
Basis of Estimates Part 2 Pay Item Use

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Basis of Estimates

- Part 1: Introduction
- Part 2: Pay Item Use
- Part 3: Estimating and Review

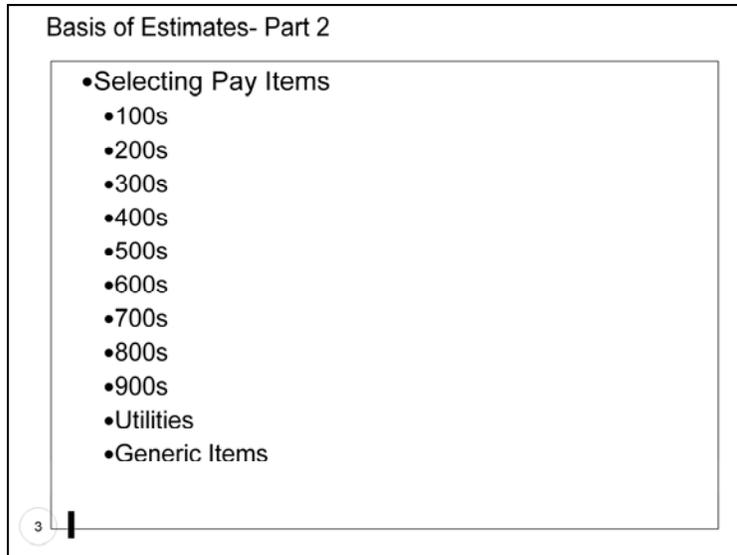


Welcome to the Basis of Estimates training. This presentation is designed in three parts:

Part 1 introduces users to the Basis of Estimates, including how to navigate the online manual.

Part 2 helps Designers select the appropriate item(s) for the work required.

Part 3 assists with reviews by FDOT and Consultants, highlighting recent changes, common errors, and related issues.



Each section will review BOE details about specific items, to assist with item selection:

- Spec highlights
- Standards
- References
- Additional guidance

This guidance highlights commonly used items.

For complete details, refer to the Basis of Estimates, Specifications, and/or other references for each item.

Basis of Estimates- Part 2

- Selecting Pay Items

- 100s

- 101 Mobilization
 - 102 Maintenance of Traffic
 - 103 Temporary Work Structures
 - 104 Erosion/Sediment Control
 - 109 Engineer's Field Office
 - 110 Clearing and Grubbing
 - 120 Excavation and Embankment
 - 121 Flowable Fill
 - 125 Excavation for Structures and Pipe
 - 141 Settlement Plate Assembly
 - 144 Geotechnical
 - 145 Geotechnical Fabrics
 - 160 Stabilizing
 - 161 Predesigned Subbase
 - 162 Prepared Soil Layer
 - 173 Pressure Grouting
 - 175 Cracking and Reseating Existing Concrete Pavement

4

The 100s deal with General Construction Operations, Clearing the Construction site, and Earthwork.

As you can see, from the section titles, they begin with set-up of the construction site...

...continues with basic ground preparation,...

and includes some related operations.

We'll now take a look at each section, along with selected pay items. Remember that the first 3 digits of a pay item correspond to the associated specification section number.

Basis of Estimates- Part 2

- Selecting Pay Items

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- 101 Mobilization**

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- 121 Flowable Fill
- 125 Excavation for Structures and Pipe

5

The Mobilization pay item is used on each project, loaded in the Roadway category. When no roadway plans are present, the item is loaded in the primary category, i.e. Signals category for a “signals only” project, or Landscape category for a “landscape only” project.

This Lump Sum item is intended to cover the contractor's expenses for “movement of personnel, equipment, supplies, and incidentals to the project site...”

Basis of Estimates- Part 2

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6

The Maintenance of Traffic items are only intended for use while the contract is under construction. Most MOT items (cones, barricades, signs, etc.) should be removed at the end of the construction period.

Designers should carefully consider the item, unit of measure, MOT phase, and contract duration when selecting and estimating MOT items.

If the contract duration is changed MOT quantities (per day) may need to be recalculated.

Basis of Estimates- Part 2

- Selecting Pay Items

- 100s

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7

Separate payment for Temporary Work Structures is only permitted when the structure is required to support construction equipment, or to comply with permits. (Falsework and scaffolding are not included.)

Think of this item as “building a work bridge before building *the* bridge”
Coordinate with the State Structures Design Office, prior to using this item.

Basis of Estimates- Part 2

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8

Erosion and Sediment Control specifications are transitioning from prescribed materials and methods to contractor selected operations. Refer to the latest specifications for guidance on the correct pay item(s).

Note that the Contractor will be required to install erosion control devices in accordance with the State of Florida Erosion and Sediment Control manual. It is located online at <http://www.dot.state.fl.us/Specificationsoffice/Implemented/urlinspecs/files/flerosionsedimentmanual.pdf>

Basis of Estimates- Part 2

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9

We'll now take a look at a few of the items within Section 104.

104-10-3 Sediment Barriers, LF: This item includes synthetic bales, staked silt fence, and other similar materials.

Use caution when updating old plans that calculated the number of synthetic bales. The linear feet of barriers will need to be recalculated, as necessary.

Keep in mind that 104-18 Inlet Protection, per each, may replace some of the bales or barriers.

104-11 Floating Turbidity Barrier, LF

104-12 Staked Turbidity Barrier, LF

Note that the staked turbidity barrier differs from the staked silt fence. While the silt fence is an open weave fabric, allowing water to flow through, the turbidity barrier is made of nylon reinforced PVC

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10

The field office is included on a project only when required by the Construction Office. Note that this is a field office, provided by the Contractor, but used by the FDOT Engineer and staff. Refer to the CPAM for additional guidelines.

The size of the office should be shown in the plans and pay item number. The specifications detail the office requirements, as well as calculation of days.

Basis of Estimates- Part 2

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11

Most projects will include the lump sum Clearing and Grubbing pay item. The secondary units, per acre, are used for estimating purposes.

Additional minor pavement removal, debris removal, and incidental work may be included under this item, according to the specifications.

While the limits and scope of work are shown in the plans, do not tabulate the number of acres in the plans.

Removal of Existing Structure, item 110-3-, is used when widening or replacing bridges. This is also a lump sum item, with secondary area units.

When working with multiple bridges, the quantity for each bridge is loaded separately.

Basis of Estimates- Part 2

- Selecting Pay Items

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12

Chapter 3 of the PPM addresses earthwork:

- when to use excavation and embankment items
- when to use each item
- how to calculate the volume (ground measure or truck measure)
- and when no additional payment is provided.

Note that payment for some items is based on the volume of the material added or removed, while other items use a truck measurement, with adjustments based on the fill material. Refer to the specifications for detailed calculations.

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Watch for bulletin update

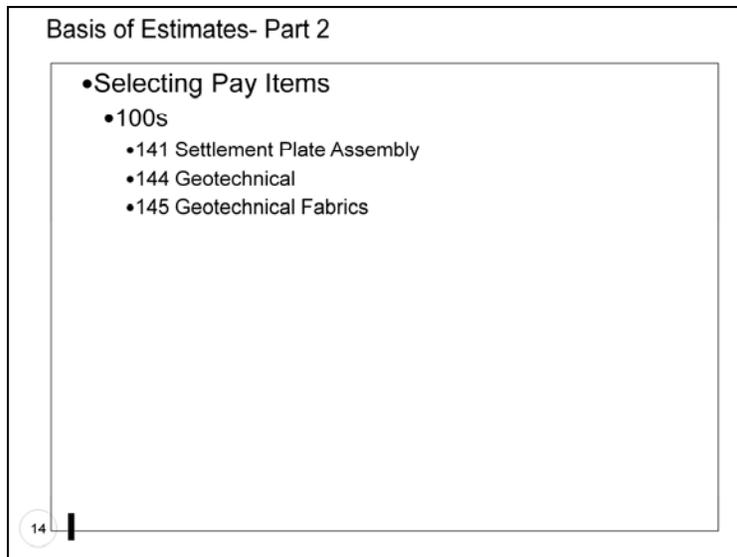
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Flowable fill is used for “beddings, encasements, closure for tanks, pipes, and general backfill for trenches.”

The material is placed using concrete construction equipment- chute, pumping, or other methods approved by the engineer.

For most items of work, flowable fill is incidental to other items of work: pipe bedding, backfill, and other encasements. ***Payment is under review; watch for a bulletin in the coming months.***

125: For many items of work, payment for excavation is included in the item being installed. No direct payment is provided; payment is included in the contract price for concrete or the applicable structure.



When unusual geotechnical situations are present, coordinate with the District or State Geotechnical Engineer. They will be able to assist with recommended design solutions, specifications, and pay items.

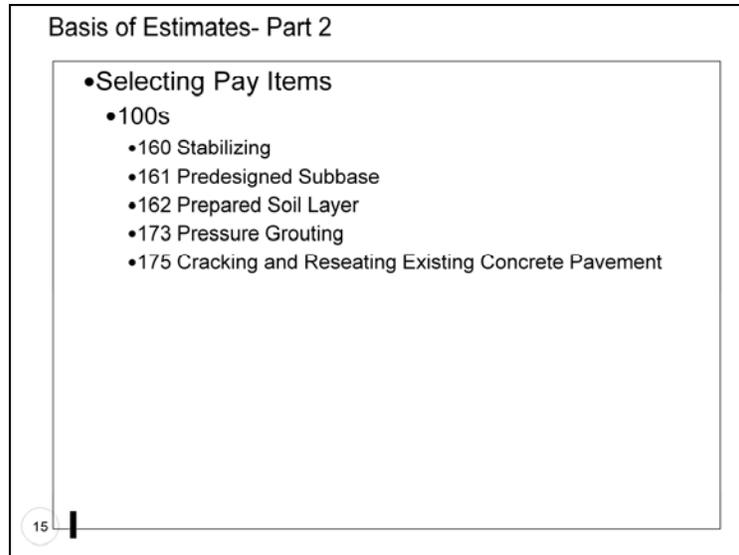
Selected items are described in the Structure Design Guidelines (SDG), as identified in the Instructions for Design Standards.

