor has located utilities properly. <b>Plans – Profile Sheets.</b>
13.	Knows installation requirements of traffic signal pole foundations, proper anchor bolt orientation, insures foundation at proper elevation for final grade. Can verify that foundations are of proper diameter, depth, location and elevation. <b>Articles 416.3, 449.3, and 686.3; Plans – TS-FD Standard.</b>
14.	Knows how to check traffic signal poles for level. <b>TRF 450; TRF823; Item 447; Plans.</b>
15.	Knows correct bolt tightening procedure for traffic signal pole anchor bolts. <b>Sections 449.3.3.2 and 686.3.3; Plans – TS-FD Standard.</b>
16.	Knowledgeable of concrete foundation testing methods and requirements. <b>Articles 416.3, 421.4, and 656.3; Plans – TS-FD Standard.</b>
17.	Knows installation requirements of breakaway connectors. <b>Article 610.3; Plans – RID Standards.</b>
18.	Knows installation requirements of breakaway pole bases. <b>Article 610.3; Plans – RID and RIP Standards.</b>
19.	Knowledgeable of proper signal cabinet placement. <b>Plans.</b>
20.	Knows installation and grounding requirements of traffic signal cabinet foundations. <b>Article 680.3; Plans – TS-CF Standards; Plans.</b>
21.	Knows proper testing methods and requirements for grounding. <b>Article 620.3; Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
22.	Knows correct installation, supporting, and connecting procedures for PVC and RMC conduit. <b>Article 618.3; Plans – ED Standards, 2008 NEC (See note on Section 9 Checklist Index, Page 41.)</b>
23.	Knows conduits need to be sealed. <b>Article 618.3; Plans – ED Standards.</b>

**Read the following statements. Find the answer at the Resource.**

24.	Knows requirements for identification of conductors. <b>Article 620.2; Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
25.	Knows proper conduit cleaning and conductor pulling procedures to protect conductors. <b>Articles 618.3 and 620.3; Plans – ED Standards.</b>
26.	Knows correct use of expansion joints in conduit. <b>Article 618.2; Plans – ED Standards.</b>
27.	Knows correct way to test insulation resistance with a megohm meter. <b>Article 620.3.</b>
28.	Knows correct usage and installation procedures of heat shrink tubing. <b>Plans – ED Standards.</b>
29.	Can verify conductors are XHHW. <b>Article 621.2; Section 680.3.1.1.3; DMS-11050; Plans – ED Standards.</b>
30.	Knows proper conductor termination procedures with crimp and set screw lugs. <b>Section 680.3.1.1.3.</b>
31.	Knows proper installation and connecting procedures for duct cable. <b>Article 622.3; Plans – ED Standards.</b>
32.	Knows requirements for terminating conduits in ground boxes. <b>Article 618.3; Plans – ED Standards.</b>
33.	Knows proper grounding of metal ground box covers. <b>Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
34.	Knows ground box installation requirements. <b>Article 624.3; Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
35.	Knows installation requirements for steel and timber strain poles. <b>Article 627.3; Sections 628.3.1 and 686.3.3; Plans – ED Standards.</b>
36.	Knows proper labeling of ground box covers and electrical services. <b>Article 628.3; Plans – ED Standards.</b>
37.	Knows electrical service disconnect switch needs to be lockable in the on position. <b>Section 628.3.1; Plans – ED Standards.</b>
38.	Knows photocell specification and installation requirements. <b>Section 628.3.1; Plans – ED Standards.</b>
39.	Knows drainage requirements for electrical services. <b>Article 628.3; Plans – ED Standards.</b>

**Read the following statements. Find the answer at the Resource.**

40.	Knows proper identification and sizing of circuit breakers in electrical services. <b>Article 628.3; Plans – ED Standards, 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
41.	Knows installation requirements for utility service drop conductors. <b>Plans.</b>
42.	Knows proper wiring procedures for traffic signal cabinets, heads, and detectors. <b>Plans.</b>
43.	Can verify proper installation, size, orientation, vertical, horizontal placement, clearances, and proper separation of signal heads. <b>Plans – SP and SMA Standards; Crossroads/Traffic Division/Traffic Engineering Section/Policy and Standards Branch/TMUTCD. Plans.</b>
44.	Can verify proper installation, horizontal placement, size and orientation of pedestrian heads, push buttons, and signs. <b>Crossroads/ Traffic Division/Traffic Engineering Section/Policy and Standards Branch/TMUTCD; Plans.</b>
45.	Knows proper installation procedures for video imaging vehicle detection systems (VIVDS). <b>Plans.</b>
46.	Can inspect loop detector installation for proper location, installation, including verify proper loop wire, lead in cable, Lead in splice, loop labeling, location, shape, etc. <b>Section 688.3.2; LD Standards; Plans.</b>
47.	Know proper testing methods and requirements for loop lead in cable. <b>Article 684.3; Section 688.3.2.4.</b>
48.	Can verify proper installation of signs mounted on the signal. <b>Crossroads/Traffic Division/Traffic Engineering Section/Policy and Standards Branch/TMUTCD; Plans.</b>
49.	Knows to check traffic signal cabinet for required documents. <b>TRF 450, material producer list.</b>
50.	Knows installation and grounding requirements of light pole foundations. <b>Articles 416.3 and 610.3; Plans – RID Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
51.	Knows how to check luminaires for level. <b>Article 610.3; Plans – RID Standards.</b>
52.	Knows how to measure and pay for the item. <b>Look under MEASUREMENT and PAYMENT in the Spec Book for each item used.</b>
53.	Knows to check electrical service for required laminated documents. <b>Plans – ED Standards.</b>
54.	Can find location of and is familiar with electrical construction training videos on intranet. <b>Crossroads/Traffic Operations/Traffic Engineering/Illumination/On Line Videos.</b>

## Module 4

### High Mast Illumination

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Can find website and identify pre-qualified materials on Material Producer List for Traffic Signal Products, Roadway Illumination and Electrical Supplies. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
3.	Knowledgeable of specifications for conduit, conductors, tray cable, duct cable, ground boxes, and electrical services according to spec book <b>Items 618, 620, 621, 622</b> , standard sheets <b>Plans - ED Standards</b> , and DMS <b>Crossroads/Construction Division/Material Specifications.</b>
4.	Understands requirement for sampling of luminaires with completed CST Form 202 for testing by TRF. <b>Article 614.3; Crossroads/Construction Division/Test Methods/Tex-1110-T.</b>
5.	Knowledgeable of specifications for high mast assemblies according to spec book <b>Item 614</b> , DMS <b>Crossroads/Construction Division/Materials Specifications</b> , and standard sheets. <b>Plans – HMID, HMIF, and HMIP Standards.</b>
6.	Knowledgeable of National Electrical Code (NEC) requirements for grounding. <b>Plans – ED Standards, 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
7.	Knowledgeable of proper conductor splicing according to ED standard sheets. <b>Article 620.3; Plans – ED Standards.</b>
8.	Can verify that contractor has performed utility locations properly. <b>Plans.</b>
9.	Knowledgeable of concrete foundation testing methods and requirements. <b>Item 416; Article 421.4; Plans – HMIF Standard.</b>
10.	Knows correct installation, supporting and connecting procedures for PVC and RMC conduit. <b>Article 618.3; Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
11.	Knows conduits need to be sealed. <b>Article 618.3; Plans – ED Standards.</b>

**Read the following statements. Find the answer at the Resource.**

12.	Knows requirements for identification of conductors. <b>Article 620.2; Plans – ED Standards.</b>
13.	Knows proper conduit cleaning and conductor pulling procedures to protect conductors. <b>Articles 618.3 and 620.3; Plans – ED Standards.</b>
14.	Knows correct use of expansion joints in conduit. <b>Article 618.2; Plans – ED Standards.</b>
15.	Knows correct way to test insulation resistance with a megohm meter. <b>Article 620.3.</b>
16.	Knows correct usage and installation procedures of heat shrink tubing. <b>Plans – ED standards.</b>
17.	Can verify conductors are XHHW. <b>Article 621.2; Section 680.3.1.1.3; Plans – ED Standards.</b>
18.	Knows proper installation and connecting procedures for duct cable. <b>Article 622.3; Plans – ED Standards.</b>
19.	Knows requirements for terminating conduits in ground boxes. <b>Article 618.3; Plans – ED Standards.</b>
20.	Knows proper grounding of metal ground box covers. <b>Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
21.	Knows ground box installation requirements. <b>Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>
22.	Knows installation requirements for steel and timber strain poles. <b>Article 627.3; Sections 628.3.1 and 686.3.3; Plans – ED Standards.</b>
23.	Knows proper labeling of ground box covers and electrical services. <b>Article 628.3; Plans – ED Standards.</b>
24.	Knows electrical service disconnect switch needs to be lockable in the on position. <b>Section 628.3.1; Plans – ED Standards.</b>
25.	Knows photocell specification and installation requirements. <b>Section 628.3.1; Plans – ED Standards.</b>
26.	Knows condensation drainage requirements for electrical services. <b>Section 628.3.1; Plans – ED Standards.</b>
27.	Knows proper identification and sizing of circuit breakers in electrical services. <b>Section 628.3.1; Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)</b>

**Read the following statements. Find the answer at the Resource.**

28. Knows installation requirements for utility service drop conductors. **Section 628.3.1; Plans – ED Standards; 2008 NEC. (See note on Section 9 Checklist Index, Page 41.)**
29. Knows how to check luminaires for level. **Section 613.3.4; Plans – HMID Standard.**
30. Knows installation and grounding requirements of high mast pole foundations. **Item 416; Sections 449.3.3 and 613.3.4.1; Plans – HMIF Standard**
31. Knows installation and maintenance requirements for high mast winch. **Article 614.3; Plans – HMID Standard.**
32. Knows proper raising and lowering procedures for high mast ring. **Article 614.3; Plans – HMID Standard.**
33. Knows correct bolt tightening procedure for high mast anchor bolts. **Section 449.3.3.2; Plans – HMIF Standard.**
34. Knows proper assembly procedures for high mast ring, pole, and assembly kit. **Section 613.3.4; Article 614.3; Plans – HMID and HMIP Standards.**
35. Knows to check electrical service for required laminated documents. **Plans – ED Standards.**
36. Knows all types of work that is and is not paid under this item. **Look under PAYMENT in the Spec Book for each item used.**

## Module 5

### Permanent Signing and Supports

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the proper documentation that the contractor must provide from the sign fabricator with each shipment of signs furnished. <b>Section 636.3.7.</b>
3.	Can verify that proper hardware (DMS-7120) is being used. <b>Section 636.2.4; Crossroads/Construction Division/ Materials Specifications.</b>
4.	Can verify that the correct sign blank substrates (DMS-7110) and sheeting type (DMS-8300), color, legends and fonts are being used according to the plans. <b>Article 636.2; Plans – TSR Standards; Crossroads/Construction Division/ Materials Specifications.</b>
5.	Understands how to properly mark sign identification decals (DMS-8315) on the back of the signs. <b>Article 643.3.</b>
6.	Knows how to properly store signs before installation and can identify any damaged signs. <b>Section 636.3.2</b>
7.	Can identify the requirements for depth and diameter of the sign foundations and the correct type of concrete used. <b>Section 644.3.2, Article 656.3; Plans – SMD Standards.</b>
8.	Knows how to verify the appropriate height of the sign stubs. <b>Plans – SMD Standards.</b>
9.	Knows how to verify the proper installation of the slip base. <b>Plans – SMD Standards.</b>
10.	Able to determine the correct gauge of the sign posts for the sign square footage. <b>Plans – SMD Standards.</b>
11.	Knows how to verify that the slip base comes from an approved manufacturer. <b>Crossroads/Traffic Operations/Traffic Engineering/Policy and Standards/Approved Small Roadside Sign Supports.</b>
12.	Knows to verify that all small roadside signs (including plaques) are mounted between 7 ft. (Min) to 7-1/2 ft. (Max) above the edge of the travel way. <b>Plans – SMD Standards.</b>
13.	Can determine the correct lateral placement of signs. <b>Plans – SMD Standards.</b>

**Read the following statements. Find the answer at the Resource.**

14. Can verify that all signs (including speed limit signs) are placed according to the specific plan layouts. **Plans.**
15. Can determine the correct lateral placement of signs. **Plans – SMD Standards.**
16. Can identify the requirements for depth and diameter of the sign foundations and the correct type of concrete used. **Article 656.2; Plans – SMD Standards.**
17. Knows to verify that all signs are mounted at least 7 ft. above the edge of the travel way. **Plans – SMD Standards.**
18. Knows how to verify the correct stub sign posting used. **Plans – SMD Standards.**
19. Knows how to verify the correct height of the sign stubs. **Plans – SMD Standards.**
20. Able to determine the correct W-posts being used for the sign square footage. **Plans – SMD Standards.**
21. Can verify that all signs are placed according to the specific plan layouts. **Plans.**
22. Can verify that the stiffeners are installed and properly located on the signs. **Plans – SMD Standards.**
23. Can verify that the exit panels (plaques) are on the correct side of the sign panel based on exit ramp location. **Plans – SMD and TSR Standards.**
24. Can determine that barrier protection (MBGF, CTB, etc.) is provided for the sign supports when needed and that the protection devices are installed at the appropriate barrier deflection spacing from the sign support. **Plans.**
25. Knows it may be necessary to place permanent barrier protection first. **Plans.**
26. Can verify that the height and lateral placement of delineators and object markers are installed according to plans. **Plans – D & OM Standards.**
27. Can verify that the correct types of delineators or object markers are installed (DMS-8600, DMS-4400). **Article 658.2; Plans – D & OM Standards.**
28. Can determine the correct placement and spacing of barrier markers. **Plans – D & OM Standards.**
29. Understands sampling requirements (Tex-725-I, Tex-737-I). **Article 658.2; Crossroads/Construction Division/Test Methods.**
30. Can identify properly marked mailboxes. **Plans – MB Standard.**

**Read the following statements. Find the answer at the Resource.**

31. Knows all types of work that is and is not paid under these items. **Look under PAYMENT in the Spec Book for each item used.**

## Module 5

### *Striping, Prefab Pavement Marking, Raised Pavement Markers*

**Read the following statements. Find the answer at the **Resource**.**

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Understands the different material requirements for Nonremoveable Markings, Removeable Markings and Short-Term Markings. <b>Article 662.2.</b>
3.	Knows to verify that only approved materials are used (DMS-4200, DMS-4300, DMS-8240, DMS-8241, DMS-8242, DMS-8200, DMS-8220, DMS-8290). <b>Articles 666.2 and 668.2; Crossroads/Construction Division/Materials Specifications; Crossroads/Construction Division/Material Producer List.</b>
4.	Knows the time limit that short-term markings may be in place before the final striping must be installed when the pavement surface is open to traffic. <b>Section 662.3.1.</b>
5.	Understands the proper timing of the removal requirements of pavement markings. <b>Section 662.3.2.</b>
6.	Understands the performance requirements. <b>Section 662.3.3.</b>
7.	Can verify that the equipment meets the requirements and provides the results outlined in the specification. <b>Article 666.3.</b>
8.	Can determine if conflicting existing stripes were properly removed before the new stripe was placed. <b>Article 677.4; Plans.</b>
9.	Can determine and verify the type of surface preparation required before the placement of the stripe. <b>Section 666.4.2; Article 678.4; Plans.</b>
10.	Understands the pavement moisture test for Ty I and Ty II markings. <b>Section 666.4.1.</b>
11.	Can determine the proper surface temperature for Ty I and Ty II markings in accordance with Tex-829-B before placement. <b>Section 666.4.3; Crossroads/Construction Division/Test Methods.</b>

**Read the following statements. Find the answer at the Resource.**

12.	Can verify that the material is heated according to manufacturer's recommendation. <b>Section 666.4.3.1; Manufacturer's literature.</b>
13.	Can determine the thickness in accordance with Tex-854-B. <b>Section 666.4.3.1 and/or Project specific Special Specs; Crossroads/Construction Division/Test Methods.</b>
14.	Can verify correct placement rate for Type II markings. <b>Section 666.4.3.2.</b>
15.	Can verify that the correct pavement marking width(s), color(s), and type(s) are installed. <b>Plans – PM Standards, E&amp;Q sheets, and detail sheets.</b>
16.	Can perform a visual inspection based on Tex-828-B. If retroreflectivity readings are required, is aware of the time period to measure minimum required retroreflectivity. <b>Article 666.4 and/or project-specific Special Specs; Crossroads/Construction Division/Test Methods.</b>
17.	Is aware of the placement limitations for time of year, moisture, and temperature. <b>Section 668.3.2.</b>
18.	Verifies proper surface preparation. <b>Section 668.3.5.</b>
19.	Understands the performance requirements and performance period. <b>Sections 668.3.6 and 668.3.7.</b>
20.	Can verify that the appropriate stop and yield bars (current yield bar policy – use Yield Triangle Bar) are being installed. <b>Plans – PM Standards.</b>
21.	Can verify that the correct type and color of RPMs are installed. <b>Section 672.2.1; Plans - PM Standards.</b>
22.	Knows to verify that the existing RPMs must be removed. <b>Article 672.3.</b>
23.	Can verify proper surface preparation. <b>Article 672.3.</b>
24.	Knows to verify that only approved materials are used (DMS-4100, DMS-4200, DMS-4300, DMS-4210). <b>Article 672.2; Crossroads/ Construction Division/Material Producer List.</b>
25.	Can determine that the proper type and amount of adhesive (DMS-6100, DMS-6130) is used based on surface type. <b>Article 672.3.</b>
26.	Knows surface temperature, marker temperature, and bituminous marker adhesive temperature requirements. <b>Article 672.3.</b>

**Read the following statements. Find the answer at the Resource.**

27.	Can verify that the proper placement and spacing of RPMs. <b>Plans, Plans – PM Standards.</b>
28.	Understands the different methods of removal and when they may or may not be used based on surface type and traffic conditions. <b>Article 677.4.</b>
29.	Understands the different methods of surface preparation. <b>Article 678.4.</b>
30.	Can describe the additional step required for concrete pavement surfaces. <b>Article 678.4.</b>
31.	Understands the test required to allow contaminants to remain on the pavement surface. <b>Article 678.4.</b>
32.	Knows all types of work that is and is not paid under these items. <b>Look under PAYMENT in the Spec Book for each Item used.</b>

## Module 6

### Concrete Traffic Barrier

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Have a basic understanding of the concrete and steel and the testing and fabrication requirements for those that are constructed on-site. <b>Article 514.2.</b>
3.	Knows how to verify the materials are from an approved source or have been tested and approved. <b>Crossroads/ Construction Division/ Material Engineering/ Material Producer List.</b>
4.	Knows the conditions for approval of temporary barrier to be furnished and retained by the Contractor. <b>Article 512.2.</b>
5.	Understand the type of connection treatments that are required for the project. <b>Plans.</b>
6.	Know the offset deflection required for the barrier. <b>AASHTO Roadway Design Guide, Chapter 6, [Approx. 2 ft. per Design Division (DES). Contact DES for further guidance.]</b>
7.	Understands rough texture requirements for the bottom surface of Single Slope, F Shape, or Safety Shape barriers and to the top of Low Profile barriers similar to a wood float finish. <b>Section 424.4.2.6 (prestressed members).</b>
8.	Can identify concrete strength and formwork removal requirements. <b>Section 420.4.1.2.</b>
9.	Knows the tolerances for Precast Barrier sections. <b>Article 512.3.</b>
10.	Knows how to install the barrier sections. <b>Plans – Standards &amp; Detail Sheets.</b>
11.	Can identify damaged concrete traffic barrier or connecting hardware to be repaired or replaced. <b>Visual inspection.</b>
12.	Can identify damaged pavement from installation, moving or removing barriers to be repaired or replaced. <b>Visual inspection.</b>
13.	Knowledgeable of CTB delineation requirements. <b>Plans – BC Standards.</b>
14.	Knows to check roadway drainage. <b>Check grades; Visual inspection; Plans.</b>

