2013 STANDARD SPECIFICATIONS
FOR ROADS AND BRIDGES
BOOK CHANGES
NO MAJOR CHANGES

- Section 703 Underdrain Systems
- Section 705 Fences
- Section 708 Right-of-Way Monuments
- Section 709 Steel Cattle Guards
- Section 710 Flowable Fill
- Section 711 Riprap
- Section 715 Topsoil
- Section 716 Vegetative and Fiber Mulch
- Section 720 Erosion Control Systems
- Section 722 Field Laboratories
NO MAJOR CHANGES

- Section 723 Granular Material
- Section 725 Temporary Detour Roads and Bridges
- Section 726 Bedding Material
- Section 727 Mobilization
- Section 728 Jacked or Bored Pipe
- Section 731 Raised Pavement Markers
- Section 734 Rubblizing Portland Cement Concrete Pavement
NO MAJOR CHANGES

- Section 738 Mulch Sodding
- Section 739 Hydro-Seeding
- Section 740 Construction Layout

20 SECTIONS 1\2 PART 7

- Section 730 Electrical Systems
- _MOVED TO SECTION 822_
Mostly things moved around.

For concrete pipe, enclose not only the initial backfill with the fabric, but wrap the fabric over the top of the pipe with at least 12 inches (NOT 18) (300 mm) of overlap.

701.03 EXCAVATION may be major changes

701.08.2 Backfill Applications

MUST resolve LEGAL issues
702.04.4 FRAMES, GRATES, AND COVERS FOR MANHOLES, CATCH BASINS, AND JUNCTION BOXES.

Metal units shall comply with the following requirements:

1. Gray and ductile iron castings shall comply with 1013.06.1.
2. Steel castings shall comply with 1013.05.
3. Structural steel shall comply with 1013.01 and rivet steel shall comply with 1013.02.
4. Galvanizing shall comply with ASTM A 123.
SECTION 704
GUARDRAIL

704.03  GENERAL CONSTRUCTION REQUIREMENTS

704.03.1  Posts

Align posts and set plumb. When driving of posts is permitted, do not damage posts. Backfill post holes with acceptable material placed and compacted as directed. When posts are to be placed within existing surfaced areas, replace surface material in kind or with Class A (NOT M) concrete.
SECTION 706 CONCRETE WALKS, DRIVES AND INCIDENTAL PAVING

- 706.03.7 Detectable Warning Surface for Handicap Ramps and At-Grade Sidewalk Intersections
- When sidewalks intersect with roadways, install a detectable warning surface system consisting of raised truncated domes as a transition between the sidewalk ramp and the street complying with 2010 ADAAG. Install detectable warnings (truncated domes) on the ramp surface as shown in the plans.

Handicapped curb ramps, including the detectable surface warning system, will be measured per each.

Detectable surface warning systems for at-grade sidewalk intersections will not be measured for payment.

(NOT Handicapped curb ramps included in the construction of a concrete walk, including the detectable surface warning system, will not be measured for payment.)

ADD PAY ITEM

706-04 Handicapped Curb Ramps Each
Portland Cement Concrete
A, B, D \textit{(NOT Class M)}
712.02.7 Cabled Articulated Concrete Block Mattress

Cabled articulated concrete block mattresses shall consist of interlocking cellular concrete blocks connected with cables to bind the individual blocks into mattresses. The dimensions of the finished mattress shall be as shown on the plans, or as directed by the engineer. Size and arrange holes for cable penetrations to minimize exposure of cables to potential environmental degradation. Do not pass cables through open areas within the dimensions of individual blocks. Geotextile fabric as specified in 712.02.2, may be glued to the bottom of the mattress in lieu of placing the geotextile in the trench prior to placement.

712.02.7.1 Cellular Concrete Blocks: The cellular concrete blocks shall be interlocking, and capable of articulation when formed into mattresses. Furnish open or closed cell blocks, as shown on the plans. Ensure that concrete used to make the blocks meets the requirements of Section 901 and has a compressive strength of 4,000 psi (27.6 MPa) at 28 days. Use concrete aggregates meeting the requirements of 1003.08 and listed on QPL 2.

712.02.7.2 Cable: Use galvanized steel or continuous filament polyester fiber cable to connect the blocks to form a mattress. Ensure that the cable has adequate tensile strength to lift and handle the mattress safely. Permanent deformation of the cable and mattress due to elongation and elasticity of the cable during handling and placement shall be negligible.