141: Settlement Plate Assembly is used when directed by the District or State Geotechnical Engineer. Complete technical specifications will be required, based on project conditions.

The 144 pay items and specifications should only be used with guidance from the District or State Geotechnical Engineer. Complete Technical Specifications will be necessary.

145: Selected geotechnical fabrics are shown on index 501. All other applications should be used as directed by the District or State Geotechnical Engineer.

Note: No separate payment is made for fabrics used to wrap pipes or line trenches, such as French drain. Refer to the applicable drainage specifications for these applications.



Looking at the last group of 100s...

Stabilization, subbase, and reseating existing concrete pavement are used in accordance with the pavement design manuals.

160: Type B Stabilization “serves as a working platform to permit the efficient construction of the base material” – per the Flexible Pavement Design Manual. Consult this manual for appropriate use of the pay item.

161: Predesigned Subbase is used only for shoulder and non-traffic areas.

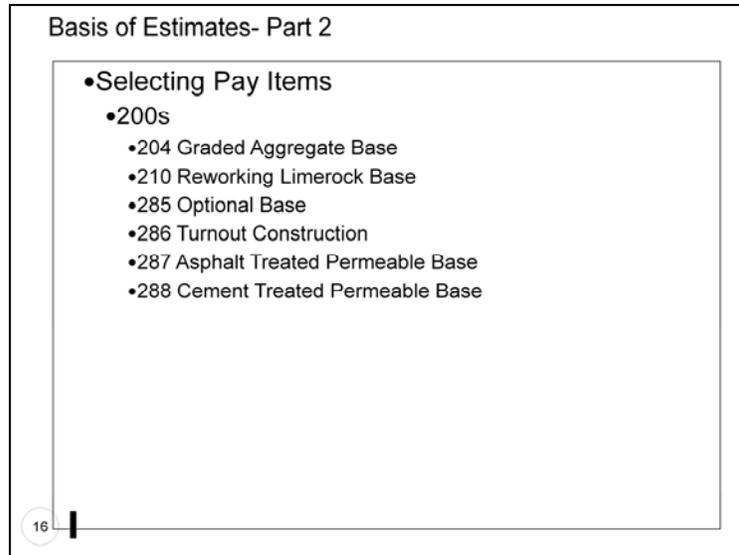
162: There are three commonly used applications for a prepared soil layer:

The finish soil layer is used for areas to be seeded, mulched, and/or planted: i.e. grass or sod. An organic soil layer or blanket material is used only when required by a permit.

These items are generally NOT used for Landscape Operations; landscape bed preparation is included in the lump sum payment for installing plants. Detail all soil requirements in the landscape plans and/or specifications.

173: Pressure grouting is to be used for subsurface applications only. Due to the technical nature of this work, coordinate the use of this item with the State Geotechnical Engineer in the Structures Design Office.

175: The use of the 175 pay items should be coordinated with the District or State Pavement Design Engineer. In the past, these items were used to reseat concrete pavement before placing asphalt surface. A review of the subsurface conditions may be recommended before selecting this item of work.



The 200s deal with Base Courses.

Most base course designs use Optional Base. When needed, reworked limerock, asphalt treated permeable base, or Cement treated permeable base may be used. Refer to the specifications and/or Pavement Design Handbook for additional information.

While **Section 204** exists in the specifications, payment for work under this section is included under Optional Base.

210: Reworking limerock base is included only when directed by the District Construction or Pavement Design Engineer.

Note that two pay items work together: the first is for the work/labor described by the specifications; the second pay item is for the new material provided by the contractor.

285: Optional Base is a plan quantity item, paid per square yard.

Note that the thickness required varies with the base material selected by the Contractor. The required thickness is shown on Index 514 of the Design Standards.

Base options may be limited by the designer, according to guidance in the Plans Preparation Manual. The allowable options are shown in the plans.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 200s
 - 204 Graded Aggregate Base
 - 210 Reworking Limerock Base
 - 285 Optional Base
 - 286 Turnout Construction
 - 287 Asphalt Treated Permeable Base
 - 288 Cement Treated Permeable Base

17

286: The Turnout construction items are for constructing the base portion of the turnout area on widening or resurfacing projects, as shown on index 516.

The asphalt pavement and friction course are paid separately.

287 & 288: Asphalt and Cement Treated Permeable Base are constructed in accordance with Index 287. Note that payment for new construction may be different for rehabilitation work. Additional subdrainage items may be necessary, based on project conditions.

Basis of Estimates- Part 2

- Selecting Pay Items

- 300s

- 315 Stress Absorbing Membrane

- 327 Milling

- 334 Superpave Asphalt Concrete

- 337 Friction Course

- 339 Miscellaneous Asphalt Pavement

- 341 Asphalt Rubber Membrane Interlayer

- 346, 347 Concrete Requirements

- 350 Cement Concrete Pavement

- 352 Grinding Concrete Pavement

- 353 Concrete Pavement Slab Replacement

- 370 Bridge Approach Expansion Joints (for concrete pavement)

18

The first part of the 300s deal with Bituminous Treatment Surface Courses (Asphalt).

The specifications include several sections with no pay items; these sections include material and construction requirements. Payment for these items is included in the asphalt material quantities.

The remaining sections within the 300s are for concrete pavement and approach slabs.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 300s
 - 315 Stress Absorbing Membrane
 - 327 Milling
 - 334 Superpave Asphalt Concrete
 - 337 Friction Course
 - 339 Miscellaneous Asphalt Pavement
 - 341 Asphalt Rubber Membrane Interlayer

19

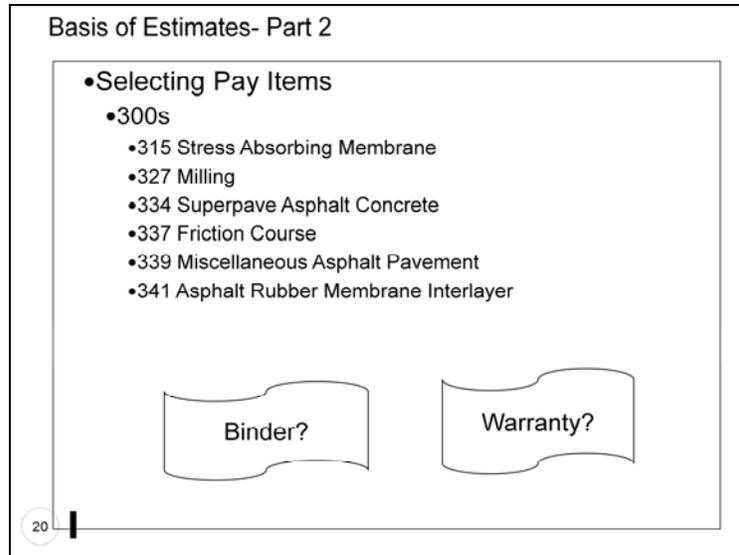
Looking at the individual sections within the 300s:

Section 315 is infrequently used; designers should contact the State Pavement Design Office when considering this item.

327: Milling is frequently used to remove existing asphalt pavement. Milling can also be used to improve rideability and cross slope of the finished pavement. The amount of material milled- the depth, must be shown in the plans.

The contractor takes ownership of the milled material, and may transport it to the asphalt plant for future recycling.

*Estimators & Reviewers note: If you are searching history for milling pay items, watch the descriptions carefully, as the depths are not in order by thickness. Milling depths were added as needed, over several years, using the next available pay item.



334: Superpave is the primary material used for most asphalt roadways.

The superpave pay items are selected based on the traffic level. These levels vary from A (low traffic level- quiet rural roads) to E (high traffic level- busy interstate). Levels C and D are used most frequently.

While the quantity measurement of the superpave is made per ton, a pay adjustment will be applied, based on the quality of the asphalt. Details for measurement and payment are included in the specification.

337: The friction course items are measured and paid similar to the superpave. Quantity measurement is made per ton and a pay adjustment will be applied, based on the quality of the friction courses.

Two items of note for Asphalt:

First: **several binder options** are available for both the Superpave and Friction Course options. Selection of the binder should be in accordance with the flexible pavement manual, or as directed by the District Pavement Design Office.

Second: **“Warranty” options** are available for some asphalt/ resurfacing contracts. These options balance material and performance requirements over extended periods of time. Refer to the various types of innovative contracts for additional details. These options should only be included when directed by the District Design or Construction Office.

Basis of Estimates- Part 2

- Selecting Pay Items

- 300s

- 315 Stress Absorbing Membrane
- 327 Milling
- 334 Superpave Asphalt Concrete
- 337 Friction Course
- 339 Miscellaneous Asphalt Pavement
- 341 Asphalt Rubber Membrane Interlayer

21

339: Miscellaneous Asphalt is used “where vehicular traffic does not travel, such as under guardrail, bicycle paths, median pavement, sidewalks, etc.”

Estimated quantities, per the specification, are based on 100 lbs/square yard, per inch of thickness.

341: According to the Flexible Pavement Design Manual, an asphalt rubber membrane interlayer, ARMI, “should normally be used over cracked and resealed concrete pavement. An ARMI may also be useful as a moisture barrier if subgrade moisture is entering the pavement system through capillary action and causing a rippling of the asphalt surface.”