**Read the following statements. Find the answer at the Resource.**

15.	Can determine the correct placement and spacing of barrier markers. <b>D&amp;OM Standards.</b>
16.	Verifies the correct class of concrete is used. <b>Plans – Detail Sheets, General Notes, and Rail Standard Sheets.</b>
17.	Knows the sampling and testing requirements (# of specimens, frequency and location) for rail concrete. <b>Article 421.5; Crossroads/Construction Division/Guide Schedule, Crossroads/Construction Division/Test Methods.</b>
18.	Knows the requirements and how to perform excavation and embankment work. <b>Section 514.3.1; Article 400.3.</b>
19.	Knows the requirements and how to place reinforcing steel. <b>Section 514.3.1; Article 400.3; Plans – Standards.</b>
20.	Knows the requirements and how to weld additional bars. <b>Section 514.3.1; Articles 440.2 and 440.3; Item 448.</b>
21.	Knows the requirements and how to cast barrier in place, slipform barrier, or construct barrier using precast concrete sections. <b>Article 514.3; Plans.</b>
22.	Knows the requirements and how to construct formwork. <b>Article 514.3; Section 420.4.4.</b>
23.	Knows the requirements and how to construct drilled shaft foundations. <b>Item 416.</b>
24.	Knows the requirements and how to remove concrete, mortar, oil, and other substances leaked onto the roadway. <b>Section 514.3.1.</b>
25.	Can distinguish and differentiate between the different types of Cast-in-Place Barrier. Knows the requirements and how to accurately set forms for each type. <b>Section 514.3.2.1; Plans – Standards.</b>
26.	Knows the tolerances for Precast Barrier sections. <b>Section 514.3.3.</b>
27.	Knows to check roadway drainage. <b>Check grades; Visual inspection.</b>
28.	Can determine the correct placement and spacing of barrier markers. <b>D&amp;OM Standards; Crossroads/Traffic Division/Traffic Engineering Section/Policy and Standards Branch; TMUTCD.</b>
29.	Can identify the unit of measure. <b>Articles 512.4 and 514.4.</b>
30.	Can measure and calculate quantities for every unit of measure. <b>CON105, Crossroads/Construction Division/Training and Development/IDP/Mathbook.</b>
31.	Knows all types of work that is and is not paid under this Item. <b>Articles 512.5 and 514.5.</b>

## Module 6

### Metal Beam Guard Fence

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows how to verify the materials are from an approved source and that the materials meet the contract requirements. <b>Articles 540.2 and 544.2; Crossroads/Construction Division/ Materials Engineering/ Material Producer List.</b>
3.	Has a basic understanding of concrete for the metal beam guard fence and end treatments. <b>Article 421.4; Section 540.2.6.</b>
4.	Can verify that the “Buy America” requirements are met. <b>Crossroads/Construction Division/Emails and Memos/Compliance with “Buy America”; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Inspection Guide.</b>
5.	Knows how to determine what material is to be salvaged and what material is to be disposed of by the Contractor. <b>Plans; General Notes.</b>
6.	Knows the proper installation practices for posts. <b>Section 540.3.1; Plans – Standard Sheets.</b>
7.	Knows the proper installation practices for rail elements. <b>Section 540.3.2; Plans – Standard Sheets.</b>
8.	Knows the proper installation practices for embedding terminal anchor posts in concrete. <b>Section 540.3.4; Plans – Standard Sheets.</b>
9.	Knows the proper repair procedures for all galvanized steel posts, washers, bolts, and rail elements. <b>Section 540.3.5.</b>
10.	Knows the proper procedures for vertical adjustment of the rail element. <b>Section 540.3.6; Plans – Standard Sheets.</b>
11.	Knows the proper installation practices of curb shown with metal beam guard fence transition. <b>Section 540.3.7; Plans – Detail Sheets.</b>
12.	Knows how to determine what material is to be salvaged and what material is to be disposed of by the Contractor. <b>Plans – General Notes.</b>

**Read the following statements. Find the answer at the **Resource**.**

13.	Understands the removal and backfill requirements of the item. <b>Article 542.2.</b>
14.	Knows the proper assembly and installation practices and procedures. <b>Article 544.3; Plans – Standard Sheets.</b>
15.	Knows to check height of SGT head. <b>Plans – Standard Sheets.</b>
16.	Know to check that the SGT head is parallel to the MBGF line. <b>Plans – Standard Sheets.</b>
17.	Knows to check tightness of the SGT cable. <b>Article 544.3; Plans – Standard Sheets.</b>
18.	Can identify the unit of measure. <b>Articles 540.4 and 544.4.</b>
19.	Can measure and pay for these items. <b>Articles 540.4 and 544.4.</b>
20.	Knows all types of work that is and is not paid under this item. <b>Articles 540.5 and 544.5.</b>

## Module 6

### *Guardrail End Treatments, Crash Cushion Attenuators*

**Read the following statements. Find the answer at the **Resource**.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Can recognize the product as meeting the requirements of the contract. <b>Article 545.2; Plans.</b>
3.	Has a basic understanding of the requirements for concrete and knows the type of concrete needed for the pad. <b>Articles 421.4 and 545.2; Plans.</b>
4.	Knows how to verify the materials come from an approved sourced or has been inspected and approved. <b>Section 545.2.1.</b>
5.	Knows the proper assembly and installation practices and procedures. <b>Plans and Shop Drawings.</b>
6.	Knows how to measure and pay for the item. <b>Article 545.4.</b>
7.	Knows all types of work that is and is not paid under this item. <b>Article 545.5.</b>

## Module 7

### Embankment

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Can identify and apply requirements for all types of embankment material. <b>Article 132.2 and/or Plans – General Notes and Special Provisions.</b>
3.	Understands tests referenced within this item, such as Tex-104-E, Tex-106-E, Tex-107-E, Tex-114-E, and Tex-115-E. <b>Crossroads/Construction Division/Test Methods.</b>
4.	Knows the authority of the inspector pertaining to this item. <b>Article 5.10.</b>
5.	Can properly sample a stockpile or windrow of embankment material. <b>Crossroads/Construction Division/Test Methods/Tex-100-E.</b>
6.	Knows how to perform sampling and testing in accordance to the guide schedule and sampling and testing procedures according to Article 6.4. <b>Crossroads/Construction Division/Guide Schedule, Crossroads/Construction Division/Test Methods.</b>
7.	Knows the proper function of different equipment for embankment construction processes and can recognize if the equipment is in good working condition and working properly. <b>Articles 150.2, 152.2, 154.2, 156.2, and 210.2.</b>
8.	Understands the requirements for preparing the right of way prior to placing embankment materials. <b>Articles 132.3 and 100.2.</b>
9.	Can distinguish and differentiate between earth and rock embankment. <b>Article 132.3.</b>
10.	Knows when rock or concrete is allowed in earth embankment. <b>Section 132.3.1.</b>
11.	Can describe proper placement and construction procedures for earth embankment to ensure that uniform material is placed in the correct thickness. <b>Section 132.3.1.</b>

**Read the following statements. Find the answer at the Resource.**

12.	Can determine the maximum layer depth for rock embankment and understands when further approval is necessary. <b>Section 132.3.2.</b>
13.	Can describe proper placement and construction procedures for rock embankment. <b>Section 132.3.2.</b>
14.	Knows what items to reference when compacting embankment for culverts and bridges. <b>Section 132.3.3; Article 400.3.</b>
15.	Can explain proper rolling techniques to achieve proper compaction as outlined in the specification. <b>Section 132.3.4.</b>
16.	Understands the use of proofing rolling and can perform it, when specified or when density control is not specified. <b>Section 132.3.2; Item 216.</b>
17.	Knows where to reference in plans to identify whether density control or ordinary compaction is specified. <b>Plans – Estimate/Quantity Sheets &amp; General Notes (spec. data).</b>
18.	Understands how to perform and control the requirements for ordinary compaction methods specified. <b>Section 132.3.4.1.</b>
19.	Knows the different density and moisture control requirements given the plasticity of the embankment. <b>Section 132.3.4.2.</b>
20.	Knows how proper moisture content is achieved and determined, in accordance with Tex-103-E. <b>Sections 132.3.4.1 and 132.3.4.2; Crossroads/Construction Division/Test Methods/Tex-103-E.</b>
21.	Knows the frequency of sampling and testing for laboratory moisture-density relationship in accordance to Tex-114-E. <b>Crossroads/Construction Division/Guide Schedule.</b>
22.	Knows the thickness limitations specified for compaction governed by density control methods specified. <b>Section 132.3.4.2.</b>
23.	Can perform nuclear density testing in accordance with Tex-115-E and is able to correlate nuclear density results with moisture contents measured by Tex-103-E. <b>Crossroads/Construction Division/Test Methods/Tex-103-E, Tex 115-E.</b>
24.	Knows the minimum moisture content and density requirements to be maintained after completion of compaction <b>Section 132.3.5.</b>

**Read the following statements. Find the answer at the Resource.**

25.	Can determine the need for reworking, re-compaction and refinishing based on the loss of or failure to meet moisture, density, stability, or finishing requirements. <b>Section 132.3.5.</b>
26.	Can identify the proper finishing processes. <b>Section 132.3.6.</b>
27.	Knows the difference between staged and turnkey construction project and knows the grading tolerances and how to measure and apply the grading tolerance requirements. <b>Section 132.6.1.</b>
28.	Knows the tolerance for gradation, density, and plasticity index acceptance testing. <b>Sections 132.3.6.2-4.</b>
29.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, and widths of the planned roadway section. <b>Plans – Profile Sheets.</b>
30.	Understands grade and alignment staking and how to check grade staking. <b>Surveying Module.</b>
31.	Can explain the purpose and significance of reference items to Item 132. <b>Proposal.</b>
32.	Can identify the unit of measure. <b>Article 132.4; Plans – Estimate and Quantity Sheets; Proposal.</b>
33.	Can measure and calculate quantities for every unit of measure. <b>Article 132.4.</b>
34.	Knows all types of work that is and is not paid under this item. <b>Article 132.5.</b>
35.	Knows the proper information to record on daily work reports and pay documents. <b>Construction Contract Administration Manual; CON500.</b>

## Module 7

### Flex Base

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Can identify and apply requirements for all types, grades and classes of materials in this item. <b>Article 247.2; Plans – General Notes &amp; Special Provisions.</b>
3.	Has basic knowledge of tests referenced within this item, such as Tex-100-E, Tex-103-E, Tex-104-E, Tex-106-E, Tex-107-E, Tex-110-E, Tex-113-E, Tex-115-E, Tex-116-E, Tex-117-E, Tex-140-E, Tex-406-A, Tex-413-A, and Tex-460-A, and can apply test results to the project. <b>Crossroads/Construction Division/Test Methods.</b>
4.	Knows the authority of the inspector pertaining to this item as well as Items 4–9. <b>IDP Module 1.</b>
5.	Can properly sample a stockpile or windrow of material. <b>Crossroads/Construction Division/Test Methods/Tex-100.</b>
6.	Knows how to perform sampling and testing in accordance to the guide schedule, and sampling and testing procedures according to <b>Article 6.4; Crossroads/Construction Division/Guide Schedule; Crossroads/Construction Division/Test Methods.</b>
7.	Can distinguish and differentiate between the different Types and Grades of base material. <b>Section 247.2.1.</b>
8.	Knows the material tolerances for gradation and plasticity index. <b>Section 247.2.1.1 and/or Plans – General Notes and Special Provisions.</b>
9.	Knows who gives approval on the use of recycled materials. <b>Section 247.2.1.3.</b>
10.	Knows the constraints and limitations on the use of recycled materials. <b>Section 247.2.1.3.</b>
11.	Understands the need and purpose of using clean water. <b>Section 247.2.2.</b>
12.	Knowledgeable of requirements for non-commercial sources of base material. <b>Section 247.2.3.</b>
13.	Knows the proper function of different equipment for base construction processes and is able to recognize if the equipment is in good working condition and properly working. <b>Articles 150.2, 152.2, 154.2, 156.2, and 210.2.</b>

**Read the following statements. Find the answer at the Resource.**

14.	Can identify load weight restrictions along the haul route of delivery trucks. <b>Article 7.16.</b>
15.	Knows proper stockpiling practices and procedures. <b>Article 247.4, Plans – General Notes.</b>
16.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, and base widths of the planned roadway section. <b>Plans – Profile Sheets and Typical Sections.</b>
17.	Understands grade and alignment staking and how to check grade staking. <b>IDP Surveying Module.</b>
18.	Can calculate an estimate of the quantity of material to be placed. <b>Plans.</b>
19.	Understands the requirements for stable and uniform subgrades free from soft spots or rutting and knows how to correct these areas when they occur. <b>Section 247.4.1.</b>
20.	Understands the use of proof rolling and can properly perform it. <b>Item 216.</b>
21.	Can recognize the proper practices to achieve a uniformly placed base in the required lift and total thicknesses and required time frame. <b>Section 247.4.2; Plans – General Notes.</b>
22.	Can identify the required lift thickness and total thickness for the base sections. <b>Section 247.4.2; Plan General Notes.</b>
23.	Can recognize uniformly constructed base, free from segregation and instability. <b>CON411.</b>
24.	Knows where to reference in plans to identify whether density control or ordinary compaction is specified. <b>Plans – Estimate and Quantity Sheets and General Notes.</b>
25.	Knows how proper moisture content is achieved and determined, in accordance with Tex-103-E. <b>Crossroads/Construction Division/Test Methods.</b>
26.	Can explain proper rolling techniques to achieve proper compaction. <b>Section 247.4.3.</b>
27.	Can determine the need for reworking, re-compaction, and refinishing based on the loss of or failure to meet moisture, density, stability, or finishing requirements. <b>Section 247.4.3.</b>
28.	Understands the requirements and how to perform ordinary compaction methods specified. <b>Section 247.4.3.1.</b>
29.	Knows the frequency of sampling and testing for laboratory moisture-density relationship in accordance to Tex-113-E. <b>Crossroads/Construction Division/Guide Schedule.</b>

**Read the following statements. Find the answer at the Resource.**

30.	Can perform nuclear density testing in accordance with Tex-115-E. <b>Crossroads/Construction Division/Test Methods/Tex-115-E.</b>
31.	Knows the specification requirements and tolerances associated with density and moisture control testing. <b>Section 247.4.3.2, Plans – General Notes.</b>
32.	Can identify the proper finishing processes. <b>Section 247.4.4.</b>
33.	Is able to verify ride quality according to plans. <b>Plans – General Notes and Special Provisions.</b>
34.	Knows how to measure and apply the grading tolerance requirements. <b>Section 247.4.4; Plans – Profile Sheets and Typical Sections.</b>
35.	Knows the curing requirements and how to measure these requirements. <b>Section 247.4.5.</b>
36.	Can explain the purpose and significance of this item and all reference items associated to it. <b>Items 247, 216, 105, 204, and 520.</b>
37.	Can identify cutbacks and emulsions from the binder grade. <b>Article 300.2; Asphalt Invoice.</b>
38.	Knows the different application temperatures and methods for cutbacks and emulsion. <b>Article 300.4; Section 310.4.3; Plans – General Notes.</b>
39.	Knows the appropriate range of residual application rate, and can calculate the residual application rate from the overall rate and the percent asphalt in the binder. <b>Section 310.4.3; Article 314.2; Plans – Basis of Estimate and General Notes; Asphalt Invoice.</b>
40.	Understands the difference in required curing times for cutbacks and emulsions, and understands the effect of weather conditions on the curing time. <b>Plans – General Notes.</b>
41.	Can identify the unit of measure. <b>Article 247.5.</b>
42.	Can measure and calculate base quantities for every unit of measure. <b>Articles 247.5, 310.5, and 314.5.</b>
43.	Knows all types of work that is and is not paid under this item. <b>Articles 247.6, 310.6, and 314.6.</b>
44.	Understand why and how to identify duplicate tickets, and is able to verify truck numbers, tare weights, truck weights, and net weights to the daily load tally lists. <b>Review the tickets and verify calculations to match quantities on tickets.</b>

**Read the following statements. Find the answer at the Resource.**

45.

Knows the proper information to record on daily work reports and pay documents. **Construction Contract Administration Manual; CON500.**

## Module 8

### *Lime, Fly Ash, and Lime-Fly Ash-Treated Subgrade and Base*

**Read the following statements. Find the answer at the **Resource**.**

1.	Has read any applicable special provision for these items and understands what changes it makes to the specification. <b>Proposal – Special Provisions.</b>
2.	Can identify and apply requirements for all types, grades and classes of materials in this item. <b>Articles 260.2, 263.2, and 265.2; Plans – General Notes and Special Provisions.</b>
3.	Has basic knowledge of the tests referenced in these items, such as Tex-100-E, Tex-101-E, Tex-103-E, Tex-104-E, Tex-106-E, Tex-107-E, Tex-110-E, Tex-113-E, Tex-115-E, Tex-116-E, Tex-117-E, Tex-121-E, Tex-127-E, Tex-140, and can apply the test results to the project. <b>Crossroads/Construction Division/Test Methods.</b>
4.	Has basic knowledge of the Departmental Material Specifications DMS-4615, DMS-6330 and DMS 6350. <b>Crossroads/Construction Division/Materials Specifications.</b>
5.	Knows to verify that the source(s) used are listed on the Material Producer List for the material provided prior to use on the project. (Note: Sources that are approved as Class C or F Fly Ash are automatically approved for Class CS or FS Fly Ash.) <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
6.	Knows the authority of the inspector pertaining to this item and applicable portions of Items 4–9. <b>IDP Module 1.</b>
7.	Knows who gives approval on the use of recycled materials. <b>Sections 247.2.1.3, 260.2.6, and 263.2.5.</b>
8.	Knows the constraints and limitations on the use of recycled materials. <b>Sections 247.2.1.3.1, 260.2.6, and 263.2.5.</b>
9.	Knowledgeable of requirements for non-commercial sources of base material. <b>Section 247.2.3.</b>
10.	Knows proper stockpiling practices and procedures. <b>Article 247.4.</b>
11.	Can properly sample a stockpile or windrow of material. <b>Crossroads/Construction Division/Test Methods /Tex-100-E.</b>
12.	Knows how to perform sampling and testing in accordance with the guide schedule as well as sampling and testing according to <b>Article 6.4; Crossroads/Construction Division/Guide Schedule.</b>

**Read the following statements. Find the answer at the Resource.**

13.	Knows how and where to record test results. <b>Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>
14.	Understands the need and purpose of using clean water. <b>Sections 260.2.4, 263.2.3, and 265.2.5.</b>
15.	Understands the mix design process and can determine the target additive content and optimum moisture content for the material. <b>Sections 260.2.6, 263.2.5, and 265.2.7; Test report for Tex-121-E or Tex-127-E; Plans – General Notes and Basis of Estimate.</b>
16.	Knows the proper function of different equipment for subgrade and base construction processes and the equipment is in good working condition and properly working. <b>Articles 150.2, 152.2, 154.2, 156.2, 210.2, 260.3, and 265.3.</b>
17.	Can calculate an estimate of the quantity of material to be placed where applicable. <b>Plans.</b>
18.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, and base widths of the planned roadway section. <b>Plans – Typical Sections &amp; Plan Profile Sheets.</b>
19.	Understands grade and alignment staking and how to check it. <b>Plans – Typical Sections and Plan Profile Sheets.</b>
20.	Understands the requirements for stable and uniform subgrades free from soft spots or rutting and knows how to correct these areas when they occur. <b>Sections 260.4.1, 263.3.2, and 265.4.1.</b>
21.	Understands the use of proofing rolling and can properly inspect it. <b>Item 216.</b>
22.	Can recognize uniformly constructed lifts, free from segregation and instability. <b>Articles 260.4, 263.4, and 265.4.</b>
23.	Knows pulverization requirements before addition of lime, fly ash or lime-fly ash. <b>Sections 260.4.2 and 265.4.2.</b>
24.	Can determine which methods of placement may be used on the project. <b>Plans – Estimate and Quantity Sheet and General Notes.</b>
25.	Knows weather conditions necessary for successful application of lime, fly ash, or lime-fly ash. <b>Article 263.4; Sections 260.4.3 and 265.4.3; Plans – General Notes; Proposal – Special Provisions.</b>
26.	Can determine whether the correct percentage of lime, fly ash or lime-fly ash is being applied uniformly over the section of roadway. <b>Test result for Tex-121-E or Tex-127-E; Plans – General Notes or Basis of Estimate.</b>

