

# Turnpike Bituminous Engineer's General Items

(For distribution at Pre-Paving Conferences)

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## I. Specification Review (depends on the specification version included in the project):

### a. **Jan, 2010:** The following items are applicable for projects that include the January, 2010 Supplemental Specifications (differences from Jan, 2010 Book):

- i. Tack Rates have been updated in Section 300
- ii. Posted RAP Control Charts must now include Gmm in addition to the Gradation and Asphalt Content
- iii. WARM Mixes are acceptable for use. Air Temperature requirements may be reduced slightly when using WARM Mix. Acceptable WARM mix Technologies are listed on the State Materials Website.
- iv. Amount of Recycled Asphalt Pavement (RAP) was increased for PG 76-22 mixes (from 15% to 20%)
- v. Mix Revision restrictions now include a maximum change (5% Max) for each component of the blend
- vi. FC-5 Design range has been shifted on the 3/8" sieve (was 55 to 75; now 50 to 70)
- vii. New Between Lab Precision Values added for Roadway Cores
- viii. Contractor must cut IV Cores within 24 hours of placement
- ix. Spec now includes requirement that all evaluations (Delineation, EAR, etc.) must be from Good test to Good test
- x. Section 336 (Rubber Binder Spec) has been expanded
- xi. Only Four RA Binders (RA 550, RA 750, RA 1000, and RA 1500)
- xii. List does not include all changes

### b. **July, 2010:** If the version of the Specification is July 2010 or later then changes also include:

- i. Milling cross slope requirements have changed.
  1. A table with acceptable cross slopes has been added (Table 337-2)
  2. Milling sections with cross slopes exceeding cross slope requirements are required to be addressed according to 330-12.5 (330-3.2)
- ii. List of items required on the Truck Ticket has been clarified: must include Gross, tare, net tonnage per truck, and Daily total tonnage of mix for a particular mix design.
- iii. Thickness (Spread Rate) requirements have been changed.
  1. Failure to maintain spread rate within tolerance for two consecutive days may result in a cease production
  2. Pavement layers with Spread Rates outside given tolerance are required to be addressed according to section 330-12.5 (330-9.2.2)
- iv. Cross Slope requirements have been changed.
  1. New table defining acceptable cross slope tolerance (table 330-2)
  2. Pavements not meeting acceptable cross slope deviation from target are required to be addressed according to section 330-12.5 (330-12.3)
- v. Enter all PC Samples into LIMS (334-4)
- vi. New requirement to Measure the inside diameter of the gyratory molds (334-3.2.4)
- vii. Initial Production Requirement is removed. Lots can be 2,000 or 4,000 tons
  1. Exception: the first lot of a New Mix Design is required to be a 2,000 ton lot. (334-5.1.3)
- viii. Lots terminate after 30 calendar days from when the lot opened (334-5.1.3)
- ix. Partial Lots that did not reach a random number (no test) will be paid at a CPF = 1.00

- x. Section 338 has several changes.
  - xi. List does not include all changes
- c. **Jan, 2011:** If the version of the Specification is January 2011 or later then changes also include:
- i. A new table has been added to the Tack Coat specification giving new target spread rates according to the application (table 300-1)
  - ii. First structural layer over a milled surface no longer includes the requirement to use a vibratory or pneumatic roller
  - iii. Option 2 acceptance method has been removed from the asphalt specifications
  - iv. The Small Quantity and Percent within limits tables have been removed from the specification. They are not included in the Asphalt Plant Worksheet.
  - v. List does not include all changes
- d. **July, 2011:** If the version of the Specification is July, 2011 or later, then these changes include:
- i. Monitor pavement texture to minimize pavement segregation (330-2.2):
    - 1. Identify in the QC plan the methods that will be used to monitor segregation and the corrective actions that will be taken to resolve any identified problems.
  - ii. Sidewalks and bicycle/shared use paths have been added to the list of straightedge exceptions (330-12.4.5.2)
  - iii. Hydrated Lime and liquid anti-strip can both be used in a mix design (334-3.2.6)
  - iv. Bike/Shared Use paths, crossovers, and intersections with a continuous length less than 1,000 feet have been added to the list of exceptions for density testing for acceptance. The limits of the intersection are now identified in the specification. (334-5.1.2)
  - v. Producer must investigate, report causes, and propose actions for Gmm deviations of more than 0.040 from the mix design Gmm (334-5.4.4)
  - vi. List does not include all changes