712-05 Cabled Articulated Concrete Block Mattress Square Yard (Sq M)
713.08 PORTABLE WORK ZONE TRAFFIC CONTROL DEVICES

All Category I, II, and III portable work zone traffic control devices, as described below, shall be crashworthy as determined by evaluations through the National Cooperative Highway Research Program (NCHRP) 350 for Test Level 3 (TL-3) or the American Association of State Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH).
713.09.4 Traffic Control Diary

The Traffic Control Supervisor (TCS) shall maintain a project traffic control diary using the Department’s Site Manager Program. Keep the traffic control diary current on a daily basis, and electronically sign each daily entry. A date stamp is required on each diary. Approval of the daily diaries in accordance with the plans and specifications is subject to the LA R.S. 14:133 “Filing or Maintaining False Public Records”. Photographs and videotapes may be used to supplement the written text.

Make the traffic control diary available at all times for inspection by the engineer. Review the diary with the engineer on a weekly basis and submit a copy to the engineer on a monthly basis. Failure to complete the diary on a daily basis or make the diary available for review shall result in a deduction from payments for the work of $150.00 per calendar day, not as a penalty, but as stipulated damages for each day the diary is not maintained or is not available for review. Failure to submit the monthly copy of the diary to the engineer shall result in the withholding of the next partial payment until the past due diaries are submitted.
Submitted diaries that indicate that contemporary daily record keeping has not been maintained, as determined by the engineer, the Department’s Work Zone Engineer, or the Department’s Statewide Traffic Control Specialist, shall result in a deduction of $150.00 for each such deficiency as stipulated damages from payments for the work. The lack of a weekly review by the engineer shall not relieve the contractor from the assessment of stipulated damages for its failure to maintain a daily traffic control diary. The traffic control diary shall become the property of the Department at the completion of the project.
SECTION 713

713.09.6 Failure to Comply

The engineer, the Department’s Work Zone Engineer, or the Department’s Statewide Traffic Control Specialist may suspend all or part of the contractor’s operation(s) for failure to comply with the approved “Traffic Control Plan” or failure to correct unsafe traffic conditions within a reasonable period of time after such notification is given to the contractor in writing. If there are major traffic control deficiencies that require immediate corrective action for the safety of the travelling public, the engineer, the Department’s Work Zone Engineer, or the Department’s Statewide Traffic Control Specialist may completely suspend the contractor’s operations. This suspension can either be verbal or written, but shall be followed up in writing as soon as practical. The Department reserves the right to revoke or de-certify the TCS for gross neglect of these duties. The TCS at this point shall retake a Department approved TCS course and shall be subject to a 90 day probationary period at the discretion of the Department.
714.07 GENERAL CONSTRUCTION REQUIREMENTS

- Cut sod with approved sod cutters. Mow the designated area when necessary. Cut sod to a minimum soil depth of 1 1/2 inches (40 mm) for field grown grass and 1 inch (25 mm) for nursery grown grass. Cut to a uniform width and in convenient lengths for handling. Retain soil on roots of sod when excavating, hauling and planting. Obtain the services of an established soil testing entity to coordinate soil sampling, perform testing and analyses, and prepare recommendations for materials and procedures to be used during the preplanting phase of new turf establishment.

- When practical, perform soil testing early enough to permit agricultural lime or other additives (if required) to be applied sufficiently in advance of planting so that the soil pH adjustment will occur before planting. Test and analyze samples to determine pH and fertility conditions. Use the test results and recommendations to determine the quantities of agricultural lime and fertilizer required for preplanting applications. Furnish a copy of the test report with recommendations to the engineer. Testing will be at no direct pay. Consider probable time of application when making agricultural lime recommendations.
714.07  WATERING

Watering shall be the responsibility of the contractor unless otherwise noted. Keep all sodded areas thoroughly watered for a minimum of 60 (NOT 30) calendar days after installation. Water shall not contain elements toxic to the plant life. Water immediately after completing each day of sod installation. Water every day, preferably in the morning. After the first week, reduce watering to every other day, tapering off to just twice a week by the third week. Do not drive watering trucks over newly installed turf areas. All watering will be at no direct pay.

CHANGED APPLICATION TIMES
717.04.2 Field Area Debris

Remove debris and stones greater than 2-inches (NOT 3) (50 mm) in any dimension from the surface.