**Read the following statements. Find the answer at the Resource.**

27.	Knows how proper moisture content is achieved and determined, in accordance with Tex-103-E. <b>Sections 260.4.3, 263.4.1, and 265.4.3; Crossroads/Construction Division/Test Methods.</b>
28.	Understands the required timeframe to begin mixing operations and the required mellowing period (for roadway mixed lime) before compaction may begin. <b>Section 260.4.4; Article 263.4.</b>
29.	Can recognize the proper practices to achieve uniform mixing of lime, fly ash or lime-fly ash with the subgrade or base. <b>Sections 260.4.4, 263.4.1, and 265.4.3.</b>
30.	Knows gradation requirements after application and mixing of lime, fly ash, or lime-fly ash. <b>Sections 260.4.4, 265.4.3.</b>
31.	Knows where to reference in plans to identify whether density control or ordinary compaction is specified. <b>Plans – Estimate and Quantity Sheets or General Notes.</b>
32.	Can explain proper rolling techniques to achieve proper compaction. <b>Sections 260.4.5 and 265.4.4.</b>
33.	Can identify the required lift thickness and total thickness for the treated sections. <b>Articles 260.4, 263.4, and 265.4; Plans – Typical Sections &amp; General Notes.</b>
34.	Understands the requirements and how to perform ordinary compaction methods specified. <b>Sections 260.4.5.1, 263.4.3.1, and 265.4.4.1.</b>
35.	Knows the frequency of sampling and testing for laboratory moisture-density relationship in accordance to the proper test method. <b>Crossroads/Construction Division/Guide Schedule.</b>
36.	Can perform nuclear density testing in accordance with Tex-115-E. <b>Crossroads/Construction Division/Test Methods.</b>
37.	Knows the tolerances associated with density and moisture control testing. <b>Sections 260.4.5.2, 263.4.3.2, 265.4.4.2.</b>
38.	Can determine the need for reworking, re-compaction, and refinishing based on the loss of or failure to meet moisture, density, stability, or finishing requirements. <b>Sections 260.4.5, 263.4.3, and 265.4.4.</b>
39.	Understands procedures for reworking an area more than 72 hours after compaction was completed. <b>Sections 260.4.6, 263.4.4, and 265.4.5.</b>
40.	Can identify the proper finishing processes. <b>Sections 260.4.7, 263.4.5, and 265.4.6.</b>

**Read the following statements. Find the answer at the Resource.**

41.	Knows the grading tolerances and how to measure and apply the grading tolerance requirements. <b>Sections 260.4.7, 263.4.5, and 265.4.6.</b>
42.	Is able to verify ride quality according to plans. <b>Plans – General Notes; Proposal – Special Provisions.</b>
43.	Knows the curing requirements and how to measure them. <b>Sections 260.4.8, 263.4.6, and 265.4.7.</b>
44.	Can explain the purpose and significance of reference items throughout the item. <b>Items 260, 263, 265, 216, 204, 132, 247, 520, 310, and 210.</b>
45.	Can identify cutbacks and emulsions from the binder grade. <b>Article 300.2; Asphalt Invoice.</b>
46.	Knows the different application temperatures and methods for cutbacks and emulsion. <b>Article 300.4; Section 310.4.3; Plans – General Notes.</b>
47.	Knows the appropriate range of residual application rate, and can calculate the residual application rate from the overall rate and the percent asphalt in the binder. <b>Section 310.4.3; Article 314.2; Plans – Basis of Estimate and General Notes; Asphalt Invoice.</b>
48.	Understands the difference in required curing times for cutbacks and emulsions, and understands the effect of weather conditions on the curing time. <b>Plans – General Notes.</b>
49.	Can identify the unit of measure. <b>Articles 260.5, 263.5, and 265.5.</b>
50.	Can measure and calculate quantities for every unit of measure. <b>Articles 260.5, 263.5, and 265.5.</b>
51.	Knows all types of work that are and are not paid under this item. <b>Articles 260.6, 263.6, and 265.6.</b>
52.	Can calculate and apply price adjustment for deficient base thickness. <b>Section 263.6.1.2.</b>
53.	Understand why and how to identify duplicate tickets and verify truck number, tare weights, truck weights, and net weights to daily load tally lists. <b>Review the tickets and verify calculations to match quantities on tickets.</b>
54.	Knows the proper information to record on daily work reports and pay documents. <b>Construction Contract Administration Manual; CON500.</b>

## Module 8

### Cement-Treated Subgrade and Base

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for these items and understands what changes it makes to the specification. <b>Proposal – Special Provisions.</b>
2.	Can identify and apply requirements for all types, grades and classes of materials in this item. <b>Articles 275.2 and 276.2; Plans – General Notes &amp; Special Provisions.</b>
3.	Has basic knowledge of the tests referenced within these items, such as Tex-100-E, Tex-101-E, Tex-103-E, Tex-104-E, Tex-106-E, Tex-107-E, Tex-110-E, Tex-113-E, Tex-115-E, Tex-116, Tex-117-E, Tex-120-E and Tex-140-E, and can apply the test results to the project. <b>Crossroads/Construction Division/Test Methods.</b>
4.	Has basic knowledge of DMS-4600. <b>Crossroads/Construction Division/Materials Specifications.</b>
5.	Knows to verify that the source used is listed on the Material Producer List for cement prior to use on the project. <b>Crossroads/Construction Div/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
6.	Knows the authority of the inspector pertaining to this item and applicable portions of Items 4–9. <b>IDP Module 1.</b>
7.	Knows who gives approval on the use of recycled materials. <b>Sections 247.2.1.3, 275.2.6, and 276.2.5.</b>
8.	Knows the constraints and limitations on the use of recycled materials. <b>Sections 247.2.1.3, 275.2.6, and 276.2.5.</b>
9.	Knowledgeable of requirements for non-commercial sources of base material. <b>Section 247.2.3.</b>
10.	Knows proper stockpiling practices and procedures. <b>Article 247.4.</b>
11.	Can properly sample a stockpile or windrow of material. <b>Crossroads/Construction Division/Test Methods /Tex-100-E.</b>
12.	Knows how to perform sampling and testing in accordance with the guide schedule as well as sampling and testing according to <b>Article 6.4; Crossroads/Construction Division/Guide Schedule.</b>
13.	Knows how and where to record test results. <b>CON500; CON503.</b>
14.	Understands the need and purpose of using clean water. <b>Sections 275.2.4 and 276.2.3.</b>

**Read the following statements. Find the answer at the Resource.**

15.	Understands the mix design process and can determine the target additive content and optimum moisture content for the material. <b>Sections 275.2.6 and 276.2.5; Test report for Tex-120-E; Plans – General Notes and Basis of Estimate.</b>
16.	Knows the proper function of different equipment for subgrade and base construction processes and the equipment is in good working condition and properly working. <b>Articles 150.2, 152.2, 154.2, 156.2, 210.2, 275.3, and 276.3.</b>
17.	Can calculate an estimate of the quantity of material to be placed where applicable. <b>Plans.</b>
18.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, and base widths of the planned roadway section. <b>Plans – Typical Sections and Plan Profile Sheets.</b>
19.	Understands grade and alignment staking and how to check it. <b>Plans – Typical Sections and Plan Profile Sheets.</b>
20.	Understands the requirements for stable and uniform subgrades free from soft spots or rutting and knows how to correct these areas when they occur. <b>Sections 275.4.1 and 276.4.2.</b>
21.	Understands the use of proofing rolling and can properly inspect it. <b>Section 275.4.1; Item 216.</b>
22.	Can recognize uniformly constructed lifts, free from segregation and instability. <b>Articles 275.4 and 276.4.</b>
23.	Knows pulverization requirements before addition of cement. <b>Section 275.4.2.</b>
24.	Can determine which methods of placement may be used on the project. <b>Plans – Estimate and Quantity Sheet and General Notes.</b>
25.	Knows weather conditions necessary for successful application of cement. <b>Sections 275.4.3 and 276.4.3; Plans – General Notes, Proposal – Special Provisions.</b>
26.	Can determine whether the correct percentage of lime, fly ash or lime-fly ash is being applied uniformly over the section of roadway. <b>Test result for Tex-120-E; Plans – General Notes or Basis of Estimate.</b>
27.	Knows how proper moisture content is achieved and determined, in accordance with Tex-103-E <b>Sections 275.4.3, 275.4.3.1, 275.4.3.2, and 275.4.4; Crossroads/Construction Division/Test Methods.</b>
28.	Understands the required timeframe to begin mixing operations when the slurry placement method is used. <b>Section 275.4.3.2.</b>

**Read the following statements. Find the answer at the Resource.**

29.	Can recognize the proper practices to achieve uniform mixing of cement with the subgrade or base. <b>Sections 275.4.4 and 276.4.1.</b>
30.	Knows gradation requirements after application and mixing of cement. <b>Section 275.4.4.</b>
31.	Understands the correct methods of constructing vertical joints when using plant mixed materials. <b>Section 276.4.2.</b>
32.	Knows where to reference in plans to identify whether density control or ordinary compaction is specified. <b>Plans – Estimate and Quantity Sheets or General Notes.</b>
33.	Can explain proper rolling techniques to achieve proper compaction. <b>Sections 275.4.5 and 276.4.3.</b>
34.	Understands the time limits to complete compaction. <b>Sections 275.4.5 and 276.4.3.</b>
35.	Can identify the required lift thickness and total thickness for the treated sections. <b>Sections 275.4.5 and 275.4.2; Plans – Typical Sections &amp; General Notes.</b>
36.	Understands the requirements and how to perform ordinary compaction methods specified. <b>Sections 275.4.5.1 and 276.4.3.</b>
37.	Knows the frequency of sampling and testing for laboratory moisture-density relationship in accordance to the proper test method. <b>Crossroads/Construction Division/Guide Schedule.</b>
38.	Can perform nuclear density testing in accordance with Tex-115-E. <b>Crossroads/Construction Division/Test Methods.</b>
39.	Knows the tolerances associated with density and moisture control testing. <b>Sections 275.4.5.2 and 276.4.3.</b>
40.	Can determine the need for reworking, re-compaction, and refinishing based on the loss of or failure to meet moisture, density, stability, or finishing requirements. <b>Sections 275.4.5 and 276.4.3.</b>
41.	Understands procedures for reworking an area. <b>Sections 275.4.5 and 276.4.3.</b>
42.	Can identify the proper finishing processes. <b>Sections 275.4.6 and 276.4.4.</b>
43.	Knows the grading tolerances and how to measure and apply the grading tolerance requirements. <b>Sections 275.4.6 and 276.4.4.</b>
44.	Is able to verify ride quality according to plans. <b>Plans – General Notes; Proposal – Special Provisions.</b>

**Read the following statements. Find the answer at the Resource.**

45.	Knows the curing requirements and how to measure these requirements. <b>Sections 275.4.8 and 276.4.6.</b>
46.	Can explain the purpose and significance of reference items throughout the item. <b>Items 275, 276, 216, 204, 132, 247, 520, 310, and 210.</b>
47.	Can identify cutbacks and emulsions from the binder grade. <b>Article 300.2; Asphalt Invoice.</b>
48.	Knows the different application temperatures and methods for cutbacks and emulsion. <b>Articles 300.4 and 310.4; Plans – General Notes.</b>
49.	Knows the appropriate range of residual application rate, and can calculate the residual application rate from the overall rate and the percent asphalt in the binder. <b>Section 310.4.3; Article 314.2; Plans – Basis of Estimate and General Notes; Asphalt Invoice.</b>
50.	Understands the difference in required curing times for cutbacks and emulsions, and understands the effect of weather conditions on the curing time. <b>Plans – General Notes.</b>
51.	Can identify the unit of measure. <b>Articles 275.5 and 276.5.</b>
52.	Can measure and calculate quantities for every unit of measure. <b>Articles 275.5 and 276.5.</b>
53.	Knows all types of work that are and are not paid under this item. <b>Articles 275.6 and 276.6.</b>
54.	Can calculate and apply price adjustment for deficient base thickness. <b>Section 276.6.1.2.</b>
55.	Understand why and how to identify duplicate tickets and verify truck number, tare weights, truck weights, and net weights to daily load tally lists. <b>Review the tickets and verify calculations to match quantities on tickets.</b>
56.	Knows the proper information to record on daily work reports and pay documents. <b>Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>

## Module 8

### Asphalt Treatment (Plant Mix)

Read the following statements. Find the answer at the **Resource**.

1. Has read any applicable special provision for these items and understands what changes it makes to the specification. **Proposal – Special Provisions.**
2. Can identify and apply requirements for all types, grades and classes of materials in this item. **Article 292.2; Plans – General Notes and Special Provisions.**
3. Has basic knowledge of the tests referenced within these items such as Tex-126-E, Tex-200- F, Tex-207-F, Tex-212-F, Tex-227-F, and Tex-530-C and can apply the test results to the project. **Crossroads/Construction Division/Test Methods.**
4. Has basic knowledge of the Departmental Material Specification DMS-11000. **Crossroads/Construction Division/ Materials Specifications.**
5. Knows the authority of the inspector pertaining to this item and applicable portions of Items 4–9. **IDP Module 1.**
6. Knows to verify that the sources used are the same as on the TxDOT approved mix design for the project. **Article 292.2.**
7. Knows proper stockpiling practices and procedures. **Section 292.2.1.**
8. Can properly sample a stockpile or windrow of material. **Crossroads/Construction Division/Test Methods /Tex-100-E.**
9. Knows how to perform sampling and testing in accordance with the guide schedule as well as sampling and testing according to **Article 6.4; Crossroads/Construction Division/Guide Schedule.**
10. Knows the types of tack coat materials allowed and can verify that the material has not been diluted. **Section 292.2.4.**
11. Knows the proper function of different equipment used for this item and the equipment is in good working condition and properly working. **Item 320.**
12. Can calculate an estimate of the quantity of material to be placed. **Plans – Typical Sections, Profile Sheets, Basis of Estimate.**

**Read the following statements. Find the answer at the Resource.**

13.	Knows to verify that the design and trial batch have been approved prior to beginning placement operations. <b>Section 292.4.1.</b>
14.	Understands material storage and heating requirements. <b>Section 292.4.2.1.</b>
15.	Can verify the target discharge temperature and understands the temperature range allowed and what happens when the maximum temperature is exceeded. <b>Section 292.4.2.2.</b>
16.	Can determine the need for an approved release agent and knows where to verify the release agent is approved. <b>Section 292.4.3; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/ Material Producer List.</b>
17.	Understands the requirements for proper surface preparation. <b>Section 292.4.4.</b>
18.	Understands the requirement for continuous paving operations and the actions to take if the requirement is not met. <b>Section 292.4.4.</b>
19.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings and base widths of the planned roadway section. <b>Section 292.4.4; Plans – Typical Sections and Profile Sheets.</b>
20.	Knows to verify that the TxDOT representative is at the plant to perform required testing. <b>Section 292.4.5.</b>
21.	Know the weather conditions necessary to proceed with placement operations. <b>Section 292.4.4.1.</b>
22.	Understands proper rate and procedure for application of tack coat. <b>Section 292.4.4.2.</b>
23.	Can name situation where hand finishing or motor grader placement is allowed. <b>Section 292.4.4.3.</b>
24.	Understands the process to follow if surface irregularities are discovered. <b>Section 292.4.4.3.</b>
25.	Can explain proper roller techniques to achieve proper compaction. <b>Section 292.4.5.</b>
26.	Knows the minimum temperature for completion of rolling operations. <b>Section 292.4.5.</b>
27.	Knows where to reference in the plans to identify whether density control or ordinary compaction is specified. <b>Plans – Estimate and Quantity Sheets or General Notes.</b>
28.	Knows the frequency of sampling and testing for in-place density in accordance with Tex-207-F. <b>Crossroads/Construction Division/Guide Schedule.</b>

**Read the following statements. Find the answer at the Resource.**

29.	Knows the tolerances associated with in-place density and how to apply the results. <b>Section 292.4.5.1.</b>
30.	Understands the process for resuming operations that were suspended due to failing minimum density requirements. <b>Section 292.4.5.1.</b>
31.	Understands the requirements and how to perform ordinary compaction methods specified. <b>Section 292.4.5.2.</b>
32.	Knows to regularly communicate with the TxDOT representative at the plant to verify that the material is within specification requirements, to reject individual loads of mix and to approve corrective actions as necessary. <b>Sections 292.4.2 and 292.4.6.</b>
33.	Understands the requirements and frequency of placement sampling and testing. <b>Section 292.4.6.3; Crossroads/Construction Division/Guide Schedule.</b>
34.	Knows how and where to record test results. <b>Crossroads/Construction Division/SiteManager/Training Support/CON500.</b>
35.	Is able to verify ride quality according to the plans. <b>Section 292.4.7; Plans – General Notes; Proposal – Special Provisions.</b>
36.	Knows when the road may be opened to traffic. <b>Section 292.4.8; Plans – Traffic Control Plan, Profile Sheets, and General Notes.</b>
37.	Can explain the purpose and significance of reference items throughout the item. <b>Items 292, 216, 247, 300, 320, 520, and 210.</b>
38.	Can identify the unit of measure. <b>Article 292.5.</b>
39.	Can measure quantities for every unit of measure. <b>Article 292.5.</b>
40.	Knows all types of work that are and are not paid under this item. <b>Article 292.6.</b>
41.	Understands why and how to identify duplicate tickets and verify truck number, tare weights, truck weights and net weights to daily load tally lists. <b>Review tickets and verify.</b>
42.	Knows the proper information to record on daily work reports and pay documents. <b>Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>

## Module 9

### Landscape and Revegetation

Read the following statements. Find the answer at the **Resource**.

1. Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to this item. **Article 5.10.**
3. Can identify and apply requirements for all types of landscape and irrigation materials. **Articles 161.2, 166.2, 170.2, 192.2, and 193.2.**
4. Can distinguish or differentiate between the different types of plant material and knows who to contact for verification. **Article 192.2; Crossroads/Design Division/Sections/Landscape Enhancement Section/Landscape Inspection Guide, Chapter 1, Section 5.**
5. Understands plant acceptance and rejection requirements. **Section 192.2.2; Crossroads/Design Division/Landscape Enhancement Section/Landscape Inspection Guide, Chapter 1, Section 5.**
6. Knows the material tolerances for plant material, plant container sizes and PVC pipe sizes and grades in plans or specs. **Articles 170.2 and 192.2; Plans; Crossroads/Design Division/Landscape Enhancement Section/Landscape Inspection Guide, Chapter 1, Section 5.**
7. Knows the material requirements for Backfill and Plant Soil Mix. **Section 192.2.3.**
8. Knows the material requirements for mulch. **Section 192.2.4.**
9. Understands the need and purpose of using clean water source. **Section 192.3.5.**
10. Ensures the fertilizer meets the material requirements in accordance to the specification and/or the plans. **Article 166.2; Plans.**
11. Knows who gives approval on the use of alternate materials. **Article 5.10.**
12. Know the proper function of different equipment for landscape and irrigation construction processes. **Article 170.3; Crossroads/Design Division/Landscape Enhancement Section/Landscape Inspection Guide, Chapter 3.**

**Read the following statements. Find the answer at the Resource.**

13.	Can detect defective or ineffective equipment. <b>Article 170.3.</b>
14.	Knows requirements for Compost when shown on the plans. <b>Plans.</b>
15.	Knows where to identify the plant specifications in the plans. <b>Article 192.2; Plans.</b>
16.	Can determine and identify proper location of bed areas or individual plants. <b>Section 192.3.3; Plans.</b>
17.	Understands inspection and storage requirements for plants. <b>Sections 192.3.1 and 192.3.2; Crossroads/Design Division/Landscape Enhancement Section/Landscape Inspection Guide, Chapter 1, Sections 5 and 6.</b>
18.	Understands planting bed alignment staking and how to check grade staking. <b>Section 192.3.3; IDP Module B-1; Plans.</b>
19.	Knows the pit excavation requirements for the different types of plants provided. <b>Section 192.3.4; Crossroads/Design Division/Landscape Enhancement Section/Landscape Inspection Guide, Chapter 2, Section 2.</b>
20.	Can verify that correct plant installation procedures are followed. <b>Section 192.3.5; Crossroads/Design Division/Landscape Enhancement Section/Landscape Inspection Guide, Chapter 2, Section 2.</b>
21.	Knows proper planting depth for plant material. <b>Section 192.3.4; Plans.</b>
22.	Understands pruning and wound dressing requirements. <b>Section 192.3.9.</b>
23.	Can calculate an estimate of the quantity of material to be placed. <b>Plans.</b>
24.	Knows the requirements of the contractor for the use of pesticides. <b>Article 192.3.</b>
25.	Can recognize the proper licensing requirements for electrical service installations. <b>Article 170.3.</b>
26.	Knows proper trench excavation protection techniques. <b>Section 170.3.2.</b>
27.	Knows where to reference in plans the irrigation system component specifications. <b>Article 170.2; Plans.</b>
28.	Understands the requirements and how to perform road bores. <b>Section 170.3.3.</b>
29.	Can verify a passing Hydrostatic Test was performed prior to backfilling the system. <b>Section 170.3.11.</b>
30.	Can explain the purpose and significance of reference items throughout the item. <b>Proposal.</b>
31.	Can identify the unit of measure. <b>Article 192.4.</b>

**Read the following statements. Find the answer at the Resource.**

- |     |   |
|-----|---|
| 32. | Can measure and calculate quantities for every unit of measure. <b>Articles 161.4, 166.4, 168.4, 170.4, 192.4, and 193.4.</b>                                 |
| 33. | Knows all types of work that is and is not paid under this item. <b>Article 192.5.</b>  |
| 34. | Knows how to enforce specifications for overweight trucks. <b>Article 7.16.</b>   |
| 35. | Knows the proper information to record on haul tickets, daily reports, and pay documents. <b>Construction Contract Administration Manual; CON500; CON503.</b> |
| 36. | Understands the payment schedule. <b>Articles 161.5, 166.5, 168.5, 170.5, 192.5, and 193.5.</b>   |

## Module 9

### Topsoil

Read the following statements. Find the answer at the **Resource**.

1. Has read any applicable special provision and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to these items. **Article 5.10.**
3. Recognizes the importance of stripping and salvaging topsoil to be used for revegetation. **Article 160.2; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Section 3.**
4. Can properly sample material for soil analysis. **Article 160.2.**
5. Understand the possible need for soil testing to determine the soil pH range and its importance. **Article 160.2.**
6. Knows who gives approval on the use of alternate materials. **Articles 5.1 and 5.10.**
7. Is able to calculate amount of materials necessary to complete individual phases of the project. **Plans.**
8. Can identify methods commonly used to strip topsoil. **Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Section 3.**
9. Can determine to what depth to strip the topsoil. **Plans, Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Section 3.**
10. Can identify topsoil storage methods including when it is best to stockpile and when it is best to windrow topsoil. **Article 160.3, Plans, Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2.**
11. Can identify topsoil stockpile stabilization and/or containment methods required by the Construction General Permit. **TCEQ Website or Project SW3P Binder in CGP Section.**
12. Can identify methods commonly used for topsoil placement. **Article 160.3; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Section 3.**

**Read the following statements. Find the answer at the Resource.**

13.	Can locate in the plans the locations to receive topsoil applications. <b>Plans – Profile Sheets.</b>
14.	Can identify the unit of measure. <b>Article 160.4.</b>
15.	Measure and calculate base quantities for every unit of measure. <b>Plans.</b>
16.	Understands payment practices when stripping topsoil in cut sections versus fill sections. <b>Article 160.5.</b>
17.	Knows type of work that is and is not paid under these items. <b>Article 160.5.</b>
18.	Knows the information and documentation (haul tickets for topsoil) to record and collect to ensure contractor compliance, create daily reports, and complete pay documents. <b>Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>

## Module 9

### Compost

**Read the following statements. Find the answer at the Resource.**

1. Has read any applicable special provisions for this item of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to these items. **Article 5.10.**
3. Verifies all quality control documentation is received prior to use as required by the specification. **Article 161.2.**
4. Ensures all required samples for compost analysis are submitted for testing by the Department. **Article 161.2.**
5. Can compare the lab analysis against the specification to ensure compost meets the specification. **Article 161.2.**
6. Understands the blending requirements for each of the 3 types of compost (CMT, ECC, GUC) used by the Department. **Article 161.2.**
7. Knows who gives approval on the use of alternate materials. **Articles 5.1 and 5.10.**
8. Can calculate amount of materials necessary to complete individual phases of the project. **Article 161.4; Plans.**
9. Understands installation methods commonly used to spread CMT, ECC, and GUC to achieve specified application thickness. **Article 161.3.**
10. Knows the 3 blending methods for CMT. **Article 161.3.1.**
11. Understands ECC's slope limitations and thickness requirements. **Section 161.3.2.**
12. Understands how to incorporate seeding with ECC applications. **Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 5, Section 2.**
13. Can identify in the plans the locations to receive compost applications. **Plans – Profile Sheets.**
14. Can identify the unit of measure. **Article 161.4.**
15. Knows how to measure and calculate quantities for every unit of measure. **Article 161.4; Plans.**
16. Understands payment practices to reimburse the contractor for the quality assurance testing. **Article 161.5.**

**Read the following statements. Find the answer at the Resource.**

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| 17. | Knows the type work that is and is not paid under these items. <b>Article 161.5.</b>   |
| 18. | Knows the information and documentation (haul tickets for compost) to record and collect to ensure contractor compliance, create daily reports, and complete pay documents. <b>Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b> |

## Module 10

### Sodding

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to these items. <b>Article 5.10.</b>
3.	Understands the material approval requirements for grass sod. <b>Article 162.2.</b>
4.	Can describe the two different types of grass sod. <b>Article 162.2.</b>
5.	Ensures the fertilizer meets the material requirements in accordance to the specification and/or the plan-set. <b>Articles 162.2 and 166.2; Plans.</b>
6.	Can identify the sod species requirements. <b>Article 162.2; Plans.</b>
7.	Knows who gives approval on the use of alternate materials. <b>Articles 5.1 and 5.10.</b>
8.	Can calculate fertilizer in units of pounds per acre based on the blend of fertilizer furnished by the contractor. <b>Fertilizer ticket; Plans; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Section 5.</b>
9.	Can calculate amount of materials necessary to complete individual phases of the project. <b>Plans.</b>
10.	Understands the tillage and soil preparation requirements prior to placement of sod. <b>Article 162.3.</b>
11.	Knows how to measure depth of tillage. <b>Article 162.3.</b>
12.	Understands the requirements and can determine the proper installation of spot sodding. <b>Section 162.3.1.1; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 3, Section 3.</b>
13.	Understands the requirements and can determine the proper installation of block sodding. <b>Section 162.3.1.2; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 3, Section 4.</b>

**Read the following statements. Find the answer at the Resource.**

14.	Understands mulch sod harvesting requirements and care during transport. <b>Section 162.3.1.3; Crossroads/Construction Division/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 3, Section 5.</b>
15.	Understands the requirements and can determine the proper installation of mulch sodding. <b>Section 162.3.1.3; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 3, Section 5.</b>
16.	Understands the requirements for Straw or Hay Mulch and Tacking Method and understands when they are used. <b>Sections 162.3.3 and 162.2.6; Plans; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 5, Section 2, and Chapter 4, Section 3.</b>
17.	Knows requirements for post-planting care (watering) for block sod and mulch sod. <b>Articles 162.3 and 168.3; Plans; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Section 6.</b>
18.	Can determine the locations to receive block sod and/or mulch sod applications. <b>Plans.</b>
19.	Can identify the unit of measure. <b>Articles 162.4, 166.4, and 168.4.</b>
20.	Can measure and calculate quantities for every unit of measure. <b>Articles 162.4, 166.4, and 168.4; Plans.</b>
21.	Can identify work that is and is not paid under these items. <b>Articles 162.5, 166.5, and 168.5.</b>
22.	Can identify information and documentation (fertilizer bags, weight tickets for hay mulch) to record and collect to ensure contractor compliance, create daily reports, and complete pay documents. <b>Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>

## Module 10

### Seeding

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to these items. <b>Article 5.10.</b>
3.	Understands the material approval requirements for seed furnished by the contractor. <b>Article 164.2.</b>
4.	Knows the Texas Seed Law’s labeling requirements and how to accept or reject seed based on this information. <b>Article 164.2; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 6, Section 2.</b>
5.	Can determine the proper seed mixture based upon the season. <b>Article 164.2; Plans – Estimate and Quantity Sheets &amp; General Notes.</b>
6.	Ensures the fertilizer meets the material requirements in accordance to the specification and/or the plan-set. <b>Articles 162.2 and 166.2; Plans.</b>
7.	Understands the material approval requirements for straw or hay mulch and is able to inspect the mulch for weeds and/or excessive moisture. <b>Section 164.2.4.1; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 4, Section 4.</b>
8.	Knows to verify that the Cellulose Fiber Mulch provided is on the approved products list prior to use on the project. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Erosion Control Approved Products and Vendors.</b>
9.	Knows the documentation and storage requirements for Cellulose Fiber Mulch. <b>Section 164.2.4.2.</b>
10.	Can determine which mulch tacking methods are allowed or required and knows that tacking agents should be approved prior to use. <b>Section 164.2.5; Plans, Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 4, Section 4.</b>
11.	Knows who gives approval on the use of alternate materials. <b>Articles 5.1 and 5.10.</b>

**Read the following statements. Find the answer at the Resource.**

12.	Can calculate Pure Live Seed weight and convert it to a bulk rate per acre. <b>Section 164.2.1; Seed Ticket; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 6, Section 3.</b>
13.	Can calculate fertilizer in units of pounds per acre based on the blend of fertilizer furnished by the contractor. <b>Fertilizer ticket; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Section 5.</b>
14.	Can calculate amount of materials necessary to complete individual phases of the project. <b>Plans; Tickets.</b>
15.	Verifies in the plans locations to receive seeding applications. <b>Plans.</b>
16.	Knows tillage and soil preparation requirements. <b>Article 164.3.</b>
17.	Knows to measure depth of tillage. <b>Article 164.3.</b>
18.	Can name the 4 different seeding methods used by the Department and describe the basic requirements of each. <b>Article 164.3; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 4.</b>
19.	Can identify proper equipment and defective or ineffective equipment used for revegetation and seeding operations. <b>Article 164.3; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 4.</b>
20.	Can determine cellulose fiber mulch application rates based on the slope and soil conditions at different locations throughout the project, as directed in the plans. <b>Article 164.3; Plans.</b>
21.	Understands post-planting care (watering, mowing) requirements for seeded grasses. <b>Section 164.3.5; Article 168.3; Crossroads/Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 2, Sections 6 and 7.</b>
22.	Ensures the contractor initiates revegetation/soil stabilization process along the project's timeline. <b>Project Schedule; Project SW3P Binder.</b>
23.	Can identify the unit of measure. <b>Articles 164.4, 166.4, and 168.4.</b>
24.	Can measure and calculate quantities for every unit of measure. <b>Articles 164.4, 166.4, and 168.4.</b>

**Read the following statements. Find the answer at the Resource.**

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| 25. | Can identify work that is and is not paid under these items. <b>Articles 164.5, 166.5, and 168.5.</b>   |
| 26. | Knows the information and documentation (seed labels, weigh tickets for hay mulch, cellulose fiber mulch bags, and fertilizer bags) to record and collect to ensure contractor compliance, create daily reports, and complete pay documents. <b>Crossroads/Construction Division/SiteManager/Support/Training &amp; Development/CON500.</b> |

## Module 10

### Soil Retention Blankets

Read the following statements. Find the answer at the **Resource**.

1. Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to these items. **Article 5.10.**
3. Knows to verify that the Soil Retention Blanket provided is on the approved products list prior to beginning installation. **Crossroads/Construction Division/Training and Development/Inspector Development Program/Erosion Control Approved Products and Vendors.**
4. Knows to verify that the product is the class and type as shown on the plans and that a copy of the manufacturer's label should be provided. **Article 169.2.**
5. Knows who gives approval on the use of alternate materials. **Articles 5.1 and 5.10.**
6. Can calculate amount of materials necessary to complete individual phases of the project. **Article 169.4; Plans.**
7. Can identify in the plans locations to receive soil retention blanket applications. **Plans.**
8. Can identify areas on the project that require changes in the class and type. **Article 169.3.**
9. Knows the time limit for placing the soil retention blanket. **Article 169.3.**
10. Knows the placement procedures for soil retention blanket including site preparation prior to installing the blankets. **Article 169.3; Crossroads/ Maintenance Division/Vegetative Management Section/A Guide to Roadside Vegetation Establishment, Chapter 45, Section 3 and Appendix D.**
11. Can identify the unit of measure. **Article 169.4.**
12. Can measure and calculate base quantities for every unit of measure. **Article 169.4; Plans.**
13. Can identify work that is and is not paid under these items. **Article 169.5.**

**Read the following statements. Find the answer at the [Resource](#).**

14.

Can identify information and documentation (product label or receipt showing brand name) to record and collect to ensure contractor compliance, create daily reports, and complete pay documents. [Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500](#).

## Module 11

### Surface Treatments

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to this Item. <b>Article 5.10.</b>
3.	Understands the requirements of Item 6 for material acceptance. <b>Item 6.</b>
4.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, and widths and depths of the planned roadway section. <b>Plans – Typical Sections and Profile Sheets.</b>
5.	Communicates with the contractor to ensure that specification requirements are met. <b>Article 5.5.</b>
6.	Understands the different acronyms used to label asphalt material and can determine if the material is hot AC, emulsion, cutback, polymer modified, or asphalt rubber, using the acronym. <b>Article 300.2.</b>
7.	Knows the materials that may be used as a tack coat for Hot Asphalt-Rubber Surface Treatments. <b>Section 316.2.1.</b>
8.	Can determine the type, grade and SAC of the aggregate required on the plans. <b>Article 302.2; Plans – Estimate and Quantity Sheet.</b>
9.	Understands field sampling and testing requirements referenced within this Item, as identified in the Guide Schedule. <b>Article 302.2; Crossroads/Construction Division/Guide Schedule.</b>
10.	Has basic knowledge of aggregate requirements such as Deleterious materials, Decantation, LA abrasion, Soundness, Coarse aggregate angularity, and Gradations and can apply test results to the project. <b>Section 302.2.1; Crossroads/Construction Division/Test Methods.</b>
11.	Knows how to verify distributor is calibrated, including for transverse variance if needed, and within the required timeframe. <b>Section 316.3.1.3; Crossroads/Construction Division/Test Methods/Tex-922-K.</b>

**Read the following statements. Find the answer at the Resource.**

12.	Is familiar with distributor requirements such as: nozzle location, nozzle angle, bar being straight and level at the proper shot height, maximum change in distributor bar height from loaded to empty, all components are free of leaks, and can describe how each of these affect the spray pattern. <b>Crossroads/Construction Division/Training and Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 7, Section 3</b>
13.	Knows how to check to see that a uniform rate of aggregate is distributed across the aggregate spreader. <b>Section 316.3.2; Crossroads/Construction Division/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 7, Section 4.</b>
14.	Can verify that the asphalt heating facilities (either separate or apart of the storage tank) adequately heats and circulates material when using hot applied asphalts. <b>Crossroads/Maintenance Division/Online Maintenance Manuals/Seal Coat and Surface Treatment Manual, Chapter 7, Section 3.</b>
15.	Knows where to find roller requirements. <b>Article 210.2, Table 1; Section 210.2.4.</b>
16.	Understands aggregate stockpile requirements. <b>Article 302.4; Section 316.4.2; Plans – General Notes and Title Sheet.</b>
17.	Understands what are adverse weather conditions and can check air temperature and surface temperature requirements for placing surface treatment based on the type of binder used. <b>Section 316.4.4; Article 318.4; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 8, Section 2.</b>
18.	Can verify and approve surface preparation prior to placing the seal coat. <b>Section 316.4.6.</b>
19.	Understands the definition of "rock land" and "shot rate" and can calculate the values for each. <b>Section 316.4.7.</b>
20.	Understands the asphalt material temperature requirements for heating and tolerances for storage and distributors. <b>Section 300.4.1.</b>
21.	Knows where to find and how to apply the width and limits for applications. <b>Section 316.4.8.1; Plans – Typical Sections.</b>
22.	Knows the proper application temperatures for different binder types. <b>Sections 300.4.1 and 316.4.8.1.</b>
23.	Knows the production documentation needed for A-R binder. <b>Section 341.4.5.</b>

**Read the following statements. Find the answer at the Resource.**

24.	Knows the limitations that need to be met prior to applying asphalt for each shot. <b>Section 316.4.8.2.</b>
25.	Understands when to require test sections for A-R binder. <b>Section 318.4.8.4.</b>
26.	Knows how to check amount of asphalt placed and can calculate asphalt application rates for any asphalt distributor. <b>Section 316.5.1; Distributor Calibration Record, Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 8, Section 11.</b>
27.	Can calculate the residual application rate from the overall rate and the percent asphalt in the emulsion or cutback. <b>Shipping Ticket, Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 8, Section 2.</b>
28.	Knows the requirements for transverse variance and how to verify compliance. <b>Section 316.3.1.1; Plans – Basis of Estimate; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 7, Section 3.</b>
29.	Recognizes problems that occur such as non-uniform application, streaking, ridging, puddling, or flowing off the roadway surface and corrective actions needed to proceed with the project. <b>Section 316.4.8; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 7.</b>
30.	Can verify aggregate spreader rates. <b>Plans – Basis of Estimate; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 8, Section 7.</b>
31.	Can recognize proper aggregate application and identify problems with spreader timing/speed such as aggregate rollover or uneven aggregate roller bar on the distributor. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 13.</b>
32.	Understands requirement for number of roller passes based on binder type and can adjust operation to ensure rollers are keeping up with the spreader box. <b>Sections 316.4.8.1 and 318.4.10; Crossroads/Construction Division/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 8, Section 15.</b>
33.	Can adjust binder and aggregate application rates based on field conditions. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Seal Coat and Surface Treatment Manual, Chapter 4 and Appendices A &amp; B.</b>

**Read the following statements. Find the answer at the Resource.**

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| 34. | Understands the requirements for finished surface and repair and brooming requirements. <b>Sections 316.4.11 and 316.4.13.</b>   |
| 35. | Can verify the volume of asphalt to be paid for using a calibrated strap stick or weight and end of work deductions needed for weight remainders. <b>Sections 316.5.1 and 520.2.5.</b> |
| 36. | Can determine the volume of aggregates to be paid. <b>Section 316.5.2.</b>   |
| 37. | Knows proper forms for reporting work, quantities, and payments. <b>District Forms, Crossroads/Construction Division/ SiteManager/Support/Training &amp; Support/CON500.</b>           |
| 38. | Knows all types of work that are paid under this item and also knows all the incidentals under this item that are not paid. <b>Article 316.6.</b>                                      |