Basis of Estimates- Part 2

- Selecting Pay Items
 - 300s
 - 346, 347 Concrete Requirements
 - 350 Cement Concrete Pavement
 - 352 Grinding Concrete Pavement
 - 353 Concrete Pavement Slab Replacement
 - 370 Bridge Approach Expansion Joints (for concrete pavement)

22

Sections 346 and 347 detail the concrete requirements for various classes of structural and non-structural concrete. **No direct payment is made under these sections.** The concrete material is paid according to the application: bridge structures, sidewalk, inlets, etc.

Section 350 is for cement concrete pavement only. The pay items associated with this section should not be used for concrete structures, approach slabs, or other miscellaneous work.

*Reviewer note: Watch the pay item description for pavement thickness. These items were not opened in order, by thickness.

Section 352 is applicable only for grinding concrete pavement. It is not applicable for bridge decks or approach slabs.

Grinding is now required for all new concrete pavement, in addition to specified existing concrete pavement. Payment will be made for all areas to be ground.

*Reviewer / Construction note: Watch the specifications- older projects included grinding in the cost of new pavement.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 300s
 - 346, 347 Concrete Requirements
 - 350 Cement Concrete Pavement
 - 352 Grinding Concrete Pavement
 - 353 Concrete Pavement Slab Replacement
 - 370 Bridge Approach Expansion Joints (for concrete pavement)



23

Section 353 is used to replace complete slabs of concrete pavement. Joint construction is included in the payment for the slab.

These items are not applicable for non-pavement areas such as bus pads, approach slabs, etc.

Section 370 is applicable only where concrete pavement meets a bridge approach slab.

For expansion joints on a bridge, refer to the applicable items in Section 458.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 400s
 - 400 Concrete Structures
 - 407 Three Sided Precast Culvert
 - 410 Precast Concrete Box Culvert
 - 411-413 Cracks in Structures
 - 415 Reinforcing Steel
 - 416 Anchors and Dowels
 - 425 Inlets, Manholes, and Junction Boxes
 - 430 Pipe Culvers and Storm Sewers
 - 431 Pipe Liner
 - 435 Plate Pipe & Arch Culverts
 - 436 Trench Drains
 - 440 Underdrains
 - 443 French Drains
 - 444 Deep Drainage Wells
 - 449 Precast Concrete Drainage Products

24 |

There are a number of sections associated with the Structures group.

The sections address concrete placement, reinforcement, ...

drainage structures, ...

Basis of Estimates- Part 2

- Selecting Pay Items

- 400s

- 450 Precast Prestressed Concrete Construction

- 451 Prestressed Soil Anchors

- 452 Precast Segmental Bridge Construction

- 453 Epoxy Joints- Precast Segment

- 455 Structures Foundations

- 457 Integral Pile Jackets

- 458 Bridge Deck Joints

- 459 Bitumen Coating and Polyethylene Sheeting on Concrete Piles

- 460 Structural Steel & Misc Metals

- 461 Multirotational Bearings

- 462 Post-Tensioning

- 465 Movable Bridge

- 470 Timber Structures

- 471 Fender System

25

precast and prestressed construction, ...

Foundations...

movable bridges, and additional structural work.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 400s
 - 400 Concrete Structures**
 - 407 Three Sided Precast Culvert
 - 410 Precast Concrete Box Culvert
 - 411-413 Cracks in Structures
 - 415 Reinforcing Steel
 - 416 Anchors and Dowels

26

Looking at the individual sections...

Section 400 addresses the construction of concrete structures.

Culverts, endwalls, superstructures, substructures, and approach slabs are paid per cubic yard of concrete, according to the class of concrete specified in the plans, design standards, or specifications.

For other concrete items, the designer should verify pay items and units of measure with the specifications or design standards.

Basis of Estimates- Part 2

- Selecting Pay Items

- 400s

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 - 407 Three Sided Precast Culvert
 - 410 Precast Concrete Box Culvert
 - 411-413 Cracks in Structures
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 - 416 Anchors and Dowels

27

Sections 407 and 410 address 3 and 4 sided precast culverts.

The 3-sided precast culvert is paid per length. Variables included with the pay item account for the span and height. (Do not adjust the length to account for multiple barrels.) **The 407 items are currently inactive.**

410: The 4 sided precast box culvert is paid by concrete and steel quantities. The precast box culvert may be used in lieu of cast-in-place culverts, subject to the specification requirements.

Sections 411 through 413 address the methods and materials for repairing various cracks in existing structures.

For precast, prestressed items, payment for sealer is included in the precast item.

For cast-in-place surfaces to be sealed, payment is made per gallon of sealer. Note that Class 5 coatings are paid under section 400 items.

Basis of Estimates- Part 2

- Selecting Pay Items

- 400s

- 400 Concrete Structures
 - 407 Three Sided Precast Culvert
 - 410 Precast Concrete Box Culvert
 - 411-413 Cracks in Structures
 - 415 Reinforcing Steel
 - 416 Anchors and Dowels

28

Reinforcing steel is paid per pound for most structures.

Example: superstructure, substructure, bulkhead, approach slabs, box culverts

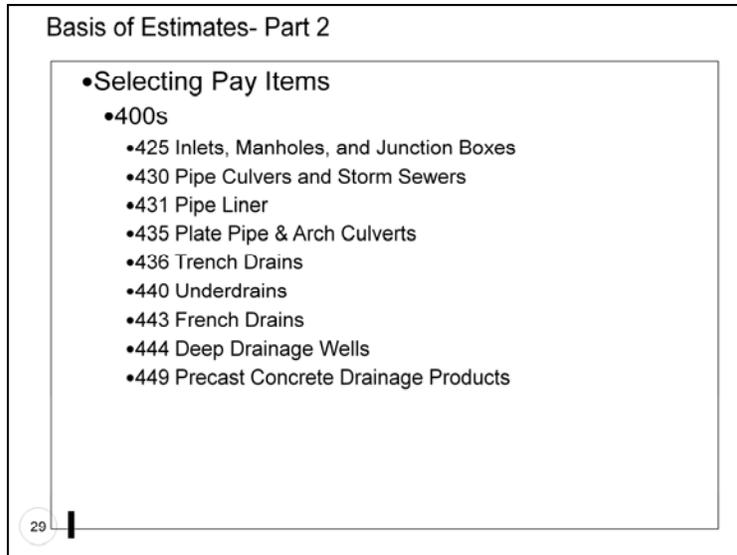
When reinforcement is included, per standard or specification, no separate payment is made.

Example: endwalls, traffic separators, slabs around pull boxes, light pole foundations

Read the applicable specs and standards.

Section 416 addresses anchors and dowels used for structural applications, including traffic railing barrier applications.

There is no separate payment for the work described in this section. All work is incidental to the applicable structural item(s).



Drainage Group:

425: There are many types of inlets, manholes, and junction boxes. Refer to the Design Standards for the correct type for each location.

When minor changes to a standard are needed, detail the change in the plans and use the pay item that corresponds to the standard.

The “Special” pay item should only be used when the design standards are not applicable. Complete designs, including reinforcement details, are required in the plans.

430: Section 430 details the materials and installation requirements for drainage pipe and end sections.

Drainage pipe is paid according to plan quantity.

For JPA utility applications, refer to the utility items in the 1000s group.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 400s
 - 425 Inlets, Manholes, and Junction Boxes
 - 430 Pipe Culvers and Storm Sewers
 - 431 Pipe Liner
 - 435 Plate Pipe & Arch Culverts
 - 436 Trench Drains
 - 440 Underdrains
 - 443 French Drains
 - 444 Deep Drainage Wells
 - 449 Precast Concrete Drainage Products

Repair or Replace?

30

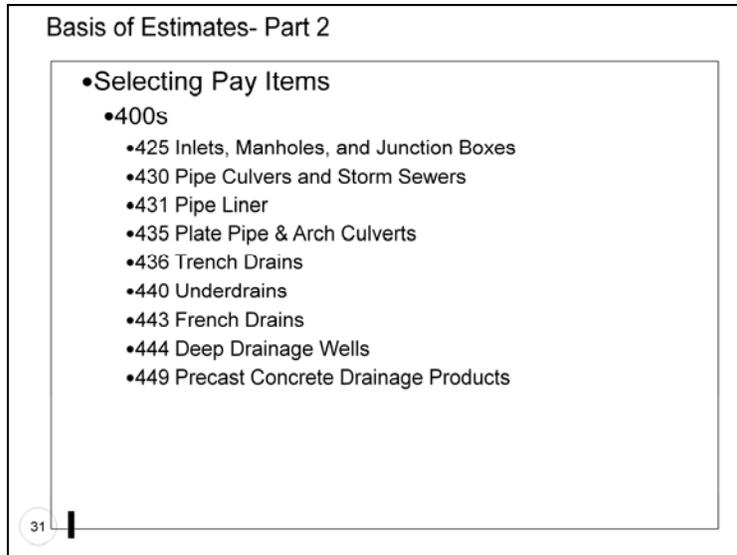
431: Pipe liner is used to rehabilitate an existing pipe. Normally, pipe liner is installed from one drainage structure to another, along an entire length of pipe.

Designers should coordinate with the State Drainage Office prior to using any partial length or sectional liners, as a full length liner or pipe replacement may be more cost effective.

In addition to showing the pipe length and location in the plans, the contract documents must include the allowable materials and/or material requirements.

435: Plate pipe and pipe arch culverts are installed similarly to optional pipe of Section 430. Measurement and payment are also by plan quantity.