Table 717-1

Seeding

H⁵

Browntop Millet
Hulled Bermuda
Pensacola Bahia

DELETED Lespedeza (ATTRACTED DEER)
717.08 SEED ESTABLISHMENT PERIOD

The seed establishment period shall begin on the first day of seeding work under the contract and shall continue through the remaining life of the contract and end 3 months after the last day of the seeding operation.
<table>
<thead>
<tr>
<th>Type</th>
<th>Seed Mixtures(^1)</th>
<th>Pounds/Acre</th>
<th>Kilogram/Hectare</th>
<th>Soil Area(^2)</th>
<th>Planting Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Hulled Bermuda</td>
<td>30</td>
<td>34</td>
<td>1,2,3,4,5</td>
<td>Mar.-Sep.</td>
</tr>
<tr>
<td>B</td>
<td>Hulled Bermuda</td>
<td>20</td>
<td>22</td>
<td>1,2,3,5</td>
<td>Feb.-Mar.</td>
</tr>
<tr>
<td></td>
<td>Crimson Clover(^3)</td>
<td>25</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Kentucky Fescue</td>
<td>25</td>
<td>28</td>
<td>1,2,3,4,5</td>
<td>Sep.-Feb.</td>
</tr>
<tr>
<td></td>
<td>Unhulled Bermuda</td>
<td>20</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Unhulled Bermuda</td>
<td>20</td>
<td>22</td>
<td>1,2,3,4,5</td>
<td>Sep.-Feb.</td>
</tr>
<tr>
<td></td>
<td>Crimson Clover(^3)</td>
<td>40</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Pensacola Bahia(^4)</td>
<td>25</td>
<td>28</td>
<td>1,2,3,5</td>
<td>Mar.-Sep.</td>
</tr>
<tr>
<td>F</td>
<td>Ball Clover</td>
<td>25</td>
<td>28</td>
<td>1,2,3,4,5</td>
<td>Feb.-Mar.</td>
</tr>
<tr>
<td></td>
<td>Unhulled Bermuda</td>
<td>20</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Vetch (Common)</td>
<td>40</td>
<td>45</td>
<td>1,2,3,4,5</td>
<td>Sep.-Oct.</td>
</tr>
<tr>
<td></td>
<td>Unhulled Bermuda</td>
<td>20</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H(^5)</td>
<td>Browntop Millet</td>
<td>6</td>
<td>7</td>
<td>1,2,3,4,5</td>
<td>Mar.-Jul.</td>
</tr>
<tr>
<td></td>
<td>Hullled Bermuda</td>
<td>20</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pensacola Bahia</td>
<td>15</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Annual Rye</td>
<td>30</td>
<td>34</td>
<td>1,2,3,4,5</td>
<td>Sep.-Jan.(^6)</td>
</tr>
</tbody>
</table>
**TABLE 717-1**

1. Only Hulled Bermuda or Unhulled Bermuda shall be planted in rest areas.
2. See 717.03.
3. Inoculated prior to planting with proper bacterial culture.
4. Type E shall be used only upon the approval of the Roadside Development Specialist.
5. **This planting mixture is to be used in the Kisatchie National Forest areas only.**
6. Annual Rye grass shall not be planted before September 20. Annual Rye grass may be planted as late as January 15 if climatic conditions and soil temperatures will allow germination.
719.02 LANDSCAPE CONTRACTOR REQUIREMENTS

Conduct landscaping operations in accordance with Section 107, the requirements of the Louisiana Horticulture Law and Regulations, and this section. The landscape contractor shall have in his possession and maintain in good standing, a Landscape Horticulturalist license, a Landscape Irrigation Contractor license and a Category 6 Pesticide Applicators license obtained through the Louisiana Department of Agriculture and Forestry.
719.06.5 Setting Individual Plants Not in Beds

- **Dig the planting hole three** (NOT TWICE) **times the width of the root ball of the plant. Make the sides of the planting hole slope** (NOT STRAIGHT) **away from the center of the hole so the hole resembles a shallow bowl.**

- **The cost of staking is included in the cost of the individual plants not in a bed.**
Construct rumble strips in accordance with the details shown in the plans and as directed.