## Module 11

### Hot-Mix Asphalt Pavements

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to this Item. <b>Article 5.10.</b>
3.	Understands the requirements of Item 6 for material acceptance. <b>Item 6.</b>
4.	Can document all work performed using the Department’s forms and SiteManager templates. <b>District forms; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>
5.	Communicates with the contractor to ensure that specification requirements are met. <b>Article 5.5.</b>
6.	Can identify and apply requirements for all types, grades, and classes of materials in these Items. <b>Articles 340.2, 341.2, 344.2, and 346.2.</b>
7.	Has basic knowledge of the tests referenced in these items such as Tex-106-E, Tex-107-E, Tex-200-F, Tex-203-F, Tex-204-F, Tex-207-F, Tex-212-F, Tex-217-F, Tex-226-F, Tex-227-F, Tex-236-F, Tex-242-F, Tex-244-F, Tex-280-F, Tex-408-A, Tex-410-A, Tex-411-A, Tex-460-A, Tex-530-C and can apply the test results to the project. <b>Sections 340.2.1, 341.2.1, 344.2.1, and 346.2.1; Crossroads/Construction Division/Test Procedures.</b>
8.	Understands sampling and testing requirements referenced within these Items, as identified in the Guide Schedule. <b>Articles 340.4, 341.4, 344.4, and 346.4; Crossroads/Construction Division/Guide Schedule.</b>
9.	Can identify the SAC class specified on the plans. <b>Plans – Estimate &amp; Quantity Sheets and General Notes.</b>
10.	Can Identify the PG binder grade specified on the plans. <b>Plans – Estimate &amp; Quantity Sheets; Section 300.2.10.</b>
11.	Can identify the types of tack coat materials allowed (CSS-1H, SS-1H or PG 58 and higher) or as shown on the plans. <b>Plans – General Notes; Sections 340.2.5, 341.2.5, 344.2.5, and 346.2.5; Article 300.2.</b>

**Read the following statements. Find the answer at the Resource.**

12.	Has basic knowledge of the type of anti-stripping additive used (if any, lime or liquid) as shown on the plans and the correct methods of introducing the additive into the mix. <b>Plans – General Notes; ACP Design(s) for project; Sections 340.2.6, 341.2.6, 344.2.6, and 346.2.6.2; Item 301.</b>
13.	Understands when fibers are required and what is required for their acceptance. <b>Section 346.2.6.1.</b>
14.	Allows the contractor to only use pre-approved release agents. <b>Sections 340.4.5, 341.4.6, 344.4.6, and 346.4.6; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
15.	Has basic knowledge of the Hot Mix Plant requirements according to Item 320. <b>Section 320.2.1.</b>
16.	Can identify Hauling and Placement Equipment requirements according to Item 320. <b>Sections 320.2.2 and 3, Plans – General Notes.</b>
17.	Knows the action needed to verify the screed alignment or straightness or mat width. <b>Section 320.2.3.</b>
18.	Can identify Material Transfer Devices and Remixing Equipment according to Item 320. <b>Section 320.2.3, Plans – General Notes.</b>
19.	Can identify Rollers requirements according to Item 210. <b>Item 210.</b>
20.	Knows a pre-paving meeting is required prior to beginning placement operations. <b>Sections 341.4.3, 344.4.3, and 346.4.3; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Asphalt Paving Pre-Pave.</b>
21.	Is familiar with the need to verify certification requirements for both TxDOT and the contractor personnel. <b>Sections 340.4.1, 341.4.1, 344.4.1, and 346.4.1.</b>
22.	Reviews the approved Quality Control Plan submitted by the Contractor and ensure the plan is followed throughout the duration of the laydown operations. <b>Sections 341.4.3, 344.4.3, and 346.4.3.</b>
23.	Can identify the different types of dense graded mixes, performance design and SMA. <b>Sections 340.4.3, 341.4.4, 344.4.4, and 346.4.4.</b>

**Read the following statements. Find the answer at the Resource.**

24.	Has basic knowledge of the mix design and trial batch process, verifies the mix design is approved, is familiar with the Current JMF for the project and understands when and how changes to the JMF may be made. <b>Sections 340.4.3, 340.4.3.2, 340.4.3.3, 341.4.4, 344.4.4, and 346.4.4; Communicate with ACP Lab.</b>
25.	Ensures that material discharge temperature is within 25 °F of the target temperature and does not exceed 350 °F. <b>Sections 340.4.4.2, 341.4.5.2, 344.4.5.2, and 346.4.5.2.</b>
26.	Can verify and approve surface preparation prior to placing the hot mix. <b>Sections 340.4.6, 341.4.7, 344.4.7, and 346.4.7.</b>
27.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, widths and total thickness of the planned roadway section. <b>Plans – Profile Sheets, Typical Sections, and General Notes.</b>
28.	Knows how to calculate yield, how often to calculate it and how to adjust the mat thickness to control the tonnage of mix close to the quantity on the plans. <b>ACP Tickets; Site Manager QC/QA Excel Template or district form; Plans – Typical Section or Basis of Estimate.</b>
29.	Can identify the minimum and maximum lift thickness for the different mix types. <b>Sections 340.4.6, 341.4.7, 344.4.7, and 346.4.7.</b>
30.	Can identify the minimum untrimmed core height eligible for testing. <b>Sections 340.4.6, 341.4.7, 344.4.7, and 346.4.7.</b>
31.	Understands the minimum surface temperature requirements and other weather conditions to consider prior to starting placement of the different mix types. <b>Plans – General Notes and Special Provisions; Special Specifications; Sections 340.4.6.1, 341.4.7.1, 344.4.7.1, and 346.4.7.1.</b>
32.	Understands tack coat is required unless waived by the Area Engineer and ensures that tack coat application rate provides adequate adhesion and is between 0.04 and 0.1 gallons per square yard of residual asphalt. <b>Sections 340.4.6.2, 341.4.7.2, 344.4.7.2, and 346.4.7.2; Crossroads/Construction Division/Construction and Materials Tips/Flexible Pavements/ Proper Use of Tack Coat.</b>
33.	Can identify proper procedures for tacking vertical edges. <b>Sections 340.4.6.2, 341.4.7.2, 344.4.7.2, and 346.4.7.2.</b>
34.	Knows the required test frequency and can perform a thermal profile following Tex-244-F. <b>Crossroads/Construction Division/Guide Schedule; Crossroads/Construction Division/Test Methods; Sections 341.4.7.3.1, 344.4.4.7.3.1, and 346.4.4.7.3.1.</b>

**Read the following statements. Find the answer at the Resource.**

35.	Knows the procedures to follow when the thermal profile results fails to meet the spec requirements. <b>Sections 341.4.7.3.1, 344.4.4.7.3.1, and 346.4.4.7.3.1.</b>
36.	Can verify rolling patterns established by the contractor according to Test Method Tex-207-F, Part IV. Also familiar with the roller speeds. <b>Crossroads/Construction Division/Test Methods/Tex-207-F, Sections 210.2, 340.4.7, 341.4.8, 344.4.8, and 346.4.8.</b>
37.	Understands proper procedures for compaction and opening the mat to traffic. <b>Sections 340.4.7, 341.4.8, 344.4.8, and 346.4.8.</b>
38.	Knows the procedures to follow when production pay factors or placement pay factors are below 1.000 for three consecutive lots. <b>Sections 341.4.9, 344.4.9, and 346.4.9.</b>
39.	Understands when referee testing is allowed and the procedures to follow. <b>Sections 341.4.9.1, 344.4.9.1, and 346.4.9.1.</b>
40.	Can identify the lot and subplot sizes including lot # 1 and understands when lot sizes may be changed and incomplete lots. <b>Sections 341.4.9.2.1, 341.3.1, 344.4.9.2.1, 344.3.1, 346.4.9.2.1, and 346.3.1.</b>
41.	Is familiar with the specification ranges of operational tolerances and the procedures to follow if the ranges are exceeded. <b>Sections 340.4.4, 341.4.9.2.4, 344.4.9.2.4, and 346.4.9.2.4.</b>
42.	Understands the procedure and can identify individual loads of hot mix to be rejected. <b>Sections 341.4.9.2.5, 344.4.9.2.5, and 346.4.9.2.5.</b>
43.	Knows the minimum frequency for placement sampling and testing. <b>Sections 340.4.7, 341.4.9.3, 344.4.9.3, and 346.4.9.3; Crossroads/Construction Division/Guide Schedule.</b>
44.	Can identify random sample locations for in-place air voids testing. <b>Sections 341.4.9.3.2, 344.4.9.3.2, and 346.4.9.3.2; Crossroads/Construction Division/Test Methods.</b>
45.	Understands the requirement for witnessing the coring operation and measuring of the core sample. <b>Sections 341.4.9.3.2, 344.4.9.3.2, and 346.4.9.3.2.</b>
46.	Understands the definition and limitations of trimming a core. <b>Crossroads/Construction Division/Test Methods/Tex-207-F.</b>

**Read the following statements. Find the answer at the Resource.**

47.	Can verify segregation density profiles are performed in accordance with the specification. <b>Sections 341.4.9.3.3.2, 344.4.9.3.3.2, and 346.4.9.3.3.2.</b>
48.	Understands the procedures to follow when two consecutive segregation density profiles fail. <b>Sections 341.4.9.3.3.2, 344.4.9.3.3.2, and 346.4.9.3.3.2.</b>
49.	Can verify longitudinal joint density checks are performed in accordance with the specification. <b>Sections 341.4.9.3.3.3, 344.4.9.3.3.3, and 346.4.9.3.3.3.</b>
50.	Understands the procedures to follow when joint density fails to meet the spec requirements. <b>Sections 341.4.9.3.3.3, 344.4.9.3.3.3, and 346.4.9.3.3.3.</b>
51.	Understands that cores or production samples may be taken at any time to check the dynamic shear rheometer aging ratio to determine if the hot mix is burnt or over heated. <b>Sections 341.4.9.3.3.4, 344.4.9.3.3.4, and 346.4.9.3.3.4.</b>
52.	Is very familiar with surface irregularities section in the specification and knows when to apply this section from the specification. <b>Sections 340.4.9.5, 341.4.9.3.3.5, 344.4.9.3.3.5, and 346.4.9.3.3.5.</b>
53.	Understands the surface test type to apply to the different sections of the roadway. <b>Plans – General Notes; Article 585.3.</b>
54.	Can identify rough areas that require corrective action and what methods are acceptable. <b>Section 585.3.4; Ride Quality software data.</b>
55.	Can identify the unit of measure. <b>Articles 340.5, 341.5, 344.5, and 346.5.</b>
56.	Understands how production and placement pay factors are determined and how they are applied including incomplete lots. <b>Articles 341.6, 344.6, and 346.6; QC/QA Excel Template.</b>
57.	Can calculate quantities for every unit of measure including rejected loads of mix and remove and replace sublots. <b>Articles 340.6, 341.6, 344.6, and 346.6; QC/QA Excel Template.</b>
58.	Can identify the pay schedule for ride quality as shown on plans. <b>Plans – General Notes; Article 585.4.</b>
59.	Can use the Ride Quality software to report the payment for ride quality. <b>Article 585.4.</b>

**Read the following statements. Find the answer at the **Resource**.**

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| 60. | Knows proper forms for reporting quantities and payments. <b>District Forms, Crossroads/Construction Division/ SiteManager/Support/Training Classes/CON500.</b>            |
| 61. | Knows all types of work that are paid under this item and also know all the incidentals under this item that are not paid. <b>Articles 340.6, 341.6, 344.6, and 346.6.</b> |

## Module 11

### Permeable Friction Course

Read the following statements. Find the answer at the **Resource**.

1. Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to this Item. **Article 5.10.**
3. Understands the requirements of Item 6 for material acceptance. **Item 6.**
4. Can document all work performed using the Department’s forms and Site Manager templates. **District forms; Crossroads/Construction Division/SiteManager/ Support/Training Classes/CON500.**
5. Communicates with the contractor to ensure that specification requirements are met. **Article 5.5.**
6. Can identify and apply requirements for all types, grades, and classes of materials delivered to the project and identified in Item 342. **Article 342.2.**
7. Has basic knowledge of the tests in this item such as Tex-200-F, Tex-204-F, Tex-207-F, Tex-212-F, Tex-217, Tex-226-F, Tex-227-F, Tex-235-F, Tex-236-F, Tex-242-F, Tex-244-F, Tex-245-F, Tex-246-F, Tex-280-F, Tex-408-A, Tex-410-A, Tex-411-A, Tex-460-A, Tex-461-A, Tex-530-C and can apply the test results to the project. **Item 342; Crossroads/Construction Division/Test Methods.**
8. Understands sampling and testing requirements referenced within this Item, as identified in the Guide Schedule. **Crossroads/Construction Division/Guide Schedule; Item 342.**
9. Can identify the SAC class specified on the plans. **Plans – Estimate & Quantity Sheet and General Notes.**
10. Can identify if PG 76 binder grade or Asphalt Rubber is specified on the plans. **Plans – Estimate & Quantity Sheet and General Notes.**
11. Can identify the Types of Tack coat materials allowed (CSS-1H, SS-1H or PG 58 and higher) or as shown on the plans. **Plans – General Notes; Section 342.2.4; Article 300.2.**
12. Understands when fibers are required and what is required for their acceptance. **Section 342.2.5.1.**

**Read the following statements. Find the answer at the Resource.**

13.	Has basic knowledge of the type of anti-stripping additive used (if any, lime or liquid) and the correct method of introducing the additive into the mix. <b>Section 342.2.5; Plans – General Notes; Item 301.</b>
14.	Allows the contractor to only use pre-approved release agents. <b>Article 342.4; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
15.	Has basic knowledge of the Hot Mix Plant requirements according to Item 320. <b>Article 342.3; Section 320.2.1.</b>
16.	Can identify Hauling and Placement Equipment requirements according to Item 320. <b>Sections 320.2.2 and 3; Plans – General Notes.</b>
17.	Knows the action needed to verify the screed alignment or straightness or mat width. <b>Section 320.2.3.1.</b>
18.	Can identify Material Transfer Devices and Remixing Equipment according to Item 320. <b>Sections 320.2.3.2 and 3.</b>
19.	Can identify Rollers requirements according to Item 210. <b>Item 210.</b>
20.	Knows a pre-paving meeting is encouraged (or required in the plans) prior to beginning placement operations. <b>Section 342.4.3; Crossroads/Construction Division/Inspector Development Program/PFC Paving Pre-Pave; Plans – General Notes.</b>
21.	Is familiar with the need to verify certification requirements for both TxDOT and the contractor personnel. <b>Section 342.4.1.</b>
22.	Is familiar with checking and verifying the Quality Control Plan submitted by the Contractor when required by the Area Engineer. <b>Section 342.4.3.</b>
23.	Has basic knowledge of the mix design and trial batch process, verifies the mix design is approved, is familiar with the Current JMF for the project and understands when and how changes to the JMF may be made. <b>Section 342.4.4; Communicate with ACP Lab.</b>
24.	Ensures that material discharge temperature is within 25 °F of the target and does not exceed 350 °F. <b>Section 342.4.5.2.</b>
25.	Can verify and approve surface preparation prior to placing the hot mix. <b>Section 342.4.7.</b>

**Read the following statements. Find the answer at the Resource.**

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| 26. | Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, and widths and depths of the planned roadway section. <b>Plans – Typical Sections &amp; Plan Profile Sheets.</b>   |
| 27. | Knows how to calculate yield, how often to calculate it and how to adjust the mat thickness to control the tonnage of mix close to the quantity on the plans. <b>ACP Tickets; Site Manager QC/QA Excel Template or District form; Plans – Typical Section or Basis of Estimate.</b>  |
| 28. | Understands the minimum surface temperature requirements and other weather conditions to consider prior to starting placement of PFC. <b>Section 342.4.7.1; Plans – General Notes &amp; Special Provisions.</b>  |
| 29. | Understands tack coat is required unless waived by the Area Engineer and ensures that tack coat application rate provides adequate adhesion and is between 0.04 and 0.1 gallons per square yard of residual asphalt. <b>Section 342.4.7.2; Crossroads, Construction Division/Construction and Materials Tips/ Proper Use of Tack Coat.</b> |
| 30. | Can identify proper procedures for tacking vertical edge. <b>Section 342.4.7.2.</b>  |
| 31. | Ensures the mix is not placed below the minimum placement temperature. <b>Section 342.4.7.3.</b>   |
| 32. | Knows the required test frequency and can perform a thermal profile following Tex-244-F. <b>Crossroads/Construction Division/Guide Schedule; Crossroads/Construction Division/Test Methods; Section 342.4.7.3.1.3.</b>   |
| 33. | Knows the procedures to follow when the thermal profile results fails to meet the spec requirements. <b>Section 342.4.7.3.1.3.</b>   |
| 34. | Knows how the PFC mix is rolled. <b>Section 342.4.8.</b>   |
| 35. | Knows how to perform test method Tex-246-F to check the permeability of the PFC. <b>Crossroads/Construction Division/Test Procedures/Tex-246-F; Section 342.4.8.</b>   |
| 36. | Understands proper procedures for compaction and opening to traffic. <b>Section 342.4.8.</b>   |
| 37. | Can identify the lot and subplot sizes including lot # 1 and understands when lot sizes may be changed and incomplete lots. <b>Section 342.4.9.</b>  |
| 38. | Understands when referee testing is allowed and the procedures to follow. <b>Section 342.4.9.1.</b>  |

**Read the following statements. Find the answer at the Resource.**

39.	Is familiar with the specification ranges of operational tolerances and the procedures to follow if the ranges are exceeded. <b>Section 342.4.9.3.</b>
40.	Understands that cores or production samples may be taken at any time to check the dynamic shear rheometer aging ratio to determine if the hot mix is burnt or over heated. <b>Section 342.4.9.5.</b>
41.	Is very familiar with surface irregularities section in the specification and knows when to apply this section. <b>Section 342.4.9.6.</b>
42.	Understands the surface test type to apply to the different sections of the roadway. <b>Plans – General Notes, Article 585.3.</b>
43.	Can identify rough areas that require corrective action and what methods are acceptable. <b>Section 585.3.4; Ride Quality software data.</b>
44.	Can identify the unit of measure. <b>Article 342.5.</b>
45.	Can measure and calculate quantities for every unit of measure. <b>Article 342.6; QC/QA Excel Template.</b>
46.	Can identify the pay schedule for ride quality as shown on plans. <b>Plans – General Notes; Article 585.4.</b>
47.	Can use the Ride Quality software to report the payment for ride quality. <b>Item 585.</b>
48.	Knows proper forms for reporting quantities and payments. <b>District Forms; Crossroads/Construction Division/ SiteManager/Support/Training Classes/CON500.</b>
49.	Knows all types of work that are paid under this item and also know all the incidentals under this item that are not paid. <b>Article 342.6.</b>

## Module 12

### Concrete Pavement

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to this Item. <b>Article 5.10.</b>
3.	Understands the requirements of Item 6 for material acceptance. <b>Item 6.</b>
4.	Can document all work performed using Departments forms and SiteManager templates. <b>District forms; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>
5.	Communicates with the contractor to ensure that specification requirements are met. <b>Article 5.5.</b>
6.	Can identify and apply requirements for all types, grades, and classes of material delivered to the project and identified in Item 421 and Item 360. <b>Articles 421.2 and 360.2.</b>
7.	Understands sampling and testing requirements referenced within these items, as identified in the Guide Schedule. <b>Articles 421.2 and 360.2; Crossroads/Construction Division/Guide Schedule.</b>
8.	Has working knowledge of Hydraulic Cement Concrete. <b>Completes Hydraulic Cement Concrete Module.</b>
9.	Understands the different strength requirements for CI P and CI HES concrete and can apply them to the project. <b>Section 360.2.1; Plans – General Notes.</b>
10.	Understands how fresh concrete properties impact construction and performance with emphasis on how slump affects slip-formed paving and can logically enforce material properties such as slump, air and temperature. <b>Article 421.4; Sections 360.4.2.2 and 360.4.7.3.</b>
11.	Verifies that all steel products are from pre-approved producers, and meet the Buy-America provisions and the specifications. <b>Section 360.2.2; Item 440; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List; Crossroads/Construction Division/Emails and Memos/Compliance with “Buy America”; Crossroads/Construction Division/ Training &amp; Development /Inspector Development Program/Material Inspection Guide.</b>