If coatings are required, a note should be included in the plans. Bituminous coating materials are specified in Section 944. Other coating materials may require a tech spec. Payment for coatings are included in the culvert.



436: Trench drain is installed in accordance with Index 206, for use in gutters and driveways.

Payment is made per plan quantity, and includes pipe, concrete backfilling, outlet pipe, and grate.

440: Unlike many other drainage items, Underdrain is measured in place for payment.

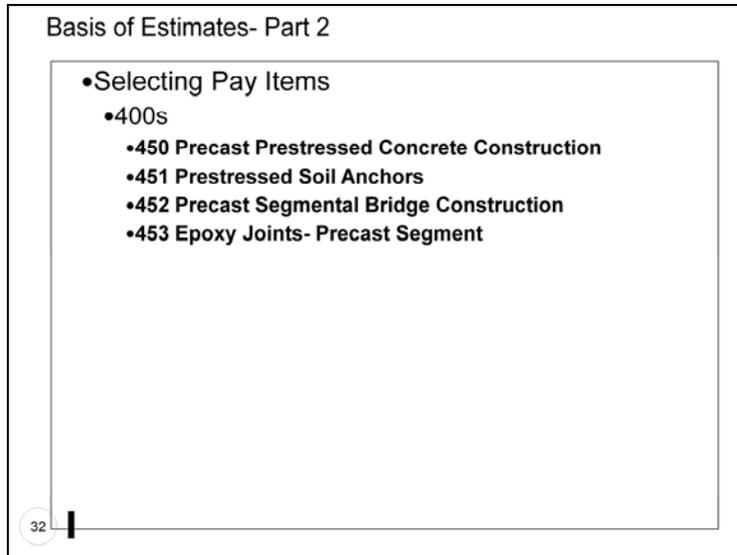
The pipe, fittings, aggregate, filter fabric, and incidentals are included in the linear foot payment. Additional details are included in the design standards, index 286.

443: French drain is installed in accordance with the Drainage Manual. Note that all **French drain should be paid with the 443 pay items**, rather than the component materials for pipe, filter fabric, and rock.

444: Drainage wells for roadway drainage applications are used infrequently; project specific technical specifications will be required.

For Roadway or Landscaping- irrigation operations, refer to the 730 items.

449: Section 449 details requirements for precast concrete drainage products. Payment is incidental to the various items of work, under other sections.



Precast items described in sections 450, 451, and 452 should be coordinated with the design standards. Note that pay item guidance is provided in the instructions for design standards, according to the applicable index.

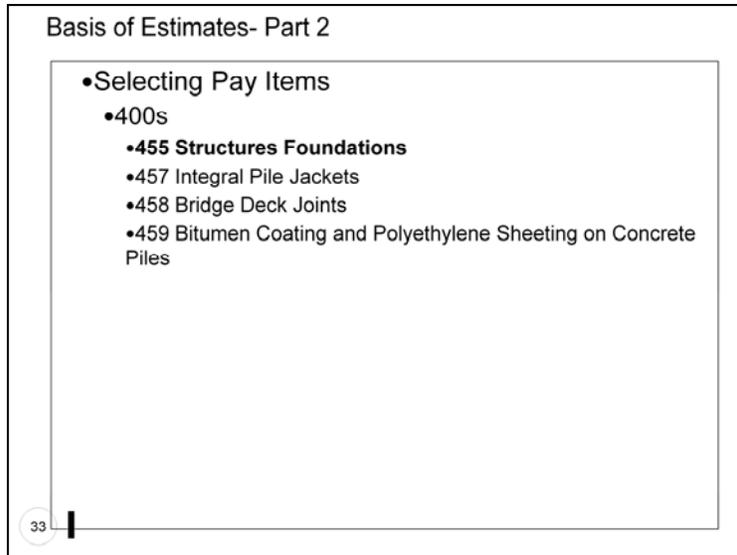
Separate payment for soil anchors is only for permanent applications.

Payment for anchors used with temporary walls is included in the price of the temporary wall.

The 452 pay item is intended to cover the set-up costs for a segmental casting yard. It is required for all Segmental Bridge projects. Coordinate with the District Structures Design Office, as needed, with this item.

453: Per the specification, “this Section applies to precast segmental structures with multiple shear joints in webs and joints with suitable shear keys in precast substructure segments.”

There is no separate payment for the work completed under this section; it is included under the precast item(s).

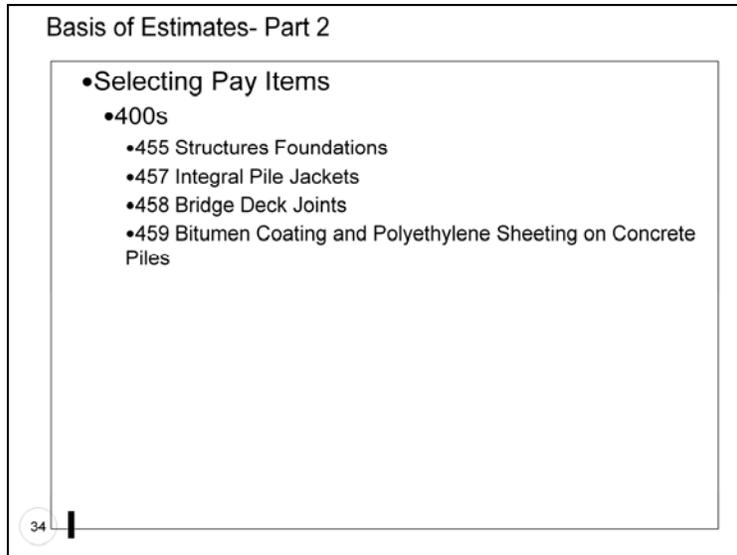


Section 455 is an extensive section dealing with piling, drilled shafts, spread footings, and auger cast piles.

Note that foundations for some lighting and mast arm structures are required to meet the foundation requirements of Section 455. However, no separate payment is made for the foundation; payment is incidental to the item being installed.

CSL tubes: While Crosshole Song Logging tubes are placed in all drilled shafts, the CLS testing pay item is only used for non-redundant bridges structures, for drilled shafts identified in the plans. The CSL testing pay item is NOT used for miscellaneous structures such as mast arms or high mast lighting.

Refer to the BOE or specification for details on additional testing, when defects are suspected.



Integral pile jackets are used to protect piles in extreme environments. Due to the variable conditions, coordination with the State Materials Office is recommended during early plans development.

The pay items are normally used for rehabilitation projects. Corrosion experts in the State Materials Office will assist with the appropriate pay item number(s).

There are several types of bridge joints described in the 458 specification, including poured- with and without backer rod, and strip seals.

Additional types of products are available, but will require Technical Special Provisions for both the material and installation requirements.

All items should be used in accordance with the design standards.

Guidance on the use of this item is included in the *Soils and Foundations Handbook*.

Note that the area for payment of polyethylene sheeting is based on the area of the pile wrapped, **not** the quantity of material applied (area x layers).

Basis of Estimates- Part 2

- Selecting Pay Items
 - 500s
 - 502 Shear Connectors
 - 504 Steel Grid Floors
 - 506 Bridge Drainage System
 - 510 Navigation Lights- Fixed bridges
 - 514 Plastic Filter Fabric
 - 520 Gutter, Curb, Traffic Separator
 - 521 Barriers, Railing, Parapets
 - 522 Sidewalk
 - 523 Patterned/Textured Pavement
 - 524 Ditch & Slope Pavement
 - 525 Asphalt Curb
 - 526 Architectural Pavers
 - 527 Detectable Warnings

35

The 500s include a wide range of incidental construction.
Sections include filter fabric, ...
barriers, sidewalk, curbs, ...

Basis of Estimates- Part 2

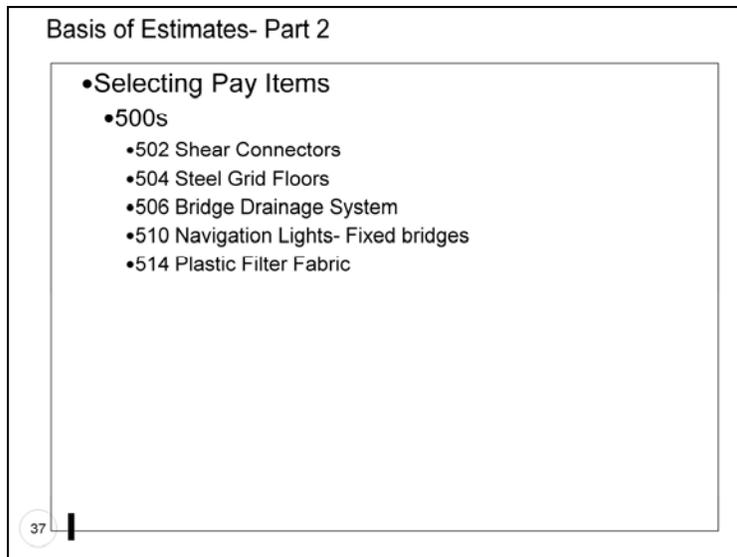
- Selecting Pay Items
 - 500s
 - 530 Riprap
 - 534 Sound Barriers
 - 536 Guardrail
 - 538 Resetting Guardrail
 - 540 High Tension Cable Barrier
 - 544 Crash Cushions
 - 546 Rumble Strips
 - 548 Retaining Wall Systems
 - 550 Fencing
 - 555 Directional Bore
 - 556 Jack & Bore
 - 557 Vibratory Plowing
 - 560 Painting Structural Steel
 - 561 Painting Structural Steel-Rehab
 - 562 Galvanized Surfaces
 - 563 Anti-Graffiti Coating Systems
 - 570 Performance Turf
 - 571 Plastic Erosion Mat
 - 580 Landscape Installation

36

sound barriers, guardrail, retaining walls, fencing, ...

conduit installation, painting, coatings,...

turf, and landscape.