## II. Contact Information for Email to Turnpike:

- a. For all asphalt related issues being communicated to the Turnpike Office (plant or roadway), please place the following email address in the cc for the email: [TPKASPHALT@dot.state.fl.us](mailto:TPKASPHALT@dot.state.fl.us)
- b. Please include the FIN (financial identification number), the lot and subplot number (if applicable) and the material location (if applicable) in the subject of the email.
- c. The asphalt team is collecting the plant tickets, the daily road reports, and the Asphalt Plant Worksheet exported file. In the VT's absence, please email the daily road report and the Asphalt Plant Worksheet exported file to the above email address.

## III. Plant Verification Technician Information:

- a. The plant Verification Technician is scheduled by the CEI using the Turnpike Materials Test Request Internet Page. Go to the Turnpike Materials Home Page and click the Test Request button: <http://www.flturnpikeoperations.com/Offices/Materials/tabid/125/Default.aspx>
- b. In the Test Request, include a very brief description of the location and work being performed (such as shoulder, mainline, straightedge correction, approx station, etc.)
- c. The CEI must submit a test request at least 24 hours prior to production of asphalt for all permanent asphalt production. Please submit tests requests at least weekly or more often if necessary. For Sunday Night or Monday Morning shifts, please submit during business hours on Friday.
- d. The Turnpike Asphalt Team will be collecting the truck tickets with ticket book covers from the plant (except Misc Asphalt because the VT is not always present for Misc Asphalt). The VT will also be collecting daily road reports and the exported file from the Asphalt Plant Worksheet.
- e. The Turnpike Asphalt Team will review the daily reports and notify the Contractor and CEI if any discrepancy is found.
- f. After all the reports appear acceptable, and all the data is entered into LIMS, the Turnpike Asphalt Team will have the LOT verified.
- g. Some projects may use the Florida Turnpike Enterprise Alternate Asphalt Plant Verification Technician Staffing Plan (Roving VT.) A separate handout will be distributed at the Pre Pave Meeting for these projects.
- h. The Turnpike Asphalt Team will email the CPF Worksheet to the CEI and follow up with a delivered LOT package. Although this package will be reviewed for obvious tonnage discrepancies, since the Materials Office is not present in the field, the Materials Office is unable to verify the location of placement, the correct pay item used, etc.

#### IV. Plans & Specification Concerns:

- a. Shoulders that are 5 feet or less in width:
  - i. 334-1.2 allows the contractor to use one traffic level higher than the level specified in the plans (does not allow the contractor to jump higher than one level)
  - ii. 334-2.2 only allows the use of polymer modified binders if specified in the plans
  - iii. Shoulders on the Turnpike are expected to be specified as TL-B mix without polymer modified binder. According to the specifications, the only two mixes that can be used are TL-B non polymer and TL-C non polymer.
  - iv. 334-1.4.3 (2) requires shoulders that are 5 feet or less in width to be pulled with the adjacent travel lane, unless specified otherwise in the contract documents.
  - v. A conflict arises when TL-D with PG 76-22 is used in the travel lanes and TL-B non polymer is used in the shoulder.
  - vi. Although a TL-D PG 76-22 mix cannot be used on normal shoulders (over 5 feet wide); for the shoulders that are 5 feet wide or less, the Turnpike agrees to allow the higher traffic level and polymer binder to satisfy section 334-1.4.3 (2) and the contractor should pull these shoulders with the adjacent lane.
- b. 8-inch FC-5 overlap: Address the process for rolling the break into the 8" FC-5 Overlap

#### V. Asphalt Related Specification Change Orders:

- a. The Turnpike Asphalt Team works under the specifications that are documented on the original plans, provisions, supplemental specifications and standard specifications
- b. When the Specifications are changed by change order, the Turnpike Asphalt team will not know the changes were made.
- c. Due to the fact that any changes to the specifications may change the manner in which the materials team will handle situations, it is very important that a copy of each change order related to the asphalt specifications be sent to the Turnpike Asphalt Manager ([TPKASPHALT@dot.state.fl.us](mailto:TPKASPHALT@dot.state.fl.us)) so that it can be used as a reference.
- d. Prior to receiving a copy of a signed change order, the Turnpike Asphalt Team will act according to the specifications documented on the original specifications package and plans ... word of mouth acknowledgment of a future or pending change order is not sufficient to change the Asphalt Team's method of handling situations.