Before the construction of any rumble strips, demonstrate to the engineer that the equipment to be used can achieve a depression having well defined edges without snagging or tearing the finished pavement. Provide a relatively smooth cut and a smooth interior finish with no more than 1/16 inch (1.5 mm) between peaks and valleys. Provide a uniform and consistent alignment of each cut in relation to the roadway throughout the project. Before opening the adjacent lane to traffic, ensure that all debris generated by a grinding process is removed and disposed of daily by vacuum or a method approved by the engineer. Do not use the debris generated by a grinding process in recycled asphalt.
SECTION 724

- Restore any pavement to the satisfaction of the engineer at no additional cost to the Department, when rumble strips do not meet the requirements of the contract documents.

- 724.04 MEASUREMENT.
- The quantity of Rumble Strips (Centerline or Shoulder) to be paid for will be the plan quantity in miles (km), constructed and accepted. The plan quantity will be determined based on the roadway length. No deduction will be made for gaps.
- The quantity of Rumble Strips (Intersection) to be paid for will be the plan quantity per each set as shown on the plans constructed and accepted.
- Acceptance measurements will be performed by the Department on a random basis to ensure conformance.
724.05 PAYMENT.

Payment for Rumble Strips (Centerline) and Rumble Strips (Shoulder) will be made at the contract unit prices per mile (km). Payment for Rumble Strips (Intersection) will be made at the contract unit price per each set as shown on the plans. Payment will be full compensation for all labor, materials, equipment, tools and incidentals necessary to complete the work, including cleaning and preparing of surfaces, disposal of all debris, and protection of traffic.

Payment will be made under:

- **Item No.**  **Pay Item**  **Pay Unit**

- 724-01  **Rumble Strips (Centerline)**  Mile (km)
- 724-02  **Rumble Strips (Shoulder)**  Mile (km)
- 724-03  **Rumble Strips (Intersection)**  Each
729.03.2 Sign Mountings and Supports Fabrication

Furnish steel or aluminum for vertical sign supports and trusses.

729.04.3 Sheeting Application

(2) Demountable:

(d) Screening Process:

729.05.2.4 Milepost Assemblies

Place these assemblies at least 6 feet (2 meters) beyond the outer edge of roadway shoulder.
729.08.9 Clearing or Tree Trimming

Any clearing or tree trimming required by this section which is not provided for elsewhere in the contract will be included in the contract unit price for signs.

The trimming of significant trees that have been identified under the Departments policy governing the treatment of significant trees within the highway right-of-way, zone of construction or operational influence, shall be performed or supervised by an ISA Certified Arborist with a minimum of 5 years’ experience in arboriculture. All work must be done in compliance with current A.N.S.I. Z-133 and International Society of Arboriculture (ISA) standards. Documentation must be provided proving that the tree trimmer/climber has a minimum of three (3) years full time experience in tree removal and pruning operations along public roads and near energized wires. Arborist(s) shall maintain an arborist license and insurances during the course of the project in accordance with Subsections 107.02 and 719.02 of the standard specifications. The Department has the right to request a new crew be assigned to perform the work if needed. Significant tree issues arising on construction and/or maintenance projects shall be managed by the District Roadside Development Coordinators, who shall seek the guidance of the Landscape Architectural staff when questions arise.
PAYMENT

729.09.1 Sign Faces and Overlay Panels

New Installation: Payment for sign faces on new sign supports will be made at the contract unit price per square foot (sq m), which includes furnishing, fabricating and constructing the signs and furnishing necessary attaching devices.

Furnish and Install: Payment for sign faces on existing sign supports will be made at the contract unit price per square foot (sq m), which includes furnishing, fabricating and constructing the signs and furnishing necessary attaching devices.

Install: Payment for install only on existing sign supports will be for labor only. All sign faces and necessary mounting hardware will be provided by the Department. Payment will be made at the contract unit price per square foot (sq m).

Relocate: Payment will include dismantling of sign and reinstalling sign on a new sign support. Payment will be made at the contract unit price per square foot (sq m).
732.03.4.4 Preformed Plastic Markings (Tape) Remove existing markings to the pavement surface before applying the preformed plastic markings (tape).

Remove markings by methods that will not damage the pavement or bridge deck.

After the markings are removed, the debris and residue shall be picked up and disposed of by the contractor within 24 hours.
4 inches Thermoplastic Payment Adjustment for Minimum Initial Retroreflectivity

1 The payment requirements are based on the project total average of all test segments (on a route) for initial reading for white and yellow separately in accordance with Table 732-1. Both will need to meet 103% minimums in order to get 103% pay. Payment adjustments will be based on each identifiable route within the contract.