Looking now at the individual sections within the 500s...

502: Section 502 details the requirements for shear connectors. No separate payment is made for the 502 work; payment is incidental to Section 460 structural steel.

504: Steel grid floors are used for roadway and sidewalk floors on the movable spans of bridges.

Payment for the steel grid floors is made per square foot of the plan quantity area, and includes paint, filling (as called for in the plans), and welding.

506: Bridge drainage systems are paid per length of pipes and number of drains. All material requirements must be included in the plans or specifications.

The bridge drainage system is currently paid per drain, as well as the length of drainage piping. As necessary, coordinate with the District or State Drainage Office for drainage requirements.

510: Note that Section 510 is applicable only to fixed bridges. **Movable bridges should refer to Section 465.**

The Navigation Light system must be completely detailed in the plans. Remember to include material requirements, as well as installation and/or performance requirements. Payment is by lump sum.

Basis of Estimates- Part 2

- Selecting Pay Items

- 500s

- 502 Shear Connectors
- 504 Steel Grid Floors
- 506 Bridge Drainage System
- 510 Navigation Lights- Fixed bridges
- 514 Plastic Filter Fabric**

38

Plastic filter fabric has several different applications: drainage, stabilization, and riprap. Refer to the applicable standards and specifications to determine if separate payment is made for this item.

Impermeable Liner is also included under 514. Tech Specs are needed for this material.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 500s
 - 520 Gutter, Curb, Traffic Separator
 - 521 Barriers, Railing, Parapets
 - 522 Sidewalk
 - 523 Patterned/Textured Pavement
 - 524 Ditch & Slope Pavement
 - 525 Asphalt Curb
 - 526 Architectural Pavers
 - 527 Detectable Warnings

39

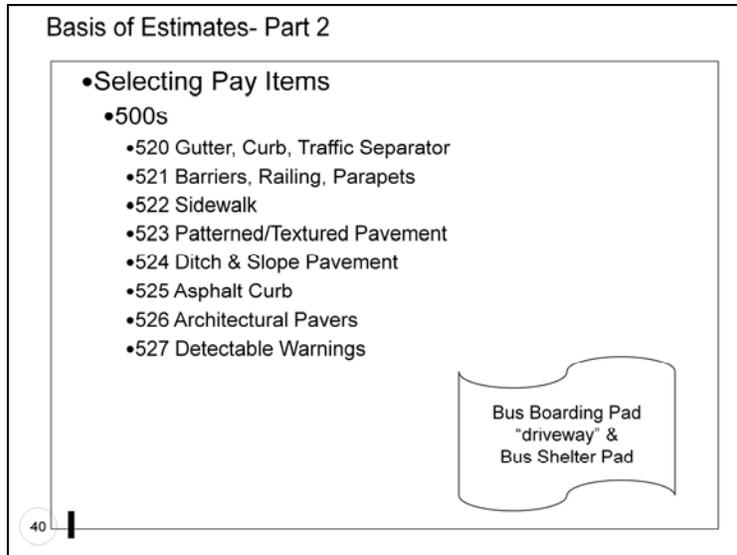
520: All payment quantities in this section are based on the plan quantity, and include the concrete, reinforcing steel, joints, and finishing.

Refer to the Design Standards for valid types of each item.

521: Barrier walls described in Section 521 and the Design Standards are paid according to the plan quantity measurement.

Removal of barrier walls from bridges should be included in the Removal of Existing Structures pay item.

Removal of barrier walls from the roadway may be included under clearing and grubbing, or paid separately for removal, per length.



522: Sidewalks are normally installed with 4” or 6” thickness, according to the standards. The 6” sidewalk is used where driveways cross the sidewalk path.

Payment for new sidewalk includes the installation of detectable warnings at curb ramps, in accordance with Section 527.

** Pay Items for Bus Bay/Boarding Pad and Bus Shelter Pad are also available within the Sidewalk section. Note that the Bus Bay pay item is only used for the roadway portion of a bus pad.

The Bus Shelter Pad pay item is only used when a shelter area is to be included. (Graphic request: bay, pad, and shelter, with or without bus)

For both items, remember to include concrete requirements, reinforcement, joint, and other details in the contract documents.

Basis of Estimates- Part 2

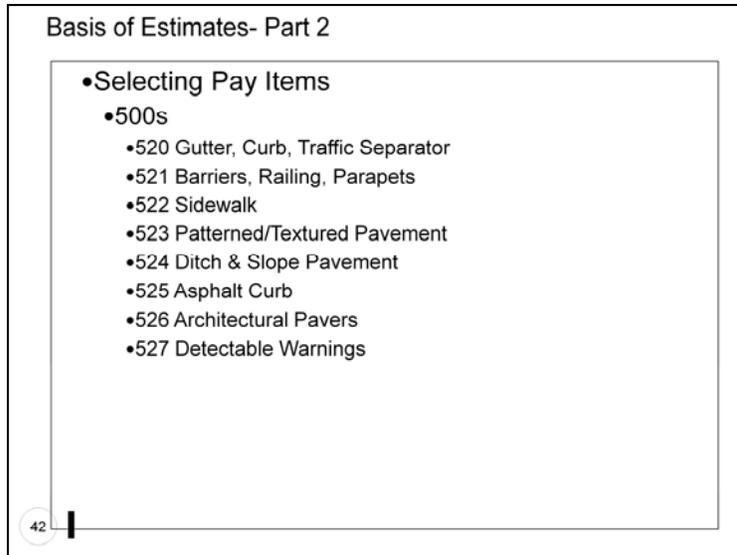
- Selecting Pay Items
 - 500s
 - 520 Gutter, Curb, Traffic Separator
 - 521 Barriers, Railing, Parapets
 - 522 Sidewalk
 - 523 Patterned/Textured Pavement**
 - 524 Ditch & Slope Pavement
 - 525 Asphalt Curb
 - 526 Architectural Pavers
 - 527 Detectable Warnings

Caution:
Refer to
PPM

41

Section 523 details patterned / textured pavement for both concrete and asphalt applications.

Designers should refer to the latest PPM guidance prior to including this item of work on a project.



524: Ditch and slope pavement are detailed in Section 524. The work includes payment for earthwork, filter fabric, and skimmers, according to the specs and standards.

Per the specification, “The square yard quantity includes any ditch blocks with ditch or slope pavement on top.”

When concrete core ditch blocks are used without ditch or slope pavement, separate payment is made for the concrete. “The cubic yard pay item includes any ditch block within a grass or earth ditch, without other pavement on top.”

Section 525 details Asphalt Curb. Not that payment for this section is for permanent asphalt curb applications only.

Payment for temporary asphalt separator is included under Maintenance of Traffic.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 500s
 - 520 Gutter, Curb, Traffic Separator
 - 521 Barriers, Railing, Parapets
 - 522 Sidewalk
 - 523 Patterned/Textured Pavement
 - 524 Ditch & Slope Pavement
 - 525 Asphalt Curb
 - 526 Architectural Pavers
 - 527 Detectable Warnings

Areas will be shown in the standards

43

526: Architectural pavers “bricks” are used for both roadway and sidewalk applications. Refer to the PPM for guidance on acceptable applications for pavers.

Payment is made per area, with no deduction for manholes or utility structures within the normal area.

527: Detectable warnings are the “bumps” used to warn persons of the curb ahead. They must meet ADA requirements.

When installed on new concrete or asphalt surfaces, the detectable warning is included in the cost of the sidewalk or pedestrian walkway.

Separate payment for the detectable warnings is made only when installed on existing surfaces. Note: existing is defined as in-place prior to the contract.

C-Team/M-Team issue: Payment for small, medium, large size ADA ramps- this is being addressed by approximate areas shown in the design standards, to assist the bidder with estimating quantities. No need to separately tabulate in the plans (at this time).

Basis of Estimates- Part 2

- Selecting Pay Items

- 500s

- 530 Riprap
- 534 Sound Barriers
- 536 Guardrail
- 538 Resetting Guardrail
- 540 High Tension Cable Barrier
- 544 Crash Cushions
- 546 Rumble Strips
- 548 Retaining Wall Systems
- 550 Fencing

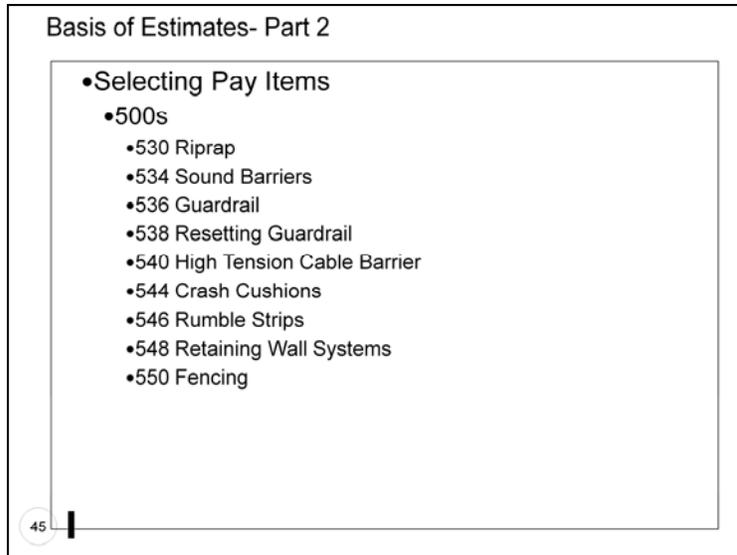
44

530: Riprap materials are used to protect slopes from erosion. The Drainage Manual provides guidance on material selection, based on location and water flow velocity.

