

## FINAL ESTIMATE CHECKING PROCEDURES

### 1. Lump Sum Items

- A. Contracts including only one project number:
  - (i) Verify the Resident Engineer's, Assistant Resident Engineer's, or the responsible Inspector's certification of item completion in the pay record book.
  - (ii) Check amount shown on final estimate to be the same as contract bid price unless revised by Supplemental Agreement.
- B. Contracts with two or more work order numbers:
  - (i) Verify the Resident Engineer's, Assistant Resident Engineer's, or the responsible Inspector's certification of item completion in the pay record book.
  - (ii) Check amount shown on final estimate to be same as contract bid price unless revised by Supplemental Agreement.
- C. Check work order amounts to determine if percentage of total amount is correct in accordance with procedure for **Lump Sum Items** located elsewhere in this section of the Manual.

### 2. Supplemental Clearing and Grubbing

- A. Visual check to verify that measurements do not overlap.
- B. Visual check of dimensions from sketch to computation sheet.
- C. Check all computations and totals.

### 3. Excavation Items (Roadway)

- A. Quantities computed by plotted cross-sections:
  - (i) Visual check for reasonableness of plotting and stationing including equalities. Questionable shots or stationing checked against plans and/or pay record book. Verify that all interpolated tie-shots are entered in final cross-section book.
  - (ii) Every cross-section checked including plotting.
  - (iii) Visual check made of each area from cross-section sheet to computation sheet.
  - (iv) All computations and totals checked.
  - (v) Verify that the earthwork summary sheet total is added to quantities computed by other methods.
- B. Quantities computed by X, Y, Z Method:
  - (i) All computations and totals checked.
  - (ii) Verify that this total is added to quantities computed by other methods.
- C. Quantities computed electronically, such as computer, calculator, etc.:
  - (i) Printout checked visually for stationing, equalities, and reasonableness with plan data.
  - (ii) Check visual display of cross-sections for errors.
  - (iii) Verify that subtotals are computed and added to quantities computed by other methods.
- D. Quantities computed by truck volume:
  - (i) Check computations for each truck volume including shrinkage.
  - (ii) Visual verification of each entry to computed volume.
  - (iii) Verify each page totaled and the pay record book summarized.
  - (iv) Check all totals.
  - (v) Verify that the total is added to quantities computed by other methods.

### 4. Excavation Items (Structure)

- A. Determine that original and final levels have been recorded in the pay record book. Original computed levels from the theoretical roadway section must be recorded in the pay record book and so noted.
- B. Verify that cross-section sheets are included in the As-Constructed Plans and the readings from the pay record book accurately plotted thereon.
- C. Verify that the cross-sectional areas have been accurately computed.
- D. Verify that accurate volumetric computations of the above areas have been made in the structure pay record book or on computation sheets.
- E. Verify that a layout showing where the various cross-sections were taken has been furnished.