**Read the following statements. Find the answer at the Resource.**

12.	Has basic knowledge of DMS-4650, DMS-6100, and DMS-6310, and verifies that the materials are on the applicable Material Producer Lists. <b>Sections 360.2.4–7; Crossroads/Construction Division/Materials Specifications, Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer Lists.</b>
13.	Knows the proper function of different equipment for concrete production and delivery. <b>Article 421.3.</b>
14.	Can verify plant and truck certification compliance. <b>Section 421.3.1.</b>
15.	Knows the proper function of different equipment for placement, consolidation, finishing, forming, texturing, curing, and sawing. <b>Article 360.3.</b>
16.	Understands the purpose of and can determine acceptable methods for automated grade, alignment, and thickness control. <b>Section 360.3.1.</b>
17.	Can detect defective or ineffective equipment. <b>Visual inspection.</b>
18.	Can identify load weight restrictions along the haul route of delivery trucks. <b>Article 7.16.</b>
19.	Can determine and identify proper roadway alignments, cross slopes, lane transition beginnings and endings, and widths and depths of the planned roadway section. <b>Plans – Typical Sections and Profile Sheets.</b>
20.	Understands the requirements for stable and uniform subgrades and/or bases free from soft spots or rutting and knows how to correct these areas when they occur. <b>Articles 360.4, 247.4, 260.4, and 275.4; Item 216.</b>
21.	Understands the importance of keeping subgrade or base damp in front of the paver. <b>Article 360.4; OJT.</b>
22.	Verifies the Contractor has submitted a Quality Control Plan for approval and that the Contractor follows the plan during the project. <b>Section 360.4.1.</b>
23.	Encourages the Contractor to schedule and attend a pre-paving conference before beginning operations. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Concrete Paving Pre-Pave.</b>
24.	Understands contractor and TxDOT roles in job-control testing, including split-sample verification requirements and testing frequencies. <b>Section 360.4.2; Crossroads/Construction Division/Guide Schedule, Plans – General Notes.</b>

**Read the following statements. Find the answer at the Resource.**

25.	Understands difference between design strength and job control strength, including mix specific job control strengths. <b>Sections 360.2.1, 360.4.2.1, and 421.4, Table 8; Plans – General Notes.</b>
26.	Understands the procedures to follow when low job control strengths are encountered. <b>Section 360.4.2.1.</b>
27.	Can verify correct bar sizes, placement locations, lap staggering, dowel placement and tolerances. Understands actions to correct any problems. <b>Section 360.4.3; Plans – Standard Sheets; Item 440.</b>
28.	Ensures correct installation of multi-piece tie bars or epoxy grouted tie bars. Can verify a passing pullout test for epoxy grouted tie bars. <b>Section 360.4.3.</b>
29.	Understands pavement joint types and functions. <b>Section 360.4.4; Plans – Standard Sheets.</b>
30.	Understands correct reinforcing steel and bulkhead installation at joints. <b>Section 360.4.4; Plans – Standard Sheets and Detail Sheets.</b>
31.	Demonstrates understanding of good joint sealing practices. <b>Article 438.4.</b>
32.	Knows correct techniques for beginning and ending daily paving operations. <b>Article 360.4; Contractor Quality Control Plan.</b>
33.	Can identify proper and improper formwork, time limits for repair work and curing application. <b>Section 360.4.5.</b>
34.	Understands basic concrete plant batching and delivery operations. <b>Section 421.4.6.</b>
35.	Obtains the batch ticket for each load prior to discharge and verifies batching tolerances are in specification and that discharge time limits are not exceeded. <b>Sections 421.4.5–6, 360.4.6; Form 596 batch ticket; Mix design.</b>
36.	Can distinguish segregated loads and what actions to take when they are discovered. <b>Section 360.4.6.</b>
37.	Understands the restrictions for concrete placement based on concrete temperature and ambient temperature. <b>Section 360.4.7.3.</b>
38.	Understands how concrete temperature, ambient temperature wind and humidity can affect concrete placement and performance. <b>Article 360.4; Crossroads/Construction Division/Training &amp; Development/ Inspector Development Program/Evaporation Worksheet.</b>
39.	Can discuss proper concrete placement practices to avoid segregation and rehandling. <b>Section 360.4.7.</b>

**Read the following statements. Find the answer at the Resource.**

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| 40. | Understands the importance of and the techniques for proper consolidation. <b>Sections 360.3.1 and 360.4.7.1.</b>  |
| 41. | Can identify the proper finishing processes and the need to minimize finishing efforts. <b>Section 360.4.8.</b>  |
| 42. | Understands the importance of a moist surface condition when finishing. <b>Section 360.4.8.</b>  |
| 43. | Understands the difference between fogging and adding excess surface water. <b>Section 360.4.8.</b>  |
| 44. | Can explain the purposes of floating and straight-edging. <b>Section 360.4.8.1.</b>  |
| 45. | Understands the proper use of evaporation retardants. <b>Section 360.4.8.2.</b>  |
| 46. | Can discuss the purpose of texturing and tining and techniques to achieve them. <b>Sections 360.3.4 and 360.4.8.3.</b>   |
| 47. | Understands the purpose of curing and hazards of mix water evaporation. <b>Crossroads/Construction Division/ Training &amp; Development/Inspector Development Program/Plastic Shrinkage Reports.</b> |
| 48. | Knows the requirements for maintaining curing, calculation of curing day and procedures if curing is not being applied in a timely manner or maintained properly. <b>Section 360.4.9.</b>            |
| 49. | Understands the procedures for membrane curing. <b>Section 360.4.9.1.</b>  |
| 50. | Understands the procedures for asphalt curing. <b>Section 360.4.9.2.</b>   |
| 51. | Understands the procedures for curing Class HES concrete. <b>Section 360.4.9.3.</b>  |
| 52. | Understands the timing, methods and purpose of joint sawing. <b>Section 360.4.10.</b>  |
| 53. | Understands the requirements for protection of pavement and the different methods of opening to traffic. <b>Section 360.4.11.</b>  |
| 54. | Can verify concrete thickness at the required frequency and understands when core samples are required. <b>Section 360.4.12.</b>   |
| 55. | Understands procedures for determining deficient areas, pay adjustments and remove and replace areas. <b>Section 360.4.12.</b>   |
| 56. | Knows how to check ride according to Item 585 and when areas are exempt from measurement by the inertial profiler. <b>Item 585.</b>  |

**Read the following statements. Find the answer at the Resource.**

57.	Can explain the purpose and significance of reference items throughout the item. <b>Proposal.</b>
58.	Can identify the pay schedule for ride quality, leave out sections and sections evaluated using surface test type A. <b>Plans – General Notes; Item 585.</b>
59.	Can identify the unit of measure. <b>Article 360.5.</b>
60.	Can measure and calculate concrete quantities for every unit of measure. <b>Article 360.5.</b>
61.	Can calculate pay adjustments due to deficient thickness. <b>Section 360.6.2.</b>
62.	Can use the Ride Quality software to report the payment for ride quality. <b>Item 585.</b>
63.	Knows proper forms for reporting quantities and payments. <b>District Forms; Crossroads/Construction Division/ SiteManager/Support/Training Classes/CON500.</b>
64.	Knows all types of work that is and is not paid under this item. <b>Article 360.6.</b>

## Module 12

### *Cleaning and Sealing Joints and Cracks*

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to this item. <b>Article 5.10.</b>
3.	Communicates with the contractor to ensure that specification requirements are met. <b>Article 5.5.</b>
4.	Is familiar with DMS-6310 and knows where to find approved materials. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/ Material Producer List; Crossroads/Construction Division/ Materials Specifications.</b>
5.	Knows to ensure backer rods are compatible with the sealant. <b>Article 438.2.</b>
6.	Knows where to find sealant class specified. <b>Plans – E&amp;Q Sheets and General Notes.</b>
7.	Knows to check that equipment meets sealant manufacturer’s recommendations and that saw’s and grinders do not cause excessive spalling of concrete. <b>Article 438.3.</b>
8.	Knows that the contractor is to provide information from the sealant manufacturer showing recommended installation procedures and that contractor procedures need to be approved prior to beginning work. <b>Article 438.4.</b>
9.	Can verify and approve proper surface preparation prior to placing sealant. <b>Section 438.4.1.</b>
10.	Knows the width and depth of material to be removed. <b>Plans – Typical Sections and General Notes.</b>
11.	Is familiar with the recommended procedures for placing primer and sealant. <b>Section 438.4.2</b>
12.	Can verify the correct installation of backer rod to achieve the required thickness of sealant in joints. <b>Section 438.4.2; Articles 713.4 and 780.3; Plans – Detail Sheets and General Notes; Concrete Repair Manual.</b>
13.	Understands the sealant placement procedures for cracks. <b>Articles 713.4 and 780.3; Concrete Repair Manual.</b>
14.	Knows the proper temperature requirements for placement in joints and cracks. <b>Section 438.4.2; Articles 713.4 and 780.3; Concrete Repair Manual.</b>

**Read the following statements. Find the answer at the Resource.**

15.	Can verify the proper unit of measure. <b>Articles 438.5, 713.5, and 780.4; Plans – E&amp;Q Sheets.</b>
16.	Can measure and calculate quantities for every unit of work. <b>Articles 438.5, 713.5, and 780.4; Plans – E&amp;Q Sheets.</b>
17.	Know all types of work that is and is not paid for under this item. <b>Articles 438.6, 713.6, and 780.5.</b>

## Module 13

### Basic Reinforced Concrete

Read the following statements. Find the answer at the **Resource**.

1. Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to this Item. **Article 5.10.**
3. Understands the requirements of Item 6 for material acceptance. **Item 6.**
4. Can document all work performed using Departments forms and SiteManager templates. **District forms; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.**
5. Communicates with the contractor to ensure that specification requirements are met. **Article 5.5.**
6. Can identify and apply requirements for all types, grades, and classes of materials in these Items. **Items 420, 421, and 422.**
7. Has basic knowledge of DMS-4510, DMS-4600, DMS-4610, DMS-4620, DMS-4630, DMS-4635, DMS-4640, DMS-6100, DMS-6160, DMS-7330, and DMS-8130. **Crossroads/Construction Division/Materials Specifications.**
8. Has basic knowledge of test methods Tex-203-F, Tex-401-A, Tex-406-A, Tex-408-A, Tex-410-A, Tex-411-A, Tex-413-A, Tex-422-A, and Tex-612-J, and can apply the test results to the project. **Crossroads/Construction Division/Test Methods; Article 421.2.**
9. Understands and can perform (if applicable) test methods Tex-407-A, Tex-414-A, Tex-415-A, Tex-416-A, Tex-418-A, Tex-422-A, Tex-447-A, and Tex-448-A, and can apply test results to the project. **Crossroads/Construction Division/Test Methods.**
10. Understands where to find the requirements for grout or mortar. **Section 421.2.7.**
11. Understands the various concrete classes, their general usage and the difference between structural and non-structural concrete. **Section 421.4.1, Table 8.**

**Read the following statements. Find the answer at the Resource.**

12.	Understands sampling and testing requirements referenced within these Items, as identified in the Guide Schedule for both Structural and Non-Structural concrete. <b>Crossroads/Construction Division/Guide Schedule; Items 420, 421, and 422.</b>
13.	Can read a batch ticket to verify that the proper concrete mix was batched and the materials used are the same as on the approved concrete design. <b>Concrete design for the concrete producer and class received; Form 596 batch ticket.</b>
14.	Can determine the required air content for a given mix. <b>Section 421.4.2.4; Plans – General Notes; Concrete Design.</b>
15.	Understands the slump requirements for the various structural elements in Item 421, Table 9. <b>Section 421.4.2.5.</b>
16.	Understands how and why slump can vary from the limits shown in Table 9. <b>Section 421.4.2.5.</b>
17.	Can determine from the batch ticket that all materials were weighed within the required tolerances and that the maximum water-cement ratio for the design was not exceeded. <b>Form 596 batch ticket; Concrete Design; Sections 421.4.5 and 421.4.1, Table 8.</b>
18.	Understands when water or admixture is allowed to be added to a load and the procedure to follow. <b>Section 421.4.6.</b>
19.	Understands the mixing and delivery requirements for the different mixing methods allowed. <b>Section 424.4.6.</b>
20.	Understands the 7-day target strength and how to apply it to the project. <b>Sections 421.4.3.2 and 421.5; Crossroads/Construction Division/Guide Schedule.</b>
21.	Knows to check that the materials supplied are on the approved producer lists for Curing Compound, Epoxy, Mechanical Couplers, and Reinforcing Steel. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
22.	Verifies that all steel products are from pre-approved producers, the bar markings match the producer on the shipping tags, and the steel meets the Buy-America provisions and the specifications. <b>Item 440; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List; Crossroads/Construction Division/Emails and Memos/Compliance with “Buy America”; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Inspection Guide.</b>

**Read the following statements. Find the answer at the Resource.**

23.	Understands where to find the requirements for expansion joint material. <b>Section 420.2.5; Item 454; Crossroads/Construction Division/Material Specifications/DMS-6310.</b>
24.	Understands where to find the requirements for curing materials. <b>Section 420.2.7; Crossroads/Construction Division/Material Specifications/DMS-4650.</b>
25.	Can verify that the concrete plant and truck or stationary mixers are currently certified according to the specifications. <b>Section 421.3.1.</b>
26.	Knows how to verify the uniformity of concrete delivered using a truck mixer. <b>Sections 421.4.6 and 421.3.1.3.</b>
27.	Knows the various types, requirements and proper operation of equipment for concrete operations and can detect defective or ineffective equipment. <b>Section 421.3.2; Article 420.3.</b>
28.	Knows general requirements to be met to obtain approval for placement methods. <b>Article 420.4.</b>
29.	Understands that schedule restriction by the contractor is optional and the default if they elect not to perform this testing. <b>Article 420.4.</b>
30.	Understands the applicable schedule restrictions for the items to be built. <b>Sections 420.4.1 and 420.4.11; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Schedule Restriction Cylinder Testing.</b>
31.	Understands the requirements for falsework. <b>Section 420.4.3.</b>
32.	Understands the requirements for forms and form supports: timber and metal. <b>Sections 420.4.2 and 420.4.4.</b>
33.	Understands the purpose of reinforcing steel in concrete.
34.	Knows where to find and how to measure bar bend requirements. <b>Section 440.3.1.</b>
35.	Knows where to find the bar bending tolerances. <b>Section 440.3.2.</b>
36.	Knows the requirements for lap splices. <b>Section 440.3.4.</b>
37.	Understands the requirements for welding rebar. <b>Sections 440.2.5, 440.3.4, and 440.3.6.3.</b>
38.	Knows the requirements and tolerances for placing rebar. <b>Section 440.3.5.</b>

**Read the following statements. Find the answer at the Resource.**

39.	Understands the importance of clear cover and the plan requirements for clear cover. <b>Section 440.3.5; Plans – Detail Sheets.</b>
40.	Knows the various methods used to support rebar. <b>Section 440.3.5.</b>
41.	Knows the storage, handling, repair, and placement requirements for epoxy-coated rebar. <b>Section 440.3.6.</b>
42.	Knows how to read plans for rebar size and spacing information. <b>Plans – Detail Sheets &amp; Standards.</b>
43.	Understands the effect of weather conditions (wind humidity and temperature) on concrete performance. <b>Section 420.4.7; Crossroads/Construction Division/Training &amp; Development/ Inspector Development Program/ Evaporation Worksheet.</b>
44.	Knows why and the minimum time to protect projecting reinforcement from strain. <b>Section 420.4.7.</b>
45.	Knows placing temperature limits for fresh concrete. <b>Section 420.4.7.1.</b>
46.	Understands the maximum transport time and how to extend it per mix design. Can verify the time limit from the batch ticket. <b>Section 420.4.7.2; Form 596 batch ticket; Contractor Time Extension Plan.</b>
47.	Understands the provisions for adjusting the workability of concrete. <b>Section 420.4.7.3.</b>
48.	Knows how to handle concrete that exceeds the temperature or slump requirements. <b>Sections 420.4.7.1 and 420.4.7.3.</b>
49.	Knows the requirements for surface preparation. <b>Section 420.4.7.5.</b>
50.	Understands the proper procedures for expansion joints. <b>Section 420.4.7.6; Items 454 and 438.</b>
51.	Understands the proper procedures for construction joints. <b>Section 424.7.7.</b>
52.	Knows free fall limits for concrete. <b>Section 420.4.7.8.</b>
53.	Knows the procedures for placing and consolidating concrete without segregation and cold joints. <b>Sections 420.4.7.8 and 420.4.7.9.</b>
54.	Knows where to find the requirements for dowel installation. <b>Section 420.4.7.10; Plans – Detail Sheets and General Notes.</b>

**Read the following statements. Find the answer at the Resource.**

55.	Understands the different temperature requirements and the additional protective equipment, monitors and methods that may be needed to place concrete in cold weather. <b>Section 420.4.7.11.</b>
56.	Understands the requirements for placing concrete in hot weather. <b>Section 420.4.7.12.</b>
57.	Understands the finishing requirements for concrete surfaces. <b>Section 420.4.9.</b>
58.	Knows the duration requirements for curing. <b>Section 420.4.10.</b>
59.	Knows the various methods of curing and where they can/cannot be used. <b>Section 420.4.10.</b>
60.	Understands that curing must be constantly maintained for the minimum cure period even if minimum strength requirements are met. <b>Section 420.4.10.</b>
61.	Knows the time limits and conditions to be met prior to form removal. <b>Section 420.4.11.</b>
62.	Can determine the presence of defective concrete and suggest repair methods. <b>Section 420.4.12.</b>
63.	Knows the requirements for application of ordinary surface finish. <b>Section 420.4.13.</b>
64.	Completes and understands district's required forms. <b>District Forms, Crossroads/Construction Division/ SiteManager/ Training Support/CON500.</b>
65.	Can identify the proper unit of measure. <b>Article 420.5.</b>
66.	Knows the difference between plans quantity and measured in place. <b>Article 420.5.</b>
67.	Knows where to look in the plans for items to be measured in place that are normally plans quantity. <b>Article 420.5; Plans – General Notes &amp; Details.</b>
68.	Can measure and calculate quantity for payment for measure in place items. <b>Article 420.5.</b>
69.	Knows which items are/ are not paid for under Item 420. <b>Article 420.6.</b>
70.	Knows how to handle understrength concrete and can calculate any price reduction. <b>Article 420.6.</b>
71.	Know when an inspector is needed at the batch plant during batching operations. <b>Construction Contract Administration Manual.</b>

**Read the following statements. Find the answer at the Resource.**

72.