2 There cannot be any test segment meeting less than 100 percent pay within the route to qualify for the bonus payment. To obtain bonus pay, all segments on a route regardless of color or type shall meet these requirements.

This may be changed further
733.02 MATERIALS. Materials shall comply with the following Sections and Subsections.

- Cast-in-place and precast concrete shall be Class A *(NOT M OR P)*
Existing mailboxes shall be used unless the existing mailboxes are hazardous, damaged or cannot be used as determined by the engineer.
SECTION 736
TRAFFIC SIGNALS

736.02 MATERIALS
Materials shall comply with the following Sections and Subsections:
- Portland Cement Concrete, Class A
  \((\text{NOT M})\) per section 901

736.03 REGULATIONS AND CODE
- On discrepancies, Inter Mun Sig Assn (IMSA) overrides NEC. Added IMSA tech certification requirements.
736.04 GENERAL REQUIREMENTS

All traffic signal projects shall follow the Traffic Signal Special Details.

- Added reference to Traffic Signal Details.
- Added minimum clearances.
- Moved and expanded document submittal to 736.05
Provide drawings and equipment submittals to the State Traffic Signal Engineer at Traffic Services, 7686 Tom Drive, Baton Rouge, LA 70806 before beginning work.

736.05.1 REQUIRED DOCUMENTS

Electronically submit a .PDF formatted letter on company letterhead for equipment submittals and shop drawings. The state project number or permit number, project location, project limits, pay item description, pay item number, manufacturer’s name and model numbers of the proposed equipment should be on each sheet. Ensure that the proposed equipment meets all contract requirements.

Shop drawings shall be submitted for mast arm poles and assemblies, including combination mast arm.
Equipment submittal shall include material catalog cuts. If multiple items are shown on material cut sheet, the items submitted should be highlighted with corresponding pay item number.

Submittals for equipment and materials shall be complete. Partial or incomplete submittals will be returned without review.

Where certifications and/or warranties are specified, the information submitted for approval shall include certifications and warranties. Certifications involving inspections, and/or tests of material shall be complete with all test data, dates, and times.
After the engineer reviews the submittals for conformance with the design concept of the project, the engineer will stamp the drawings indicating their status as ‘Accepted’, ‘Accepted -As-Noted’, ‘Rejected’, or ‘Information Only’. Since the engineer's review is for conformance with the design concept only, it is the contractor's responsibility to coordinate the various items into a working system as specified. The contractor shall not be relieved from responsibility for errors or omissions in the shop, working, layout drawings, or other documents by the Department's accepted thereof. The contractor must still be in full compliance with contract and specification requirements.

All submitted items reviewed and marked ‘Rejected’ are to be resubmitted in their entirety, unless otherwise indicated within the submittal comments, with a disposition of previous comments to verify contract compliance at no cost to the Department.
The contractor shall adhere to 107.19.

The Contractor should provide a punch list of any equipment not working before beginning work to the engineer. Once the contractor has begun work on any portion of the signals on the project, those signals shall be the full responsibility of the contractor until final acceptance. Final repairs or replacement of damaged equipment must meet the approval of the engineer prior to or at the time of final inspection otherwise the traffic signal installation will not be accepted.

The contractor shall supply the engineer a 24-hour emergency contact name and telephone number.
The existing and/or temporary traffic signals shall remain in operation during all construction stages, except for the most essential down time as determined by the project engineer. Provide police supervision of traffic at any time the traffic signal system is not in operation at no cost to the Department.

Any inquiry, complaint or request by the Department shall be investigated and repairs begun within two hours of notification. Failure to respond satisfactorily will result in the Department making the necessary repairs. The contractor will be responsible for all Department costs + overhead for the repairs. The damages will be deducted from the cost of the Contract.
Contractor responsibilities and submittal requirements. New Operations and Maintenance, Field Revision plans, (O&M) manual requirements, burn-in requirements.

Call DOTD Traffic Operations Section at (225)935-0100 at least 7 days before beginning construction activities, signal turn on, and final inspection to schedule an inspector to be present.