Measurement and payment of riprap materials varies from cubic yard measurement for sand-cement, to Ton measurement for rubble or stone. Per the specifications, the weight may be determined by railroad weight, truck weight, or barge displacement.

Section 534 sound barriers are paid by plan quantity, per square foot. Measurement, per the specification, is from the top to bottom of the panel, along the length shown in the plans. The cost of the foundation is included in the payment.

Anti-graffiti or other coatings are paid separately.



536: Guardrail is normally paid as a length or “run”, with separate payment for the end anchorage assembly. Refer to the design standards for limits of payment.

Posts, blocks, rubrail, nested panels, and pipe rail are included in the payment length.

Do not double the length for double face guardrail. Payment is based on the centerline length.

When the guardrail removal pay item is used, detail whether the materials should be stockpiled, delivered to a maintenance yard, or disposed of by the contractor.

Do not use the removal item for guardrail that is to be reset within the same project or contract. Refer to Section 538 for resetting.

538: Resetting guardrail includes the removal and placement of guardrail. The contractor will provide new offset blocks and hardware.

Panels or posts damaged by the contractor will be replaced at no additional cost. Non-salvageable or additional new panels needed will be paid per length, according to the specification.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 500s
 - 530 Riprap
 - 534 Sound Barriers
 - 536 Guardrail
 - 538 Resetting Guardrail
 - 540 High Tension Cable Barrier
 - 544 Crash Cushions
 - 546 Rumble Strips
 - 548 Retaining Wall Systems
 - 550 Fencing

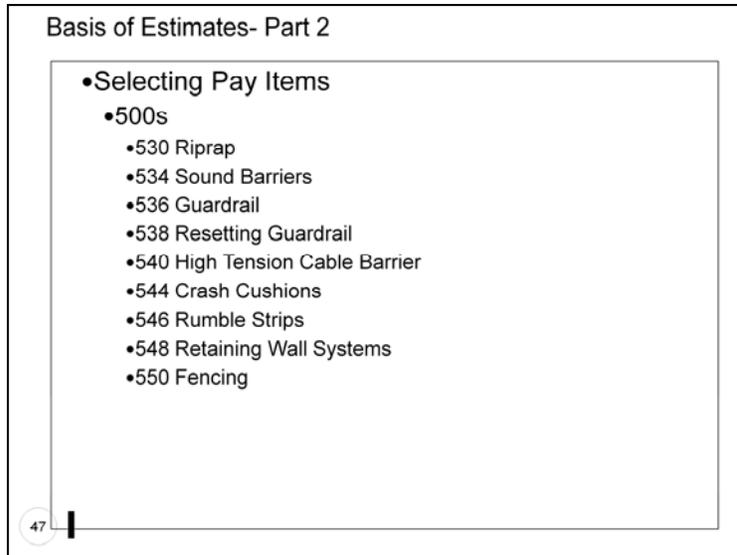
46

540: The specifications and standards for High Tension Cable Barrier are currently under development. Contact the monitor in the State Roadway Design Office for the latest guidance.

544: Formerly called Impact Attenuators, Crash Cushions are commonly used at the approach of guardrail or concrete barrier walls. Index 430 of the Design standards provides guidance on the products available for various applications

An Optional pay item is available, subject to the limits shown on Index 430. While the designer may select a specific brand, “the reasons for restricting to a specific brand must be documented in the project design file.”

Refer to the PPM, Vol 1, Chapter 4, for complete information on the selection of crash cushions.



546: The Rumble Strips section includes both raised and ground-in types.

Raised strip sets may be either thermoplastic or asphalt, installed on the roadway or paved shoulder. Payment is made per set.

Ground-in strips are installed along the shoulder. Plan quantity payment is made per mile, excluding any bridge lengths.

548: Retaining wall systems include a variety of proprietary products listed on the Qualified Products List (QPL).

Payment for these wall systems is based on the plan quantity of the wall, as described in the specifications.

Retaining wall systems are often detailed with separate component plans. The pay items should be loaded with the roadway pay items, even when attached to a structure.

Basis of Estimates- Part 2

- Selecting Pay Items

- 500s

- 530 Riprap
- 534 Sound Barriers
- 536 Guardrail
- 538 Resetting Guardrail
- 540 High Tension Cable Barrier
- 544 Crash Cushions
- 546 Rumble Strips
- 548 Retaining Wall Systems
- 550 Fencing**

48

550: Most fencing is either Type A “wire fabric farm fence”, Type B “chain link”, or Type R “bridge fencing”.

Special Type fencing should only be used for wood or plastic “decorative” fencing. Detail material requirements in the plans or specs.

Feature options include barbed wire, full or partial enclosure, or vinyl coating. Special features need to be detailed in the specifications or plans. Material requirements may be needed in the plans or specifications.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 500s
 - 555 Directional Bore
 - 556 Jack & Bore
 - 557 Vibratory Plowing
 - 560 Painting Structural Steel
 - 561 Painting Structural Steel- Rehab
 - 562 Galvanized Surfaces
 - 563 Anti-Graffiti Coating Systems

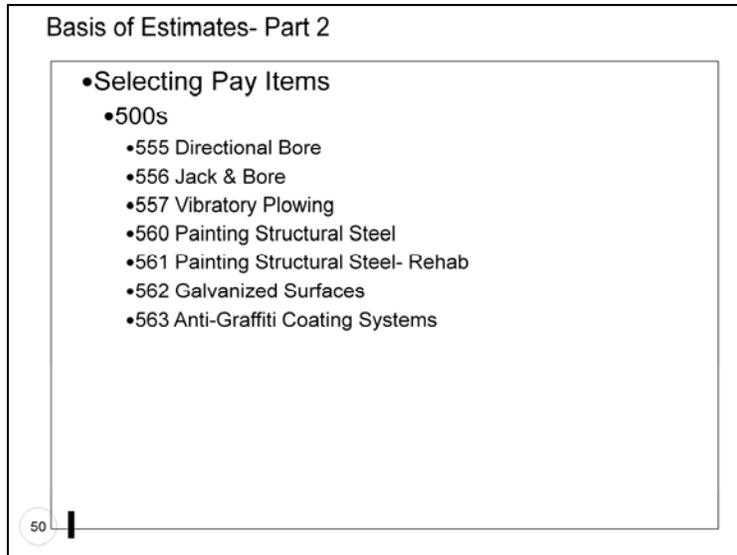
Watch for bulletin update

49

555, 556, 557: Directional Bore, Jack & Bore, and Vibratory Plowing are methods used to install cable and/or conduit.

Payment for Installation includes the outer conduit materials or “sleeve”, as detailed in the plans. The inner “content” is paid separately, under the appropriate items for cable and/or conduit.

Conduit measurement & payment is currently under discussion, along with 630, 715, and 783. Watch for more information in the fall, for implementation in July, 2012.



Sections 560 and 561 detail painting and coating requirements for structural steel.

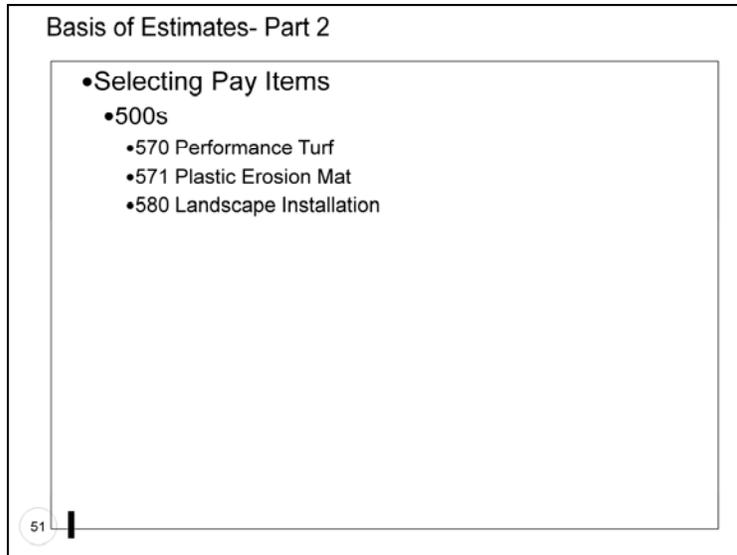
Section 560 addresses **new** steel. Payment for this work is included in the price per pound for the structural steel item.

Section 561 addresses rehabilitation painting or coating of **existing** structural steel. Lump Sum payment includes all work detailed in the plans and specifications.

Section 562 addresses the repair of galvanized surfaces. Payment is included in the item being treated or repaired.

563: Anti-graffiti coating systems include both sacrificial and non-sacrificial materials. These items should be coordinated with the District Maintenance Office.

Measurement is made per square foot, based on the plan quantity of the projected area; no allowance is made for surface texture.



570: Performance Turf includes both grassing and sodding. All mowing, watering, and other incidentals are included in the payment for turf.

While the designer may call for sod in selected locations, the contractor should be given the turf option (seed, sod, or other methods) whenever possible.

Section 571 details requirements for plastic erosion mats (turf reinforcement mat), as shown in the standards, and used with Performance Turf.

Payment is made per area, with no allowance for overlaps.

Do not use this pay item for other materials or special erosion “mats”. Refer to the specs or BOE for drainage & erosion transition mats.

580: Landscape work is paid as two lump sum pay items: large plants and small plants. Large plants includes trees in 7 gallon containers, or larger, and most palms. Small plants includes all other plants, as well as incidental work.