VI. Disposition of Defective Material (DDM) Procedures:

- i. Please refer to the Turnpike Guide to Disposition of Defective Materials for information regarding the process (flow chart) for Defective Materials and assistance with the process.
  - ii. DDM information in this Pre Pave document include extra information specific to Asphalt.
  - iii. The Turnpike Asphalt Manager is the direct contact for the DDM Process.
    1. Please submit all DDM Forms to the Turnpike Asphalt Manager (if using email, send to [TPKASPHALT@dot.state.fl.us](mailto:TPKASPHALT@dot.state.fl.us)).
    2. There are points in the process that the DDM Package will be turned over to the Turnpike Bituminous Engineer for review; the Turnpike Asphalt Manager will continue to be the primary contact.
- a. Composite Pay Factor (CPF) below 0.90 & equal to or above 0.80:
- i. The DDM is required.
  - ii. No evaluation required if all the material properties for all QC & IV tests are inside the MPR.
  - iii. The CEI should fill out Section A & B of the DDM form and mark "Leave in Place, EAR not required"
  - iv. The CEI will retain the original DDM form on file and send a copy of the DDM form to the Turnpike Materials Office to be placed in the Materials Certification File.
  - v. The DDM Process is complete. The Turnpike Materials Office will not return anything and no further signatures or processing is required.
- b. CPF below 0.75:
- i. The DDM Form is required. The entire LOT is considered defective material.
  - ii. The specification requires that the material be removed and replaced; no evaluation allowed.
  - iii. The CEI should fill out Section A & B of the DDM form and mark "Remove and Replace Material."
  - iv. The CEI will verify that all the material is removed and replaced.
  - v. The CEI will retain the original DDM form on file and send a copy of the DDM form to the Turnpike Materials Office to be placed in the Materials Certification File.
  - vi. The DDM Process is complete. The Turnpike Materials Office will not return anything and no further signatures or processing is required.
- c. CPF below 0.80 and equal to or above 0.75:
- i. The DDM Form is required. The entire LOT is considered defective material.
  - ii. This is considered Defective Material and is handled according to the flow chart in the Turnpike Guide to Disposition of Defective Materials.
- d. Lost or Missing Sample:
- iii. The DDM Form is required. The extent of Defective Material is from available test to available test and includes the entire Lot if all Sublot samples are missing.
  - iv. A Pay Reduction is required (unless otherwise approved) and an EAR is required. Therefore, this is handled according to the flow chart in the Turnpike Guide to Disposition of Defective Materials
- e. Quality Control Sample or Independent Verification Sample with results outside the Master Production Range:
- i. The DDM Form is required. The extent of the Defective Material is from Good Test to Good Test. All evaluations must include all material between Good Tests.