The signal inspector will inspect projects throughout the construction period, keep a diary of interim punch lists, and provide copies to the Project Engineer and District Traffic Operations Engineer (DTOE).
It is the intent to have all electrical work completed and equipment field tested by the vendor prior to signal “turn-on”. If the Signal Inspector determines work is not complete and the remediation will require more than two (2) hours to complete, the turn-on may be canceled and the contractor will be required to reschedule at another date.
Provide the following to the Traffic Signal Inspector at traffic signal turn-on:

- One set of signal plans of record with field revisions marked in red ink.
- One (1) copy of the operation and service manuals for the signal controller and associated control equipment.
- Five (5) copies 11 inches x 17 inches (280 mm x 430 mm) of the cabinet wiring diagrams including field terminal connection diagrams.
- Operation and Maintenance Manual: Provide a .PDF formatted Operation and Maintenance (O&M) manual for the project. The manual shall be assembled indicating the operation and maintenance of each system, subsystem, piece of equipment not part of a system, or as directed by the State Traffic Signal Engineer.
736.07.2 BURN-IN

A sixty-day “burn-in” period is required after the signal turn on prior to final acceptance. A signal acceptance document shall be issued and provided to the project engineer by the State Traffic Signal Engineer at the completion of the “burn-in” period, barring any problems with signal function.
Added Class A requirement.
Added reference to Traffic Signal Details.
Allow shims for leveling.
Stub out spare conduit to nearest junction box.
Changed from 2-2” to 1-3” spare conduit.
Concrete shall be Class A in accordance with Section 901.
736.10 PEDESTAL POLES

- Install the pedestal poles plumb within 1 inch (25 mm) at the top. Remove pedestal poles not constructed within the 1 inch (25 mm) tolerance and reconstruct the foundation at no cost to the Department. **Shims will be allowed at the discretion of the engineer.** When an existing pedestal pole cannot be shimmed within tolerance through no fault of the contractor, the existing foundation shall be replaced in accordance with 109.04.
736.16 VEHICLE AND PEDESTRIAN SIGNAL HEADS

- Updated to incorporate backplates,
- LED signal modules.
- Took out incandescent retrofit language.
- Took out LED labeling requirement.
- Install signals vertically unless otherwise specified.
Follow the manufacturer’s installation instructions. Place the video detectors and video detection zones as shown on the plans. At the contractor’s expense, the equipment manufacturer shall provide factory direct technical support to supervise and provide onsite assistance for the installation and testing of the video detectors for signal turn-ons. The contractor shall provide compatible computer equipment to set up detection zones, if required, and shall repair any malfunction within 24 hours of notification by DOTD.

Placement of detection zones shall be by means of a graphical interface using the video image of the roadway. The monitor shall show images of the detection zones superimposed on the video image of traffic while the VDS processor is running.
Use the mouse or handheld programming device to draw detection zones on the monitor. The detection zones shall be capable of being sized, shaped and overlapped to provide optimal road coverage and detection. Save the detector configurations on disk to download detector configurations to the VDS processor unit and to retrieve the detector configuration that is currently running in the VDS processor unit.

Use the mouse or handheld programming device to edit previously defined detector configurations so as to fine-tune the detection zone placement size and shape. Once a detection configuration has been created, the system shall provide a graphic display of the new configuration on its monitor. While this fine-tuning is being done, continue operating the detection from the current detector configuration.
When a vehicle occupies a detection zone, the detection zone on the live video shall indicate the presence of the vehicle, thereby verifying proper operation of the detection system. With the absence of video, the card shall have an LED that will indicate proper operation of the detection zones.

Provide detection zones that are sensitive to the direction of vehicle travel. The direction to be detected by each detection zone shall be user programmable. Each detection zone shall be labeled with the corresponding movement and phasing information.

Program video cameras with IP addresses assigned by the Department.
Mount LED pedestrian signal and LED pedestrian countdown modules with the bottom of the signal housing, including brackets, not less than 7 feet (2.1 m) or more than 10 feet (3.1 m) above sidewalk level. Position and adjust each LED pedestrian countdown module to provide maximum visibility at the beginning of the controlled crosswalk.