Knows what is required to be inspected at the batch plant during batching operations. **Construction Contract Administration Manual; Crossroads/e-forms/form 2174.**

## Module 14

### *Drainage Systems and Precast Items*

**Read the following statements. Find the answer at the Resource.**

1. Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to these Items. **Article 5.10.**
3. Understands the requirements of Item 6 for material acceptance. **Item 6.**
4. Can document all work performed using Departments forms and SiteManager templates. **District forms; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.**
5. Communicates with the contractor to ensure that specification requirements are met. **Article 5.5.**
6. Understands the acceptance criteria for corrugated metal pipe, reinforced concrete pipe, precast concrete boxes, precast manholes and inlets, precast headwalls and wingwalls, and precast safety end treatments. **Articles 460.2, 462.2, 464.2, 465.2, 466.2, and 467.2; Crossroads/Construction Division/Training & Development/Inspector Development Program/Material Inspection Guide; Crossroads/Construction Division/Training & Development/Inspector Development Program/Material Producer List.**
7. Verifies all steel products comply with the “Buy America” provisions. **Section 6.1.1; Crossroads/Construction Division/Emails and Memos/Compliance with “Buy America”; Crossroads/Construction Division/Training & Development/Inspector Development Program/Material Inspection Guide.**
8. Understands the acceptance requirements for Jointing Compounds. **Section 464.2.7; Crossroads/Construction Division/Training & Development/Inspector Development Program/Material Inspection Guide/Bituminous Specialties.**
9. Understands acceptance requirements for miscellaneous items. **Section 460.2.4; Article 465.2.**
10. Has basic knowledge of the common equipment used in these items for excavation, shaping, lifting, placing, jacking, boring, backfill, and compaction and can verify adequate equipment and proper use. **CON105; CON411.**

**Read the following statements. Find the answer at the Resource.**

11.	Can determine the required type and size of prefabricated unit to be used for each structure or drainage system. <b>Plans – Profile Sheets, Structure Summary Sheets, Detail Sheets, and General Notes.</b>
12.	Can verify the correct location, alignment and grade for each prefabricated unit used. <b>Plans – Profile Sheets.</b>
13.	Knows the required limits of excavation for each unit. <b>Sections 400.3.1.1, 400.3.1.4, and 476.3; Plans – Detail Sheets and General Notes.</b>
14.	Understands when Trench Protection or Temporary Special Shoring is required. <b>Section 400.3.1; Items 402 and 403.</b>
15.	Can identify unstable and incompressible material at footing grades and understands the procedures for removal and replacement. <b>Sections 400.3.1.4, 400.3.1.4.1, and 400.3.1.4.2.</b>
16.	Understands shaping and bedding requirements for precast boxes and for pipe installations. <b>Section 400.3.2.</b>
17.	Understands the correct procedures for laying corrugated metal pipe, placing precast boxes, laying reinforced concrete pipe, installing precast manholes and inlets, placing precast headwalls and wingwalls, placing precast safety end treatments, jacking pipe, boring pipe. <b>Sections 460.3.3, 462.3.2, 464.3.2, 466.3.3, and 467.3.3; Articles 465.3 and 476.3.</b>
18.	Understands proper alignment and minimum clear distance of jointed sections. <b>Sections 460.3.3, 462.3.2, and 464.3.2; Plans – Detail Sheets and General Notes.</b>
19.	Knows allowable line and grade variations for jacked and bored pipe and boxes. <b>Section 476.3.1.</b>
20.	Is familiar with allowable jointing techniques. <b>Sections 460.3.4 and 464.3.3.</b>
21.	Understands how to make connections for the different types of units. <b>Sections 460.3.4.3, 462.3.4, 464.3.4, 466.3.4, and 467.3.4; Plans – Detail Sheets.</b>
22.	Can recognize acceptable backfill material composition for each type of unit and as shown on the plans. <b>Section 400.3.3; Plans – Estimate &amp; Quantity Sheets and General Notes.</b>
23.	Is knowledgeable of correct backfill material lift heights for each type of unit. <b>Section 400.3.3.1.</b>
24.	Understands when backfilling may begin and knows to check during backfilling that there is no movement or damage to the units or joints. <b>Sections 460.3.2, 462.3.1, 464.3.1, 465.3.2, 466.3.2, and 467.3.2.</b>

**Read the following statements. Find the answer at the Resource.**

25.	Knows when, during backfilling, to check inside of Corrugated Metal Pipe for deformations. <b>Section 460.3.2.</b>
26.	Knows how much compacted fill is needed over the top of Corrugated Metal Pipe and Reinforced Concrete Pipe before heavy earth-moving equipment can move over the structure. <b>Sections 460.3.2 and 464.3.1.</b>
27.	Can identify the unit of measure. <b>Articles 400.4, 402.3, 403.4, 460.4, 462.4, 464.4, 465.4, 466.4, and 476.4.</b>
28.	Can determine what is included for each unit of measure. <b>Articles 400.4, 402.3, 403.4, 460.4, 462.4, 464.4, 465.4, 466.4, 467.4, and 476.4.</b>
29.	Can calculate quantities for every unit of measure. <b>Articles 400.4, 402.3, 403.4, 460.4, 462.4, 464.4, 465.4, 466.4, 467.4 and 476.4.</b>
30.	Knows which type of work is paid and is not paid under the particular item. <b>Articles 400.5, 402.4, 403.5, 460.5, 462.5, 464.5, 466.5, 466.5, 467.5, and 476.5.</b>

## Module 14

### Earthwork for Structures

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to these Items. <b>Article 5.10.</b>
3.	Understands the requirements of Item 6 for material acceptance. <b>Item 6.</b>
4.	Can document all work performed using Departments forms and SiteManager templates. <b>District forms, Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>
5.	Communicates with the contractor to ensure that specification requirements are met. <b>Article 5.5.</b>
6.	Has basic knowledge of materials used for backfill. <b>Articles 400.2, 132.2, 401.2, and 421.2.</b>
7.	Has basic knowledge of the common equipment used for excavation, trench protection, shaping, backfill and compaction and can verify adequate equipment and proper use. <b>Section 400.3.1; Items 402 and 403.</b>
8.	Understands the limits of general excavation and how to deal with obstructions. <b>Sections 400.3.1 and 400.3.1.1.1.</b>
9.	Knows how to recognize cuts that need trench protection. <b>Section 400.3.1.1.</b>
10.	Understands proper pavement restoration in street and highway cuts. <b>Section 400.3.1.1.2; Plans – General Notes and Estimate &amp; Quantity Sheets.</b>
11.	Understands the requirements and approved methods of properly de-watering during construction. <b>Section 400.3.1.1.4.</b>
12.	Understands excavation restrictions and proper procedures for bridge foundations and retaining walls. <b>Section 400.3.1.2.</b>
13.	Can ensure cofferdams have proper design approval. <b>Section 400.3.1.3.</b>
14.	Understands the use of seal concrete. <b>Section 400.3.1.3.</b>

**Read the following statements. Find the answer at the Resource.**

15.	Can ensure proper excavation for culverts and drains. <b>Section 400.3.1.4; Plans – Detail Sheets.</b>
16.	Understands proper bedding for precast culverts and drains. <b>Section 400.3.2.</b>
17.	Is able to determine the type of backfill material specified. <b>Section 400.3.3; Plans – Detail Sheets, General Notes, and Estimate &amp; Quantity Sheets.</b>
18.	Understands the requirements for general backfill. <b>Section 400.3.3.1.</b>
19.	Knows the strength requirement prior to placing backfill against bridge foundations, retaining walls and box culverts. <b>Section 400.3.3.2.</b>
20.	Understands proper backfill placement and compaction around culverts and behind walls. <b>Section 400.3.3.2.</b>
21.	Understands design and placement requirements of cement stabilized backfill. <b>Section 400.3.3.4; Plans – General Notes, Detail Sheets.</b>
22.	Verifies an approved flowable backfill construction method and plan, including the design, is in place and used. <b>Article 401.3.</b>
23.	Understands placement methods of flowable backfill. <b>Section 400.3.3.5; Article 401.3.</b>
24.	Can identify the unit of measure for each material. <b>Section 400.4.1.3; Article 401.4.</b>
25.	Recognizes when structural excavation is pay item and when measurement is required. <b>Article 400.4; Plans – General Notes, Estimate &amp; Quantity Sheet.</b>
26.	Can ensure proper boundaries of measurement are used. <b>Section 400.4.1.1.</b>
27.	Understands how to take proper consideration for swelling, cave-ins, undercut, and grade change. <b>Section 400.4.1.3.6.</b>
28.	Understands proper pricing calculations for structural excavation. <b>Article 400.5.</b>
29.	Can ensure proper payment for unsuitable and incompressible materials. <b>Section 400.5.2.</b>
30.	Can ensure proper payment for over-excavation. <b>Section 400.5.3.</b>
31.	Can ensure proper payment for cement stabilized backfill or flowable backfill. <b>Section 400.5.4; Article 401.5.</b>
32.	Can ensure proper payment for cutting and restoring pavement. <b>Section 400.5.5.</b>

## Module 14

### *Miscellaneous Concrete (Sidewalks, Driveways, Curb and Gutter, Etc.)*

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Has completed IDP Basic Reinforced Concrete Module. <b>IDP Module 13.</b>
3.	Knows the appropriate sampling and testing requirements for Miscellaneous Concrete. <b>Crossroads/Construction Division/Guide Schedule.</b>
4.	Knows the aggregate size requirement for extruded items. <b>Articles 529.2 and 531.2.</b>
5.	Knows the required radius of edging tool used for rounding exposed curb edges. <b>Plan Detail Sheets.</b>
6.	Is familiar with extruded and slipformed concrete equipment and can verify correct operation and defective equipment. <b>CON206.</b>
7.	Can determine and identify proper roadway alignments, beginnings and endings, and widths and depths of the planned units. <b>Plans – Typical Sections &amp; Profile Sheets.</b>
8.	Understands the required slopes, dimensions and TDLR requirements. <b>Articles 530.3 and 531.3; Plans – Standard Sheets.</b>
9.	Understands the surface preparation for sidewalks, curbs, medians and islands. <b>Articles 529.3, 531.3, and 536.3.</b>
10.	Knows how to place materials for intersections, driveways and turnouts. <b>Article 530.3.</b>
11.	Knows how to set and maintain a grade guideline for curbs. <b>Article 529.3; Plans – Profile Sheets.</b>
12.	Knows where joints are to be placed for sidewalks and curbs. <b>Articles 529.3, 531.3, and 536.3; Plans – Profile Sheets, Standard Sheets.</b>
13.	Knows what type of finish to provide on exposed concrete surfaces. <b>Articles 529.3, 530.3, 531.3, and 536.3.</b>
14.	Knows the tolerance for abrupt changes in sidewalk elevations, sidewalk cross slopes, curb ramp grades, and slopes of flares next to ramps. <b>Articles 530.3 and 531.3.</b>

**Read the following statements. Find the answer at the Resource.**

- |     |  |
|-----|--|
| 15. | Knows how to measure the grade or slope of sidewalks (cross slopes), curb ramps, and flares. <b>Article 531.3.</b> |
| 16. | Understands the concrete curing requirements. <b>Articles 529.3, 530.3, 531.3, and 536.3; Section 420.4.10.</b>    |
| 17. | Can identify the unit of measure. <b>Articles 529.4, 534.4, 531.4, and 536.4.</b>                                  |
| 18. | Knows all types of work that is paid under each bid item. <b>Articles 529.5, 530.5, 531.5, and 536.5.</b>          |

## Module 15

### *Mechanically Stabilized Earth (MSE) Retaining Walls*

**Read the following statements. Find the answer at the Resource.**

1. Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to these Items. **Article 5.10.**
3. Understands the requirements of Item 6 for material acceptance. **Item 6.**
4. Can document all work performed using Departments forms and SiteManager templates. **District forms, Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.**
5. Communicates with the contractor to ensure that specification requirements are met. **Article 5.5.**
6. Can identify and apply requirements for all types, grades and classes of materials referenced in this item. **Item 423, Plans – General Notes & Special Provisions.**
7. Has basic knowledge of DMS-6200 and what actions to take if the material is not listed on the Material Producer List. **Crossroads/Construction Division/Materials Specifications; Crossroads/Construction Division/Training & Support/Inspector Development Program/Material Producer List.**
8. Has basic knowledge of test methods Tex-106-E, Tex-110-E, Tex-114-E, Tex-115-E, Tex-128-E, Tex-129-E, Tex-411-A, and Tex-620-J and can apply the test results to the project. **Crossroads/Construction Division/Test Methods.**
9. Understands and can perform (if applicable) test methods Tex-407-A, Tex-414-A, Tex-415-A, Tex-416-A, Tex-418-A, Tex-422-A, and Tex-447-A, and can apply test results to the project. **Crossroads/Construction Division/Test Methods.**
10. Understands sampling and testing requirements referenced within this Item, as identified in the Guide Schedule. **Crossroads/Construction Division/Guide Schedule.**
11. Can determine the correct backfill type based on type of application. **Section 423.2.4; Plans – General Notes, Estimate & Quantity Sheets.**
12. Understands what designates Rock Backfill. **Section 423.2.4.2.**

**Read the following statements. Find the answer at the Resource.**

13.	Understands the requirements for Cement Stabilized Backfill. <b>Section 423.2.4.4.</b>
14.	Can determine when electrochemical testing is required and can apply test results to the project. <b>Section 423.2.4.5.</b>
15.	Understands the requirements for Earth Reinforcements. <b>Section 423.2.5.</b>
16.	Can determine if specific backfill stockpiling requirements are included in the project. <b>Plans – General Notes.</b>
17.	Understands the acceptance requirements for precast panels. <b>Plans – Standard Sheets; Shop Drawings; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
18.	Can read and understand Working Drawings and verify their approval. <b>Section 423.3.3.</b>
19.	Understand the requirements for temporary shoring if needed. <b>Article 403.3; Plans – Profile Sheets, Detail Sheets.</b>
20.	Can determine if ground improvement is required and completed prior to beginning wall construction. <b>Plans – Profile Sheets, Detail Sheets.</b>
21.	Understands foundation preparation requirements. <b>Section 423.3.4.</b>
22.	Can determine if a pipe underdrain is required on the plans and verify correct placement and construction. <b>Plans – Standard Sheet RW (MSE); Shop Drawings; Item 556.</b>
23.	Can verify the leveling pad is placed to the correct elevation. <b>Shop Drawings.</b>
24.	Understands shimming requirements for first row of precast panels. <b>Section 423.3.4.</b>
25.	Knows all locations where filter fabric is to be placed. <b>Section 423.3.4.</b>
26.	Understands bracing and placement requirements for the first row of precast panels. <b>Section 423.3.4.</b>
27.	Can ensure that proper panel placement tolerances are met and knows how to address out of tolerance panels. <b>Section 423.3.4.</b>
28.	Knows correct procedure for matching select backfill and embankment backfill. <b>Section 423.3.4.</b>
29.	Knows select backfill lift thickness and density requirements. <b>Sections 423.3.4 and 132.3.4.1.</b>
30.	Knows equipment restrictions within 3 feet of panels. <b>Section 423.3.4.</b>

**Read the following statements. Find the answer at the Resource.**

31.	Knows appropriate backfill height before earth reinforcements are attached. <b>Section 423.3.4.</b>
32.	Can verify that earth reinforcements are correctly attached to the precast panels, have not been damaged or distorted and are properly backfilled. <b>Shop Drawings; Section 423.3.4.</b>
33.	Knows how to deal with obstructions to earth reinforcements and coping. <b>Shop Drawings.</b>
34.	Understands bracing and wedge removal procedures. <b>Section 423.3.4.</b>
35.	Understands proper procedure for backfilling from 2 ft. below the paving structure upward when using rock backfill. <b>Section 423.3.4.</b>
36.	Understands the different placement requirements for precast and cast-in-place coping. <b>Plans – Standard Sheet RW (TRF); Shop Drawings.</b>
37.	Knows how to treat joints between coping. <b>Plans – Standard Sheet RW (TRF).</b>
38.	Measure walls properly. <b>Article 423.4.</b>
39.	Measures earthwork correctly. <b>Articles 132.4 and 423.4; Plans – RW (EM) Standard Sheet.</b>

## Module 15

### Soil Nail Retaining Walls

Read the following statements. Find the answer at the **Resource**.

1. Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. **Proposal – Special Provisions.**
2. Knows the authority of the inspector pertaining to these Items. **Article 5.10.**
3. Understands the requirements of Item 6 for material acceptance. **Item 6.**
4. Can document all work performed using Departments forms and SiteManager templates. **District forms; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.**
5. Communicates with the contractor to ensure that specification requirements are met. **Article 5.5.**
6. Understands the requirements for concrete grout. **Section 410.2.1.**
7. Knows reinforcing steel needs to be epoxy coated and can verify the correct bar size and length. **Section 410.2.3; Plans.**
8. Understands that rebar for test nail anchors and production anchors may have different size and grade requirements. **Plans – Detail Sheets.**
9. Can verify the correct nail centralizers are used. **Section 410.2.5.**
10. Can verify that the auger equipment meets the specification and knows how to handle worn equipment. **Article 410.3.**
11. Can verify that sufficient grouting equipment and testing equipment are provided. **Article 410.3.**
12. Can verify that working drawings have been submitted and approved if required. **Plans – Detail Sheets.**
13. Can verify that excavation and wall placement is at the correct location, grade and alignment as set up in the plans. **Plans – Profile Sheets and Detail Sheets.**
14. Knows the vertical excavation limits allowed during construction of the soil nail walls. **Plans – Detail Sheets.**

**Read the following statements. Find the answer at the Resource.**

15.	Knows that the Contractor must submit a soil nail wall construction plan at least 30 days before beginning construction, and the detailed project-specific information that it must contain. <b>Section 410.4.4.</b>
16.	Can verify that the nail holes are drilled in the correct location and to the correct diameter and length. <b>Section 410.4.2; Plans – Detail Sheets.</b>
17.	Can verify the correct nail hole alignment. <b>Section 410.4.2.</b>
18.	Can ensure the soil nail anchor is placed within tolerance in the center of the hole and has at least the minimum amount of centralizers. <b>Section 410.4.3.</b>
19.	Knows the correct procedure for grouting the holes. <b>Section 410.4.3.</b>
20.	Knows the time limit between drilling and grouting a nail hole. <b>Section 410.4.3.</b>
21.	Knows the procedure for handling unstable hole conditions. <b>Section 410.4.3.</b>
22.	Understands approved methods for ensuring complete filling of holes with grout. <b>Section 410.4.3.</b>
23.	Knows the required documentation for the grout process. <b>Section 410.4.3.</b>
24.	Knows when strength testing is required on the grout. <b>Section 410.2.1.</b>
25.	Knows the time limit from excavation to placement of soil nails, reinforcement and shotcrete. <b>Plans – Detail Sheets and General Notes.</b>
26.	Can verify correct placement of the prefabricated drainage mat. <b>Plans – Detail Sheets; Manufacturer’s Literature.</b>
27.	Can verify that reinforcing steel is correctly placed prior to shotcrete application. <b>Plans – Detail Sheets.</b>
28.	Verifies the correct thickness of the shotcrete application, anchor plates are embedded into the shotcrete and that nut’s are tightened prior to shotcrete hardening. <b>Plans – Detail Sheets.</b>
29.	Knows that the permanent wall facing must be installed within 45 days of soil nail completion. <b>Plans – Detail Sheets.</b>
30.	Understands and conveys to the contractor that test nails are installed and tested prior to beginning production nail installation. <b>Section 410.4.4.1; Plans – Detail Sheets and General Notes.</b>
31.	Can determine the number of test nail anchors required to be tested. <b>Plans – Detail Sheets and General Notes.</b>

**Read the following statements. Find the answer at the Resource.**

- |     |   |
|-----|---|
| 32. | Can verify the jack and gauge testing equipment meets calibration requirements and that calibration records have been provided. <b>Section 410.4.4.1.</b> |
| 33. | Understands the requirements for the reaction pad. <b>Section 410.4.4.1.</b>  |
| 34. | Can verify there is no foreign material present or interference during the testing. <b>Section 410.4.4.1.</b>   |
| 35. | Understands the testing procedures and how to deal with failing test results. <b>Section 410.4.4.1.</b>   |
| 36. | Knows the unit and limits of measurement. <b>Article 410.5.</b>   |