## VII. Disposition of Defective Material – Additional Information:

- a. The Goal Turnaround time for the Turnpike Asphalt Team:
  - i. For Delineation & EAR Scope: 10 days turnaround
  - ii. For final DDM approval: 14 day turnaround
- b. Determining the limit of the material in question:
  - i. The limit of the defective material is from good test to good test. Passing QC Samples, Passing IV Samples, and Passing PC Samples that have been entered into LIMS as per spec can be used.
    1. Material in question may include material from multiple day's production
    2. Material in question may include material from multiple sub lots or from multiple lots.
  - ii. Removal, limits of an EAR, limits of a delineation scope, and the total material listed on the DDM should always include all the material in question.
  - iii. If all material in question, as defined above, is being removed:
    1. Then the CEI can mark the DDM as "remove and replace" and send a copy of the DDM to the Turnpike Asphalt Manager to be placed into the materials certification file.
    2. If it is determined that not all the questionable material was included, then additional evaluation may be required.
- c. Delineation Clarification:
  - i. Delineation Scopes must have all data including all daily plant (include core stations) and road reports for the questionable material (may span more than one LOT) and a testing plan.
  - ii. With a few exceptions, the locations for delineation samples should be located no more than 500 feet from each other (the closer the better).
  - iii. Delineation is allowed only for materials failures where all air voids are within the master production range. If the air voids fall outside the master production range, then an EAR must be performed.
  - iv. Delineation is the removal of any material that has characteristics outside of the master production range. The material must be removed from good sample to good sample.
  - v. Permeability is not a delimiter. If delineation is performed on a density failure, then all areas that have density outside the master production range must be removed. If permeability results are to be considered, an EAR must be performed.
- d. EAR Requirements:
  - i. EAR Scopes must meet the requirements of the FDOT guidelines for performing an EAR (must have all data including all daily reports for the questionable material (may span more than one LOT), stations for all density cores, analysis approach, and testing plan.)
  - ii. The Professional Engineer that will be signing and sealing the final EAR should create or review the EAR Scope prior to submitting the Scope to the CEI.
  - iii. The Final Signed and Sealed EAR must meet all the requirements of the FDOT guidelines for performing an EAR.
  - iv. The EAR is reviewed by the District Materials Engineer and the District Construction Engineer. The recommendation from the offices of the District Bituminous Engineer, District Materials Engineer, and the District Construction Engineer may be different than the recommendation presented in the EAR. Likewise, the final Disposition of the Defective material may be different than the recommendation presented in the EAR.
  - v. With a few exceptions, the locations for EAR samples should be located no more than 500 feet from each other (the closer the better).

- vi. EAR's are used when deficient air void material must be delineated for removal. EAR's can also be used to determine if material can remain in place (if failure did not involve air voids; if failure occurred in an area with little or no traffic; if failure is in an area that will be removed within a short time frame; or air void results may be questionable; etc.)
  - vii. Air Void Failures (especially below 2% and above 6%) almost always require some form of removal. EAR's, if approved, are performed to determine the limits of that removal.
  - viii. For air void failures, gradation and binder content at each location will be used to determine where the material characteristics are closest to the laboratory sample that failed air voids. In-place density can also be used in some cases to better indicate where the failed material is located. In place air voids or in place density is never used to justify leaving failed air void material in place.
  - ix. EAR's that deviate from these guidelines or the FDOT guidelines will almost always be rejected.
- e. FC-5 Considerations: The Turnpike Materials generally recommends the following for FC-5 mixes:
- i. If asphalt content is high and gradation is on target then commonly the mix is watched closely for bleeding.
  - ii. If asphalt content is on target and gradation is too coarse then commonly the mix is watched closely for bleeding.
  - iii. If the asphalt content is high and the gradation is coarse then the mix is expected to bleed within the first year and the mix may need to be removed.
  - iv. If asphalt content is low or if the gradation is fine or a combination of both then the mix may need to be removed. The recommendation may be made based on the test results.
  - v. Coring may be allowed for failures on gradation or high asphalt content.
  - vi. An additional option for an EAR Scope with FC-5 failures would be to perform a mix design using the failing gradation to determine if the gradation and asphalt content combination received in the field would be an acceptable FC-5 mix.
- f. Documentation for Remove and Replacement situations due to Defective Material:
- i. The Preparation and Documentation Manual (section 9.12.6) addresses the proper documentation procedures to follow when material is removed and replaced at no cost to the department. (This includes remove and replace for failed material or low pay factor material.) This section also includes examples.
  - ii. The defective asphalt is removed and replaced with asphalt in another LOT. In the remarks area of the new LOT, the Technician will document the defective LOT that is being replaced, defective material report date(s), and the tonnage of "acceptable asphalt" that is replacing the previously placed defective asphalt.
  - iii. The new asphalt will be tested according to the specification in the new LOT and new asphalt will be paid according to the new LOT CPF (the new material is NOT treated as waste at any time).
  - iv. The LOT Submittal Package for the defective material will need a note in the "Remarks" area showing the amount of asphalt with no pay due to removal. Also in those remarks, a reference will be added to indicate the new LOT that replaced the defective material.
  - v. There is no tonnage reduction in the LOT package. The reduction is handled only with a Payment Reduction. This payment reduction is calculated based on the tonnage replaced using the CPF adjusted unit rate based on the CPF of the original LOT. The original report tonnages are not to be corrected or adjusted. The original reports for the deficient LOT must show the tonnage placed on that day. Likewise, reports for the replacement LOT must reflect the tonnage actually placed on the day of the replacement. The tonnages on the project are not reduced.