All work should be detailed in the plans, in accordance with the PPM.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 600s
 - 603 General Requirements
 - 608 Guaranties
 - 611 Acceptance
 - 620 Signal Installation Grounding
 - 630 Conduit
 - 632 Signal And Interconnect Cable
 - 634 Span Wire Assembly
 - 635 Pull and Junction Boxes
 - 639 Electrical Power
 - 641 Prestressed Concrete Poles
 - 649 Steel Strain Poles, Mast Arms, Monotube Assemblies
 - 650 Vehicular Signal Assemblies
 - 653 Pedestrian Signal Assemblies
 - 659 Signal Head Retrofit Auxiliaries
 - 660 Inductive Loop Detectors
 - 665 Pedestrian Detector Assembly
 - 670 Traffic Controller Assembly
 - 671 Traffic Controllers
 - 676 Controller Cabinets
 - 678 Controller Accessories
 - 690 Removal of Existing Traffic Signal Equipment
 - 699 Internally Illuminated Signs

52

The 600s are for Traffic Control Devices.

Sections within the 600s include grounding, conduit, pull boxes, and controllers.

Note that all of the Signals specifications, min specs, standards, and pay items are currently under review. Refer to the applicable office web pages for the latest updates and implementation schedules.

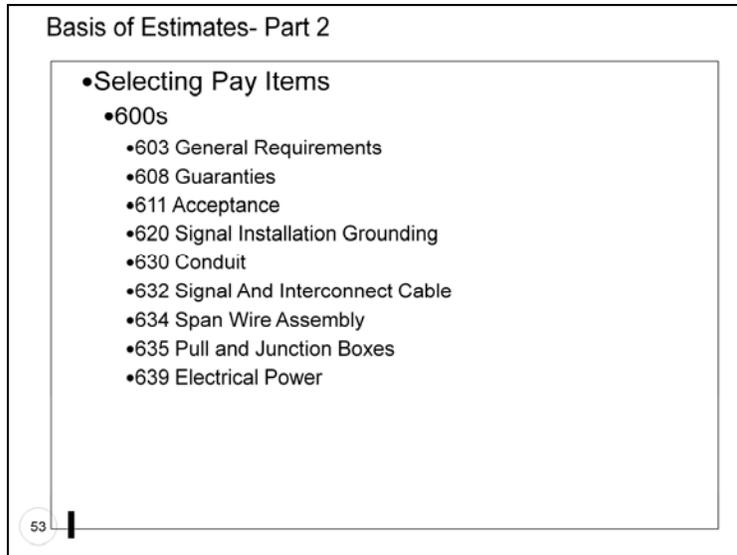
When working with Traffic Control Devices, two important sources of information become applicable:

The Minimum Specifications for Traffic Control Signal Devices (MTSCSD), otherwise known as “min specs”, provide performance and acceptance criteria.

The Approved Product List (APL) lists products that are approved for use on Florida’s roadways. Note that inclusion on the APL does not imply that FDOT has developed construction specifications, or will use the product on state roads.

APL items are approved for use local agencies. They have met MUTCD requirements, and are acceptable for use in Florida.

Note: MUTCD is the Manual for Uniform Traffic Control Devices.
(Pronounced M-U-T-C-D)



Section 603 brings the min specs and APL into construction contracts.

Sections 608 and 611 provide basic guidance for Guaranties and Acceptance. There is no separate payment for these requirements.

620: The grounding section includes general requirements for protection against faults, surge currents, and lightning transients.

There is no separate payment; work is included in the item being grounded.

Note that the requirements of this specification may be referenced by lighting, signing, or other non-signals applications.

Basis of Estimates- Part 2

- Selecting Pay Items

- 600s

- 603 General Requirements

- 608 Guaranties

- 611 Acceptance

- 620 Signal Installation Grounding

- 630 Conduit**

- 632 Signal And Interconnect Cable

- 634 Span Wire Assembly

- 635 Pull and Junction Boxes

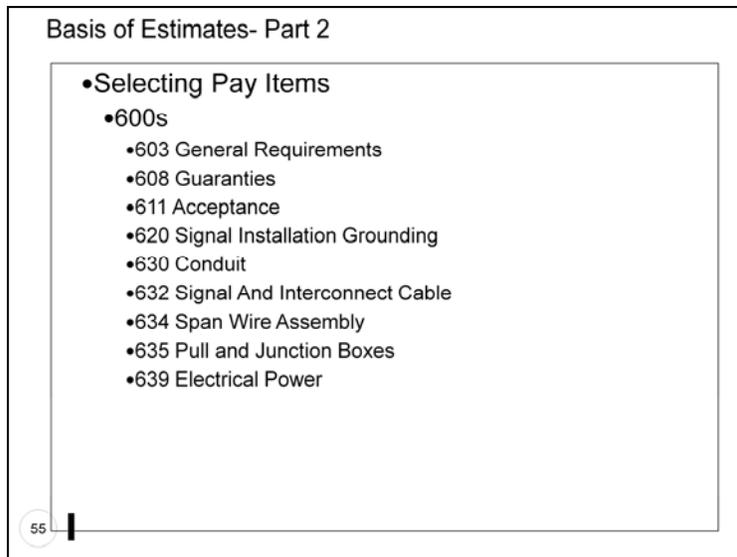
- 639 Electrical Power

54

Section 630 provides the requirements for conduit. Note that a locate wire may be required for fiber optic installations.

For estimating quantities, if you have a 100' trench with 4 conduits, the total length of conduit installed would be 400'. The contractor will adjust the unit bid price according to the length of trench and number of conduits.

Similarly for underpavement and jacked conduit, the total length of all conduits is recorded; the contractor will adjust bid prices when multiple conduits are run together.



632: Signal cable within an intersection is paid on a “per intersection” basis. While no allowance is made for large or small intersections, the contractor will bid according to the size of the intersections shown in the plans.

When signal cable is necessary outside of an intersection, such as for beacons or signs, the cable is paid per foot.

When using fiber optic cable, carefully review the available specifications. Plan Details and/or Technical Specs may be necessary.

634: Span Wires with concrete poles are the standard for most of the state. Coastal areas, within limits defined in the PPM, generally use mast arms.

The standard span wire assembly was updated with the 2009 PPM. Projects should be updated according to current guidance. Payment for the span wire assembly is made per intersection.

Basis of Estimates- Part 2

- Selecting Pay Items

- 600s

- 603 General Requirements
- 608 Guaranties
- 611 Acceptance
- 620 Signal Installation Grounding
- 630 Conduit
- 632 Signal And Interconnect Cable
- 634 Span Wire Assembly
- 635 Pull and Junction Boxes
- 639 Electrical Power

56

635: Pull and Junction boxes are paid per each. The installation requirements are shown in the Design Standards. Note that the items installed must be included on the APL.

639: Electrical Power Service Assemblies are used in accordance with Design Standard 17736.

Items may include conduit, wire, meter, disconnect, and other items shown in the design standards.

Basis of Estimates- Part 2

•Selecting Pay Items

•600s

- 641 Prestressed Concrete Poles
- 649 Steel Strain Poles, Mast Arms, Monotube Assemblies
- 650 Vehicular Signal Assemblies
- 653 Pedestrian Signal Assemblies
- 659 Signal Head Retrofit Auxiliaries
- 660 Inductive Loop Detectors
- 663 Vehicle Detector Assemblies
- 665 Pedestrian Detector Assembly

57

641: Prestressed Concrete Poles for signals applications are shown on index 17725. The poles installed must be listed on the QPL.

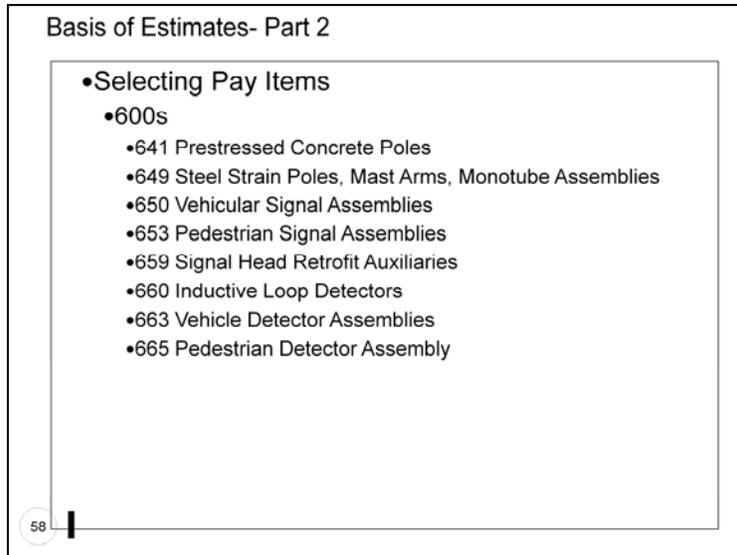
Note that the type of pole is included in the pay item description, but plan details are necessary to indicate the pole length and mounting height.

649: Refer to the current PPM for guidance on mast arm installations. Generally, these will only be used in coastal areas.

The pay item structure details the design wind speed and arm length.

When using steel strain poles, plan details are needed for pole type and height.

Monotube Assemblies are not included in the design standards; complete design details are required in the plans.



650: Traffic Signal assemblies include the signal with LED indicators, backplates, visors, and all incidentals to complete the signal assembly.

Note that these assemblies are to be used for permanent installations only; temporary installations should use the appropriate Maintenance of Traffic items in Section 102.

653: Pedestrian Signal Assemblies allow for various types. Note that the LED Countdown is the current standard.

659: The 659 pay items are used only for retrofit applications. On new installations, all backplates, visors, and attachment hardware is included in the signal head assembly.