5. **Subdrain Excavation (Computed by length, width, and depth)**
  - A. Verify the length is in agreement with length of pipe, wyes, tees, and elbows. If it is not, verify the explanation in the pay record book.
  - B. Verify width for compliance with plan detail.
  - C. Check all computations and totals.
6. **Removal of Existing Pavement**
  - A. Verify basis of payment in the Specifications.
  - B. Verify pay record book(s) against plans.
  - C. Check all computations and totals.
  - D. Verify to see if the volume of the pavement has been deducted from any excavation items, where appropriate.
7. **ABC (Including subgrade stabilization and CTBC)**
  - A. By truck weight:
    - (i) **Completely** check all books.
    - (ii) Check each days total from books to daily summary sheet.
  - B. Unit price reduction:
    - (i) Verify calculation for price reduction.
    - (ii) Verify correct percent is entered in the Review Pay Adjustment Recommendation Details window.
    - (iii) Verify that the Pay Factor has been created and the payment is made at the proper reduced price.
8. **Proof Rolling**
  - A. Verify pay record book(s) entries against plans.
  - B. Check all time calculations including totals.
9. **Portland Cement (CTBC)**
  - A. Check contract for method of measurement.
  - B. Check all calculations from percent cement content.
10. **Asphalt Binder**
  - A. Verify all price adjustments have been applied to the proper line item based on the JMF of the Ticket Book.
11. **AST**
  - A. Verify plan width dimensions against those used in computations.
  - B. Check all computations including totals.
12. **PCCP, Concrete Rip Rap, Plain Rip Rap, Shoulder Gutter, Paved Ditch, Concrete Sidewalk, Concrete Driveway, Concrete Pavement, Concrete Islands (Monolithic)**
  - A. Verify dimensions shown in pay record book sketch to computations.
  - B. Check all computations and totals.
  - C. Concrete pavement
    - (i) - Verify that Field Inspection Reports have been entered.
    - (ii) Review the Recommend Pay Factor tab of the Field Inspection reports for any Lots that have a Recommended Pay factor of less than 100%, and verify that a Disposition has been selected.
    - (iii) For those Lots having a status of Does Not Meet Specs – Pay Adjustment, confirm that a PAR has been created and the Pay Factor applied.
13. **Minor Structures - Retaining Walls, Concrete Steps and Collars, Endwalls, Catch Basins, Junction Boxes, Drop Inlets, Manholes, Spring Boxes, and Dry Rubble Masonry**
  - A. Verify dimensions from pay record book sketch to computations or verify take-off of standard sheet quantity.
  - B. Check all computations including totals.
  - C. Verify pay record book(s) against As-Constructed Plans and determine if all pipe deductions for pipe entering box have been made.

- D. Verify minor drainage structures to ensure that pay limits established by the Specifications have not been exceeded for depth, etc.
- 14. **Pipe Culvert Items (All including flared end sections, tees, and elbows)**
  - A. Verify location and lengths of pipe from pay record book(s) to plan and profile notes.
  - B. Check all totals.
- 15. **Subdrain and Shoulder Drain Fine Aggregate**
  - A. Check in same manner as listed in **Subdrain Excavation** (see Item Number 5) with additional check made for deductions of pipe and fittings.
  - B. Verify depth to ensure pay limits established by the Specifications have not been exceeded.
  - C. Verify that all information has been placed on plan sheets or supplemental sheets in the As-Constructed Plans.
- 16. **Reinforcing Steel**
  - A. Verify weight listed in pay record book(s) against weights included in the plans.
  - B. Check all totals.
- 17. **Grates, Frames and Hoods, Frames and Covers, Grates and Frames**
  - A. Verify these items similar to **Minor Structures** (see Item Number 13).
  - B. Check all totals.
- 18. **Adjustment of Manholes, Catch Basins, Valve Boxes and Meter Boxes**
  - A. Verify pay record book(s) against plans for locations.
  - B. Check all totals.
  - C. Verify that Specification limits are not exceeded. If so, verify that this is paid as new construction.
- 19. **Combination Curb and Gutter, Concrete Noses (Monolithic), Steel Beam Guard Rail, Steel Beam Guard Rail - Shop Curved, Steel Beam Guard Rail - Doubled Faced, Steel Beam Guard Rail Terminal Sections, Steel Beam Guard Rail Nose Sections, Fence, Fence Post, Fence Reset, Additional Barbed Wire, Gates, Curb (Concrete or Bituminous), 8" C.S. Pipe and Elbows, Galvanized Metal Funnels**
  - A. Each of the above should be checked in approximately the same manner. Verify station location in pay record book(s) to the plans.
  - B. Verify extra length fence posts conversion in accordance with Specifications.
  - C. Check quantity totals.
- 20. **Right-of-Way Markers**
  - A. Verify each entry for each marker in the pay record book(s) to the plans, where the markers are numbered in numerical sequence.
  - B. Verify the total number of markers in the pay record book(s). This should check the highest numbered marker on the plan sheets less deleted markers.
- 21. **Seeding and Mulching**
  - A. Verify that measurements are recorded for all areas along the project.
  - B. Verify the locations of all borrow and waste areas to see if payment for erosion control is due.
  - C. Check all computations and total.
  - D. Verify appropriate Incentives have been applied per Contract requirements.
- 22. **Erosion Control Matting**
  - A. Check computations in the pay record book(s). Verify that the 4 inch (100 millimeter) overlap on double widths of fabric is deducted from the total double width of the fabric such that when two 4 feet (1.2 meters) widths are installed, the pay width is 7.7 feet (2.3 meters), not 8.0 feet (2.4 meters).
  - B. Check the computations and the total.
- 23. **Fertilizer Top Dressing**
  - A. Bulk Form:
    - (i) Check all computations and totals.
    - (ii) Verify this total against the invoices to see that invoice is equal to or greater than the amount applied for pay.