## VIII. Straightedge and Laser Operations:

- a. The Turnpike Construction (QA) office must be notified using a SEPARATE Materials Test Request every time a straightedging operation is being conducted for acceptance (Minimum 24 hours prior to the start of the operation). When filling out the test request form, indicate “Notification of Straightedge Operation.”  
<http://www.flturnpikeoperations.com/Offices/Materials/tabid/125/Default.aspx>
- b. This is for all last lift of structural, all friction course in areas that do not call for laser profiler, and all straightedging that may be required following the laser profiler operation (such as specification requirement for areas of significant roughness or repair areas – if the QC straightedge operation is being used to satisfy the straightedge requirement for areas of significant roughness, then the QC operation is included).
- c. Unless waived by the Turnpike Construction Office, a technician from the Turnpike Construction office must be on site for all straightedging operations performed on Friction Surfaces for acceptance as an independent assurance function (the Turnpike office does not have to be on site for straightedging the last lift of structural). The Turnpike Construction office may have Turnpike Materials present in their absence.
- d. Laser Profiler Information:
  - i. The straightedge must be pulled through all final FC layers even if the laser profiler will be run in those areas. This is as a QC operation.
  - ii. Straightedge Deficiencies noted during the QC operations (prior to laser) must be addressed, regardless of the results of the laser profiler. For any of these deficiencies that are not left in place at no pay, the repair can be conducted before the laser profiler operation or can be made after the laser profiler operation.
  - iii. Laser Profiler is run on main line lanes only. The ramps, side streets, and all auxiliary lanes must be straightedged.
  - iv. Laser Profiler is run on the entire project at one time (NB and SB.)
  - v. The CEI must submit the request via Project Solve with at least two weeks notice.
  - vi. To make the request go to the materials home page and click on the link for the Asphalt Page and then click the link for the laser profiler request page. You must have access to project solve. The materials home page is located at:  
<http://www.flturnpikeoperations.com/Offices/Materials/tabid/125/Default.aspx>
  - vii. After the laser profiler is run on the project, there will be up to one week turnaround on the data analysis and reporting.
- e. **DEFICIENCIES** found during straightedge operations, placement operations, and field reviews:
  - i. **VERY IMPORTANT:** The contractor must record all deficiencies on the proper form(s).
    1. This includes straightedge, surface texture, cross slope, and spread rate deficiencies, as well as any other deficiencies that are required to be addressed according to section 330.
    2. Forms must be submitted to the CEI.
    3. All deficiencies must be identified on the road (with paint) to assist with further reviews and future repairs.