## Module 16

### Foundations (Pile Driving)

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to these Items. <b>Article 5.10.</b>
3.	Understands the requirements of Item 6 for material acceptance. <b>Item 6.</b>
4.	Can document all work performed using Departments forms and SiteManager templates. <b>District forms; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>
5.	Communicates with the contractor to ensure that specification requirements are met. <b>Article 5.5.</b>
6.	Ensures concrete or timber piling meets the specification requirements and is from an approved producer. <b>Articles 406.2 and 409.2; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Material Producer List.</b>
7.	Ensures steel piling meets the specification requirements. <b>Article 407.2.</b>
8.	Verifies proper storage and handling of the piling on the project. <b>Section 406.2.2; Articles 407.2 and 409.3; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 3.</b>
9.	Understands the procedures for using or rejecting damaged concrete piling. <b>Section 409.3.1.</b>
10.	Can ensure that proper cap block cushioning materials are used. <b>Section 404.2.1.</b>
11.	Can ensure appropriate pile driving equipment is used with the correct type of piling. <b>Article 404.2.</b>
12.	Can ensure minimum ram weight and hammer energy requirements are met. <b>Article 404.2, Table 1.</b>
13.	Determine when wave equation analysis can be used to allow alternate hammers. <b>Section 404.2.1.</b>
14.	Can ensure the proper air compressor is used. <b>Section 404.2.1.</b>

**Read the following statements. Find the answer at the Resource.**

15.	Understands proper power hammer operation. <b>Section 404.2.1; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 2.</b>
16.	Understands proper gravity hammer operation. <b>Section 404.2.1; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 2.</b>
17.	Understands proper protection for pile heads and the requirements for replacing cushioning material. <b>Section 404.2.2.</b>
18.	Understands the different terms used in describing placement of piling. <b>Article 404.3.</b>
19.	Can identify proper methods of reducing pile stresses during driving. <b>Article 404.3.</b>
20.	Is familiar with the correct methods and procedures for driving piles. <b>Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 5.</b>
21.	Can identify and apply tolerances for alignment and elevation. <b>Section 404.3.1; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 5.5.</b>
22.	Can ensure piles achieve correct penetration. <b>Section 404.3.1; Plans – Profile Sheets; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 4.</b>
23.	Understands the procedures for splices (build-ups) and cut-offs of piling. <b>Sections 406.4.1, 407.3.1, and 409.3.2.</b>
24.	Can ensure proper use of pilot holes and jetting. <b>Sections 404.3.3 and 404.3.4; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 5.</b>
25.	Understands how to evaluate and repair damage on prestressed concrete piling. <b>Section 409.3.1.</b>
26.	Understand proper test piling driving sequence. <b>Section 404.3; Plans – Profile Sheets.</b>
27.	Understand when and how to apply a K factor. <b>Section 404.3.7; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 4.</b>
28.	Can determine the correct method for calculating bearing resistance. <b>Sections 404.3.5–7; Plans – Profile Sheets and General Notes.</b>
29.	Understands how to calculate dynamic bearing resistance. <b>Section 404.3.5; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 6.</b>

**Read the following statements. Find the answer at the Resource.**

30.	Has basic knowledge of Test-Loaded Piling procedures. <b>Section 404.3.7; Item 405; Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 8.</b>
31.	Can properly complete a Pile Record in SiteManager for all operations. <b>Crossroads/Bridge Division/Field Operations/Geotechnical/Pile Driving Manual, Chapter 7; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>
32.	Understands measurement and payment units for Foundation Test Load piling. <b>Articles 405.5 and 405.6.</b>
33.	Understands measurement and payment units for timber piling including splices, build-ups, cut-offs, and reinforced tips. <b>Articles 406.5 and 405.6.</b>
34.	Understands measurement and payment units for steel piling including splices, build-ups, cut-offs, and reinforced tips. <b>Articles 407.4 and 407.5.</b>
35.	Understands measurement and payment units for concrete piling including build-ups and cut-offs. <b>Articles 409.4 and 409.5.</b>

## Module 16

### Foundations (Drilled Shafts)

Read the following statements. Find the answer at the **Resource**.

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Has completed IDP Module Basic Reinforced Concrete.
3.	Can identify the appropriate concrete class and coarse aggregate grade for the type of shaft being placed. <b>Article 416.2.</b>
4.	Knows concrete slump requirements for various construction methods. <b>Article 416.2.</b>
5.	Knows when concrete slump loss testing (Tex-430-A) is required and can apply the results to the project. <b>Article 416.2; Crossroads/Construction Division/Test Methods.</b>
6.	Can ensure slurry is sampled and tested properly. <b>Article 416.2; Crossroads/Construction Division/Test Methods/Tex-130-E.</b>
7.	Knows that the contractor is required to submit a Drilled Shaft installation plan one month before construction is to begin. <b>Article 416.3.</b>
8.	Knows the items that are required to be included in the Drilled Shaft installation plan. <b>Article 416.3.</b>
9.	Can ensure shafts are drilled to proper plumb, depth, and location. <b>Article 416.3.</b>
10.	Understands that embankment should be completed prior to placing abutment shafts. <b>Article 416.3.</b>
11.	Can ensure excavated material is disposed of properly. <b>Section 416.3.1.</b>
12.	Can ensure core holes are taken properly. <b>Section 416.3.2.</b>
13.	Can determine that the casing is the correct size, has sufficient strength and is placed properly. <b>Section 416.3.3; Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Chapter 5.</b>

**Read the following statements. Find the answer at the Resource.**

14. Knows when a casing may be left in place and other actions that may be taken when the casing cannot be removed. **Section 416.3.3; Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Chapter 5 (105.12).**
15. Knows the correct procedures for using slurry displacement in shafts. **Section 416.3.4; Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Chapter 5 (105.34). Note: Mixing of slurry in the shaft or other hole is no longer allowed by specification.**
16. Knows the time limit for beginning concrete placement. **Section 416.3.4.**
17. Can ensure the correct assembly, placement and support of the rebar. **Sections 416.3.5 and 440.3.5; Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Chapter 5 (105.5).**
18. Understands when free fall placement of concrete may be utilized. **Section 416.3.6.**
19. Understands process of casing extraction during concrete placement. **Section 416.3.6; Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Chapter 5 (105.6).**
20. Knows the proper procedures for underwater and slurry pours. **Section 416.3.7; Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Chapter 5 (105.612 and 105.613).**
21. Can ensure correct completion of concreting for underwater and slurry pours. **Section 416.3.7; Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Chapter 5 (105.612 and 105.613).**
22. Can properly complete a Drill Shaft Record in SiteManager for all operations. **Crossroads/Bridge Division/Field Operations/Geotechnical/Drilled Shaft Manual, Figure 4; Crossroads/Construction Division/SiteManager/Support/ Training Classes/CON500.**
23. Understands measurement and payment units for shafts and core holes. **Articles 416.4 and 416.5.**
24. Can identify limits of measurement for various shaft types. **Article 416.4.**
25. Understands how and when to apply unit price adjustments for overruns. **Section 416.5.1.1.**
26. Understands maximum plan length shaft provisions. **Section 416.5.1.2.**

## Module 16

### *Substructures (Culverts, Footings, Columns, Caps)*

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Has completed IDP Module Basic Reinforced Concrete
3.	Can read and understand formwork drawings. <b>Plans – Standards and Detail Sheets.</b>
4.	Knows the importance of balancing concrete placement in caps. <b>Sections 420.4.7.8 and 420.4.7.15.</b>
5.	Knows the maximum depth that a layer of concrete may be placed. <b>Section 420.4.7.8.</b>
6.	Understands the requirements for placing concrete under water. <b>Section 420.4.7.13.</b>
7.	Understands the requirements for mass concrete. <b>Section 420.4.7.14.</b>
8.	Knows the procedures for placing concrete in footings and substructures. <b>Section 420.4.7.15.</b>
9.	Knows the procedures for placing concrete in box culverts. <b>Section 420.4.7.16.</b>
10.	Understands the time limits for settling and shrinkage and how to apply them to the project. <b>Sections 420.4.7.15 and 420.4.7.16.</b>
11.	Knows which items are paid as plans quantities in place. <b>Article 420.5.</b>
12.	Knows how to find plan quantity information in the plans. <b>Plans – Estimate &amp; Quantity Sheets, Detail Sheets, and General Notes.</b>
13.	Can calculate and pay quantity for items measured in place. <b>Articles 420.5 and 420.6.</b>

## Module 17

### Superstructures (Decks, Setting and Grading Girders and Rails)

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for these items of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Has completed IDP Module Basic Reinforced Concrete
3.	Has viewed the 03/09/2010 Bridge Deck Presentation. <b>Viewing instructions are available at Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Bridge Deck Presentation – Webinar.</b>
4.	Encourages the Contractor to schedule and attend a pre-pour conference before placing concrete. <b>Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Bridge Slab Pre-pour.</b>
5.	Understands where to find the requirements for evaporation retarders. <b>Section 422.4.6; Crossroads/Construction Division/Material Specifications/DMS-4650.</b>
6.	Understands requirements for bedding strips and adhesive for precast concrete deck panels. <b>Section 422.2.5; Plans – Standard Sheets.</b>
7.	Understands requirements for fogging equipment. <b>Section 422.3.1.</b>
8.	Understands requirements for bridge screeds. <b>Section 422.3.4.</b>
9.	Understands requirements for saw cutting equipment. <b>Section 422.3.7.</b>
10.	Understands requirements for spraying equipment. <b>Section 422.3.8.</b>
11.	Knows how to determine proper location and orientation of bearing seats. <b>Plans – Profile Sheets.</b>
12.	Understands the tolerances for placement and finish of bearing seats. <b>Section 420.4.9.</b>
13.	Can read and understand beam layouts in the plans and in the shop drawings. <b>Plans – Profile Sheets, Shop Drawings.</b>
14.	Knows how to identify beams and bearing pads and their proper location/orientation. <b>Plans – Profile Sheets.</b>

**Read the following statements. Find the answer at the Resource.**

15.	Knows the erection bracing requirements for prestressed beams. <b>Plans – Standard Sheets.</b>
16.	Knows the allowable methods to adjust for prestressed beams that are too short or long. <b>Section 424.4.3.2.1.</b>
17.	Can read and understand formwork drawings. <b>Shop Drawings.</b>
18.	Knows the additional bracing required for slab placement. <b>Plans – Standard Sheets.</b>
19.	Knows the six inspection hold-points on a superstructure. <b>Section 422.4.1.10.</b>
20.	Knows requirements for decking on structural steel girders. <b>Section 422.4.2.</b>
21.	Knows how to verify/inspect overhang forms. <b>Section 422.4.2; Shop Drawings.</b>
22.	Can read and understand PCP layout information in the shop drawings. <b>Shop Drawings.</b>
23.	Can identify PCP panels and insure their proper location/orientation. <b>Plans – Detail Sheets; Shop Drawings.</b>
24.	Knows the rejection criteria for damaged deck panels. <b>Section 422.4.2.1.</b>
25.	Knows the critical dimensions to verify once panels are set. <b>Plans – Standard Sheets.</b>
26.	Knows how to verify screed rail grade settings in spot locations. <b>Section 422.4.6.13.</b>
27.	Knows how to check screed alignment at expansion joints. <b>Section 422.4.6.13.</b>
28.	Ensures expansion joint is set at the correct gap spacing and knows when to have expansion joint bolts removed and forms loosened. <b>Article 454.3; Section 422.4.6.6; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Armor Gap Calculation.</b>
29.	Knows how to check steel cover and slab thickness with and without deck panels (dry-run). <b>Section 422.4.6.13; OJT; Crossroads/Construction Division/Training &amp; Development/Inspector Development Program/Item 422 Bridge Deck Dry Run.</b>
30.	Understands beam deflection issues with and without deck panels. <b>Section 422.4.6.13.</b>
31.	Verifies the type of bridge rail used on the project and ensures the projection steel or anchor bolts are installed correctly. <b>Plans – E&amp;Q Sheets, Detail Sheets, Standard Sheets; Section 422.4.6.10.</b>
32.	Knows surface preparation requirements prior to concrete placement. <b>Section 422.4.6.5.</b>

**Read the following statements. Find the answer at the Resource.**

33.	Knows the requirements for concrete placement location and rate for transverse screeding. <b>Section 422.4.6.13.1.</b>
34.	Knows the requirements for longitudinal screeding. <b>Section 422.4.6.13.2.</b>
35.	Knows the requirements for Continuous Steel Units. <b>Section 422.4.6.13.3.</b>
36.	Knows proper technique for vibration during deck placement. <b>Section 420.4.7.9.</b>
37.	Knows how to perform cover and depth checks. <b>Crossroads/Construction Division/Guide Schedule; Section 440.3.5; Plans – Detail Sheets; Crossroads/Construction Division/Test Methods/Tex-423-A, Part 2.</b>
38.	Knows proper finish procedures and importance of keeping finishing operations close to screed. <b>Section 422.4.7.</b>
39.	Understands reasons for prohibiting addition of finish water to deck surface. <b>Section 422.4.7.</b>
40.	Knows how to inspect floating and straight-edging. <b>Section 422.4.7.</b>
41.	Knows finishing requirements for slabs. <b>Section 422.4.7.</b>
42.	Knows the timing of and how to inspect application of evaporation retarder. <b>Section 422.4.7.</b>
43.	Knows curing steps including timing of applications. <b>Section 422.4.8.</b>
44.	Knows required duration for wet mat curing. <b>Sections 422.4.8.1, 422.4.8.2, and 422.4.8.3.</b>
45.	Knows when overhang forms can be removed. <b>Section 422.4.9.</b>
46.	Knows when vehicles can cross bridge slabs. <b>Sections 422.4.8 and 422.4.9.</b>
47.	Knows the requirements if construction is allowed while curing is ongoing. <b>Section 422.4.8.</b>
48.	Understands grooving requirements. <b>Section 422.4.11.</b>
49.	Knows the requirements for metal railing. <b>Section 450.3.1.</b>
50.	Knows differences in reinforcing between rail types. <b>Plans – Detail Sheets.</b>
51.	Knows the requirements for concrete rail. <b>Section 450.3.2.</b>
52.	Knows rebar welding limitations for slip-forming concrete rail. <b>Plans – Standard Sheets.</b>
53.	Knows when bridge rails can be placed either conventionally or slip-formed. <b>Section 422.4.1.7.</b>

**Read the following statements. Find the answer at the Resource.**

54.	Knows how to inspect slip-forming operations. <b>Section 514.3.2.2.</b>
55.	Knows finish requirements for railing. <b>Article 427.4; Plans – Detail Sheets.</b>
56.	Knows the pay item to be used for decks flat slabs, slabs on box beams, railing. <b>Articles 422.5 and 450.4.</b>
57.	Know what is / is not paid in these items. <b>Articles 422.5, 422.6, 450.4, and 450.5.</b>

## Module 18

### *Structural Bolting and Double-Nut Anchor Bolts, Large Diameter Foundation Bolts*

**Read the following statements. Find the answer at the Resource.**

1.	Has read any applicable special provision for this item of work and understands what changes it makes to the specifications. <b>Proposal – Special Provisions.</b>
2.	Knows the authority of the inspector pertaining to this Item. <b>Article 5.10.</b>
3.	Understands the requirements of Item 6 for material acceptance. <b>Item 6.</b>
4.	Can document all work performed using Departments forms and SiteManager templates. <b>District forms; Crossroads/Construction Division/SiteManager/Support/Training Classes/CON500.</b>
5.	Communicates with the contractor to ensure that specification requirements are met. <b>Article 5.5.</b>
6.	Ensures the requirements of the “Buy America” program are met. <b>Crossroads/Construction Division/Emails and Memos/Compliance with “Buy America.”</b>
7.	Understands the requirements for using the same supplier and to establish R-C lots. <b>Section 447.2.1.</b>
8.	Has basic knowledge of field R-C tests and can apply the results to the project. <b>Crossroads/Construction Division/Test Methods/Tex-452-A.</b>
9.	Knows how to read a MCTR or DCTR. <b>Section 447.2.1.</b>
10.	Has basic knowledge of the applicable ASTM test methods including understanding bolt/nut identification marks to verify bolt types. <b>Section 447.2.2, Crossroads/Construction Division/ASTM/AASHTO.</b>
11.	Understands lubrication requirements for bolts and nuts and methods to provide additional lubrication. <b>Sections 447.2.2 and 447.2.4.</b>
12.	Understands bolt/nut storage issues. <b>Section 447.3.4.</b>
13.	Understands the requirements for fit-up bolts or erection pins. <b>Section 447.3.6.</b>
14.	Can use/operate a dial-gauge torque wrench and a Skidmore-Wilhelm device. <b>Section 447.3.1.1.</b>

**Read the following statements. Find the answer at the Resource.**

15.	Understands the requirements for air-driven impact wrenches. <b>Section 447.3.1.1.</b>
16.	Understands the requirements for hydraulic torque wrenches. <b>Section 447.4.5.3.2.</b>
17.	Understands the calibration procedure and frequencies for hydraulic torque wrenches. <b>Section 447.4.5.3.2.</b>
18.	Can determine from the plans/shop drawings the required bolt types. <b>Section 447.2.2; Plans – Detail Sheets; Shop Drawings.</b>
19.	Understands the purpose of and how to perform, an installation verification test. <b>Section 447.4.1.1.</b>
20.	Ensures the joint surfaces are properly cleaned and there is no compressible material under the grip of the bolt. <b>Section 447.4.3.</b>
21.	Can determine if shop-installed bolts are to be left in place or removed and replaced. <b>Section 447.4.3.</b>
22.	Knows where the washers should go. <b>Section 447.4.3.</b>
23.	Knows where to find the required bolt tension. <b>Section 447.4.3, Table 2.</b>
24.	Understands the surface condition criteria for faying surfaces. <b>Section 447.4.4.</b>
25.	Knows the purpose of erection or drift pins. <b>Section 447.4.5.1.</b>
26.	Knows the requirements for minimum number of erection pins/bolts to be installed prior to releasing erection cranes. <b>Section 441.3.11.4.2.</b>
27.	Knows the correct procedures for installing bolts. <b>Section 447.4.5.2.</b>
28.	Understands when a misaligned hole may be reamed and the tolerances allowed. <b>Sections 447.4.5.2 and 441.3.11.5.</b>
29.	Understands the meaning of snug tight and how to verify it. <b>Section 447.4.5.2.</b>
30.	Knows what to do about bolts loosened when adjacent bolts are tightened. <b>Section 447.4.5.2.</b>
31.	Knows the proper procedures for snugging plates. <b>Section 447.4.5.2.</b>
32.	Knows which bolts can be reused (and what reuse is defined as). <b>Section 447.4.5.4.</b>
33.	Knows where to find the required turns for various bolt lengths. <b>Section 447.4.5.4, Table 3.</b>

**Read the following statements. Find the answer at the Resource.**

34.	Knows how to perform turn-of-the- nut tensioning and how to inspect the paint marks. <b>Section 447.4.5.3.1.</b>
35.	Knows where to find the required turns for various bolt lengths. <b>Section 447.4.5.4, Table 3.</b>
36.	Knows how to inspect bolt tensioning using a hydraulic torque wrenches. <b>Section 447.4.5.3.2.</b>
37.	Knows how to determine proper lubrication. <b>Section 449.3.3.1.</b>
38.	Understands definitions for: double-nut system; electronically conducting lubricant; impact tightening; static tightening; snug-tight; turn-of-the-nut method. <b>Section 449.3.3.2.1.</b>
39.	Knows the procedure for installing and leveling the bottom nuts. <b>Section 449.3.3.2.2.</b>
40.	Knows the installation procedure for poles and plumbness requirements. <b>Section 449.3.3.2.2.</b>
41.	Knows how/when to snug-tight the bottom bolts. <b>Section 449.3.3.2.2, Bullet 9.</b>
42.	Knows how to inspect tightening of top nuts. <b>Section 449.3.3.2.2, Bullet 10.</b>
43.	Knows the meaning of 1/12 and 1/6 of a turn. <b>Section 449.3.3.2.2, Bullet 10.</b>
44.	Knows that bolts are not a pay item. <b>Articles 447.5 and 449.4.</b>