Added LED countdown modules.. Added ADA requirement for location of push buttons.
736.20 ELECTRICAL

**Grounding jumper shall be solid wire.**

736.21 CONDUIT INSTALLATION

**Specify flexible conduit for underground.**

736.22 CONTROL EQUIPMENT

**Label all signal, pedestrian, loop and video detectors with a waterproof labeling tape showing approach, direction and phase assignment.**
736.23 JUNCTION BOXES

*Changed Maximum distance to 500 ft. for signal and 1000 ft. for interconnect.*

736.24 LED BLANK OUT SIGN

*New Section.*

736.25 CABINET/CONTROLLER TESTING

*Deleted insulation test and test documentation subsections.*
New section. Furnishing maintaining and removing temporary signal intersections. Including but not limited to controllers, temporary signal heads, interconnect, vehicle detectors, signing, and energy charges.
Repair trenching through asphalt pavement in accordance with Section 510 and through portland cement concrete pavement in accordance with Section 602 at no cost to the Department.

- **736.27.2** Jacking or Boring
  Added - The conduit will be paid under a separate pay item.
Guy wire, signal support cables, and traffic signal cables inside poles will be paid separately.

Included anchor bolts.

Separate Pay item for foundation.
*** Signal Support (Pedestal Foundation Only), Each
*** Signal Support (Strain pole/Mast Arm), Each
*** Temporary Traffic Signal Installation (Intersection), Each
*** Video Detection Cabinet Components, Each
*** Video Detection Camera, Each
*** Video Camera Cable, Linear Foot
??? Video Detection Training, Lump Sum
*** LED Pedestrian Countdown Signal Head, Each
*** Pedestrian Push Button, Each
*** LED Blank Out Sign, Each
*** Flashing Switch Assembly For Beacons, Each
*** Support Cable (Span), Linear Foot
** Guy Cable, Linear Foot
737.03 EQUIPMENT. Selection of proper equipment to produce satisfactory results within the following requirements shall be the responsibility of the contractor.

(a) Equipment shall permit traffic to pass safely within the limits of the roadway surface and shoulder while operating.

(b) Equipment shall be designed for placement of both solid and broken line stripes of the spacing shown on the plans with square, neat stripe ends.

(c) Equipment shall provide a method for cleaning the surface of dust immediately prior to placement of striping materials.

(d) Equipment shall provide a gravity bead dispenser for drop-on application of glass beads.

(e) The equipment shall provide accurate regulation of the application rate and shall have a tachometer or other approved device to ensure uniform paint application at the designated rate. The equipment shall be adjustable for applying one, two or three adjacent lines simultaneously at the specified spacing and be equipped with a device capable of following a control line. Operation of the unit shall be such that paint will not be spattered or blown on another stripe. The unit shall be designed to properly agitate the paint while in operation.

(f) The equipment may be equipped with a heat exchanger to heat the paint to reduce drying time.

(g) The operation shall include a trailing vehicle equipped with a flashing arrow board.
Clean surfaces to be striped of materials that may reduce adhesion of paint to pavement. *Remove all flaking or peeling material to the satisfaction of the engineer*. Keep surfaces clean and dry at the time of paint application.
Field test the pavement markings in accordance with 1015.12 and Table 737-1. Replace the portion of the material shown to be out of specifications as directed by the engineer.

Take initial readings within 30 days of application. Any late readings submitted after the 30 days will be considered initial readings. Take the initial retroreflectivity readings with a DOTD inspector present during testing. Upon completion of the testing the DOTD inspector will immediately take possession of a copy of the retroreflectivity readings in either a hard copy (8 ½ inch x 11 inch) or electronic format on a USB drive and as noted below. Additionally, provide documentation to the Department that the instrument has been calibrated in accordance with the manufacturer’s requirements, including the required annual factory calibration.
For each material type, take a different set of readings in accordance with Table 737-1. Provide the data to the Department electronically in Microsoft Excel® (xls) format downloaded from the reflectometer data. Each spreadsheet shall have a header that states all of the following:

- Project number;
- Date material installed;
- Type of material installed;
- Interstate: Specify the route and direction and show the beginning mile-point to ending mile-point, of material installed.
State Route: Specify the route and direction. Also specify X number mi. from intersection to X number mi. from intersection, of material installed. (Ex. Route US 61 South; 0.10 Mile South of Old Hammond Highway to 0.2 Mile South of I-12)

The format for the excel spreadsheet shall be (description, date, and reading). In the description cell the format shall be Route (i.e. LA, US, or I), Direction (i.e. N, S, E, or W), Mile Point and Color (W or Y).

Examples:
- LA 115; W; 23; Y.
- I-10; S; 4; W.