- ii. **VERY IMPORTANT:** Per specification, deficiencies left in place are the **Exception**. The contractor should only propose 'leave in place' if there is a belief that the deficiency is "not a significant detriment to the pavement quality."
    - 1. The contractor should perform proper CQC. Therefore, prior to proposing any locations to be left in place, the contractor must determine which locations should be removed and which locations the contractor feels could be left in place according to the exception.
    - 2. The Turnpike Construction Office and Turnpike Bituminous Engineer should not perform this CQC review. Therefore, if the contractor has not considered whether each deficiency is not a "significant detriment to the pavement quality" and has marked all as "leave in place," then none are exceptions and all deficiencies will be required to be removed and replaced.
  - iii. **VERY IMPORTANT:** Any request to leave friction course deficiencies in place at no pay must be reviewed by the Turnpike Construction Office and the Turnpike Bituminous Engineer (or delegate).
    - 1. The review will not occur until the Turnpike Construction Office and the Turnpike Bituminous Engineer have received the contractor's record of all deficiencies on the proper form(s) with the contractor's proposed disposition for each deficiency.
  - iv. **VERY IMPORTANT:** Any request to leave friction course deficiencies in place with partial or full pay must also receive the approval of the State Construction Engineer after the Turnpike Construction Office and the Turnpike Bituminous Engineer have reviewed the locations and have concurred.
    - 1. These requests **must include** an acceptable backup indicating why the deficiency is being proposed to be left in place at full or partial payment.
- f. TPK Construction Office and Bituminous Engineer's Standard Recommendations for Deficiencies:
- i. The CEI will receive recommendations via email from each office that they can consider before contacting the contractor. (Often TPK Construction and the TPK Bituminous Engineer will work together to develop the recommendation; in this case, there may only be one email.)
  - ii. The specification requires ALL deficiencies in the last lift of structural mix to be repaired.
    - 1. Structural straightedge deficiencies that are LOW require full depth removal.
    - 2. Structural straightedge deficiencies that are HIGH (not adjacent to a LOW) may be 'planed' or may be removed.
  - iii. Friction Course Deficiencies greater than or equal to 7/16 of an inch will most likely require replacement. Friction Course Deficiencies less than 7/16 of an inch will be reviewed individually.
  - iv. Areas of poor surface texture, raveling, crushed aggregate, pulled, torn, bleeding, and segregation will be required to be replaced.
  - v. Low spread rate deficiencies and areas with deficient cross slope will likely require repair
- g. **VERY IMPORTANT:** Documentation for Replacement (Turnpike Specific Procedure):
- i. If the deficiency is repaired by removal and replacement with asphalt, then remarks area of the new material should show that it is repairing a straightedge deficiency. The tonnage being used to repair the deficiency is NOT wasted from the lot; however, it should be listed as no pay.
  - ii. The new asphalt will be tested according to the specification in the new LOT. If tests occur in the mix or area being used to fix the straightedge deficiency, that test data will be used to calculate the CPF for that LOT even though the material is being placed with no pay; other material in that LOT may be paid for based on the CPF developed from tests that represent all the material in that LOT.
  - iii. There is no tonnage reduction in the LOT package. The reduction is handled only with a Payment Reduction. This payment reduction is calculated based on the tonnage placed. The original report tonnages are not to be corrected or adjusted. Likewise, reports for the replacement LOT must reflect the tonnage actually placed on the day of the replacement. The tonnages on the project are not reduced.

IX. Striping: Striping will be discussed in detail at the Pre Pave Meeting or at a Pre Friction meeting

X. MEMOS: The following is a list of some of the current DCE Memos related to asphalt production. A complete list of DCE Memos can be found at:

[http://www.dot.state.fl.us/construction/memos/current\\_memo/currentmemos.shtm](http://www.dot.state.fl.us/construction/memos/current_memo/currentmemos.shtm).

These memos must be incorporated into the project by SA in order for them to be used on the project.

- a. *DCE 08-07: Asphalt Plant Staffing Requirements*
  - i. This memo gives the approval for some projects to reduce the Asphalt Plant Verification Staffing
  - ii. The Turnpike is working on a plan and may implement a reduced VT program. In the absence of a written plan to reduce the VT presence, the VT is required to be on the job any time during production
- b. *DCE 08-08: Use of Palm Beach Aggregates for FC-5 mixes*
  - i. Requires a specification change
  - ii. Must have a credit applied if used
  - iii. Value Added Asphalt (section 338) must be included on the project
  - iv. The specification has been changed (beginning with January, 2009 Specifications) to allow the use of alternate aggregates as approved by the State Materials Office. If the project includes Specification version from January, 2009 or later, then the DCE memo 08-08 does not apply
- c. *DCE 10-08: Guidelines to change binder type in Friction Mixes from Rubber to Polymer*
  - i. Must have justifiable reason to change from Rubber to Polymer modified binder (if rubber was originally called for in the plans)
  - ii. Authorization Process includes:
    1. Contractor
    2. Project Administrator
    3. District Materials Office
    4. State Materials Office
    5. District Construction Office
    6. State Construction Office
  - iii. All offices must approve the request. If any single office does not approve, then the change cannot occur.
  - iv. If approved then a no-cost change order will be made.
- d. *DCE 08-09: Asphalt Recycle Agents:*
  - i. Reduces the number of Recycle Agents available for mixes to use. Now there are only four RA binders.
  - ii. A no cost change order should be implemented for projects with specification versions prior to January, 2010