- B. Bag Form:
  - (i) Check all computations and totals.
  - (ii) Verify that the total number of bags multiplied by the weight per bag is equal to or greater than the amount applied for pay.
- 24. **Utility Items and Railroad Items**
  - A. Verify the Special Provisions for the method of payment for each item.
  - B. Verify the utility plans and railroad drawings against the pay record book(s).
  - C. Check the total for each item using the procedures of similar roadway items.
- 25. **Planting**
  - A. Verify pay record book(s) against plans.
  - B. Check all computations and totals.
- 26. **Presplitting Rock**
  - A. Verify the requirements in the Special Provisions for the pay area.
  - B. Check all computations, deductions made and totals.
- 27. **Type A, B, C, D, E, and F Signs**
  - A. Verify the signs from the plans against the pay record book(s) to ensure the inclusion of all proposed signs and any added signs.
  - B. Verify sign numbers from the pay record book(s) to the signing chart in the plans.
  - C. Verify the dimensions from the chart, the number of signs, and the sign area.
  - D. Check all computations and totals.
- 28. **Beam and Pipe Sign Supports**
  - A. From the signing charts, verify the number, size, type, kind, and weight of supports. Note that the sign number and number of signs required have been previously checked to this chart.
  - B. Check the weight total for each type and kind of support:
    - (i) Type = Simple or Break-Away.
    - (ii) Kind = WF, I, or Pipe.
- 29. **Class A Concrete Footings (Reinforced and Plain)**
  - A. Size of footings:
    - (i) By using the Kind of Support column on the foundation data table, verify the footing diameter, depth, and whether or not the footing is reinforced.
    - (ii) Verify the diameter and depth for channel post footings in the footing detail.
  - B. Check all computations and totals.
- 30. **Variable Length Channel Post**
  - A. Verify the number of channel post required from the charts for Types D, E, and F Signs.
  - B. Check all computations and totals.
- 31. **7' Channel Delineator Post and Delineators**
  - Check all computations and totals in the pay record book(s).
- 32. **Piles**
  - A. Verify that the following have accurately been shown:
    - (i) Length driven.
    - (ii) Length splice.
    - (iii) Length buildup.
    - (iv) Length cutoff.
    - (v) Pay length.
    - (vi) Pile driving data including bearing obtained, Inspector's initials and date driven.
  - B. Verify that the pay length of each pile has been shown on the As-Constructed Plans for each component of the structure.
- 33. **Stone Conditioning for Reinforced Concrete Box Culverts (RCBC)**
  - A. Verify that the same documentation is required as for roadway work.

- B. Verify that accurately computed tickets have been kept separate from pipe foundation conditioning or any other roadway work and clearly marked with station location.
  - C. Verify that the pay quantity has been entered in the summary.
  - D. Verify that an allowance has been made for waste or nonpay quantities, such as stone for weep holes, etc.
  - E. Check all calculations and totals.
34. **Waterproofing and Damp proofing**
- A. Verify that sketches and/or sufficiently detailed information has been provided.
  - B. Check all computations and totals.
35. **Supplemental Agreements**
- A. Review the terms of the Supplemental Agreement to become familiar with the method of measurement and basis of payment.
  - B. Check all computations and totals.
  - C. Check Supplemental Agreements granting time for pro rata extensions.
36. **Force Account Work**
- A. Verify wage rates used against those agreed upon prior to beginning the work.
  - B. Verify all equipment rental rates against Blue Book rental rates and/or prevailing rates for dates the work was performed.
  - C. Verify all percentage additives per the Specifications.
  - D. Check all computations and totals.
  - E. Verify that the Division Engineer and the Resident Engineer have signed all Force Account forms and summaries.