660 and 663: Loops and Vehicle Detectors are under review, due to new technology. Tech Specs may be required for some types.

665: New “Accessible” ADA Pedestrian Detectors have been added to the pay item structure. While these are available now, watch the Specs.

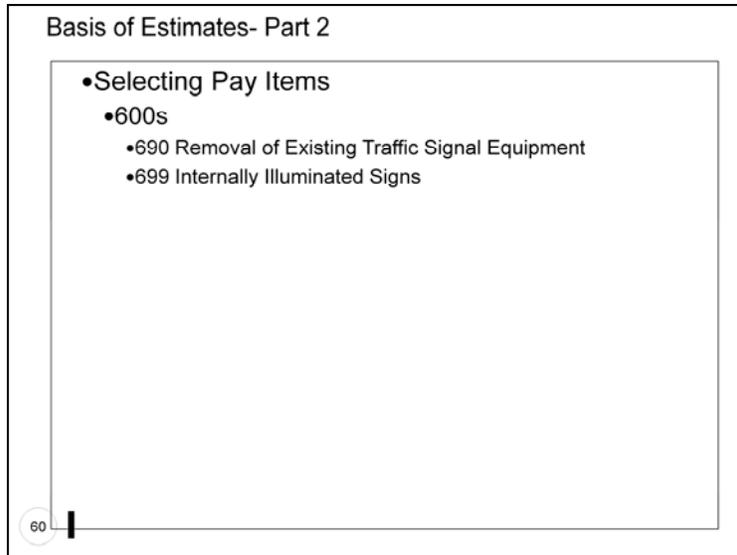
Basis of Estimates- Part 2

- Selecting Pay Items
 - 600s
 - 670 Traffic Controller Assembly
 - 671 Traffic Controllers
 - 676 Controller Cabinets
 - 678 Controller Accessories

59

The 670 group of items includes controllers and cabinets. Coordinate with the District Traffic Engineering & Operations office to ensure that the proposed equipment is compatible with the local agency.

Watch the specifications... Tech Specs and/or plan details may be required.



Section 690, Removal of Existing Traffic Signal Equipment: Per the specifications, “The Department retains ownership of the equipment removed unless otherwise state in the Contract Documents.

As necessary, the plans should indicate the location for delivery of removed signal equipment.

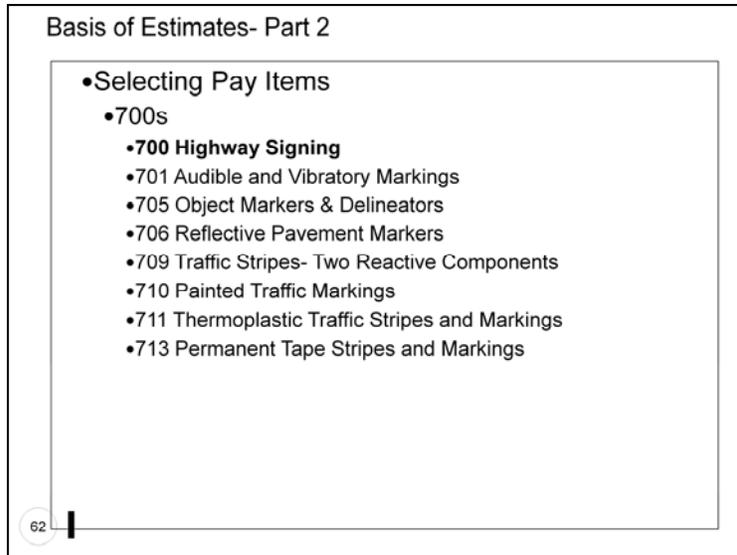
699: While the 699 Internally Illuminated Signs are “signs”, they are normally included with the signals category, due to their connections with the signalized intersections.

These signs should be tabulated and detailed in the Signalization plans and category.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 700s
 - 700 Highway Signing
 - 701 Audible and Vibratory Markings
 - 705 Object Markers & Delineators
 - 706 Reflective Pavement Markers
 - 709 Traffic Stripes- Two Reactive Components
 - 710 Painted Traffic Markings
 - 711 Thermoplastic Traffic Stripes and Markings
 - 713 Permanent Tape Stripes and Markings
 - 714 Motorist Aid Call Boxes
 - 715 Highway Lighting
 - 741-747 Traffic Monitoring Site
 - 750-751 Architectural Work
 - 780-786 Intelligent Transportation System (ITS)

The 700s are for Traffic Control: Signing & Pavement Markings, Lighting, Monitoring, and ITS.



Highway Signing covers both roadside and overhead signs.

For single and multi-post sign assemblies, refer to the standards for the appropriate sizes.

Payment includes the sign(s) and post(s), furnished and installed. For lighted signs, payment includes electrical work.

For overhead signs, the pay items separate the operation, span length, and sign size. As for all signs, foundations and electrical work are included in the sign assembly payment.

Monotube assemblies require complete specifications, drawings, and details. Coordinate with the maintaining agency, as standard sign structures may be preferred.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 700s
 - 700 Highway Signing
 - 701 Audible and Vibratory Markings
 - 705 Object Markers & Delineators
 - 706 Reflective Pavement Markers
 - 709 Traffic Stripes- Two Reactive Components
 - 710 Painted Traffic Markings
 - 711 Thermoplastic Traffic Stripes and Markings
 - 713 Permanent Tape Stripes and Markings



63

Measurement and Payment of Stripes and Pavement Markings:

- Longitudinal Stripe (along direction of traffic) is paid per net mile (solid) or gross mile (skip).
- Transverse Stripe (across the direction of traffic) is paid per foot.
- Dotted, Guidelines, and 6-10 Gap Extension lines are paid per foot.

Refer to the BOE for complete measurement and payment details.

Refer to the PPM, vol 1, 7.2.8 for guidance on selecting pavement marking materials.

Did you know- the arrows, symbols and messages are paid separately?
 show pavement arrows? Arrows are paid as a complete marking, regardless of the number of “points” or directions on the marking.

Show bike lane arrow and “bicycle person” symbol.

The cyclist is available as a preformed thermoplastic material, and should be 6’ tall, to meet current standards.

Show bicycle with chevron message The new “bicycle with chevron” is one message.

Show sun pass lane/message Each word is paid as a separate message- “SUN PASS ONLY” would be paid as 3 messages.

Other symbols and messages are shown on the design standards.

Basis of Estimates- Part 2

- Selecting Pay Items

- 700s

- 700 Highway Signing
- 701 Audible and Vibratory Markings
- 705 Object Markers & Delineators
- 706 Reflective Pavement Markers
- 709 Traffic Stripes- Two Reactive Components
- 710 Painted Traffic Markings
- 711 Thermoplastic Traffic Stripes and Markings
- 713 Permanent Tape Stripes and Markings

64

701: Audible and Vibratory marking have specific applications, as directed “for rural construction projects, excluding limited access facilities.”

Refer to the BOE or PPM for additional guidance.

705: Object Markers are used to mark obstructions within or adjacent to the roadway; delineators are used to indicate the alignment of the roadway. Both are to be used in accordance with the design standards and the MUTCD.

No separate payment is made for object markers mounted on vehicular impact attenuators, according to Section 544.

706: Raised Retro-Reflective Pavement Markers (RPMs) are used to supplement pavement markings. Refer to the standards for correct usage.

709: Two Reactive component pavement marking is used on concrete surfaces, as described in the PPM, vol 1, 7.2.8.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 700s
 - 700 Highway Signing
 - 701 Audible and Vibratory Markings
 - 705 Object Markers & Delineators
 - 706 Reflective Pavement Markers
 - 709 Traffic Stripes- Two Reactive Components
 - 710 Painted Traffic Markings**
 - 711 Thermoplastic Traffic Stripes and Markings**
 - 713 Permanent Tape Stripes and Markings**

65

710: Painted traffic marking materials are used in both MOT and final surface applications.

Note that some districts include 1 layer of final surface markings, while other districts use 2. The difference is determined based on whether thermoplastic or other similar permanent markings are included in the construction contract, or applied at a later date by a construction or maintenance contract.

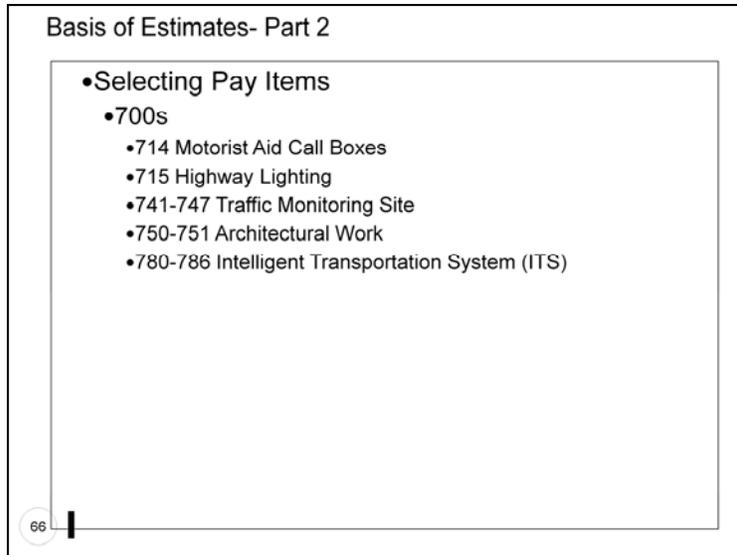
While the each district determined their own policy, the designer may not deviate from this policy on a project-by-project basis. The designer must follow the district policy.

711: Thermoplastic markings are used as “the Department’s primary material to be used for permanent markings on asphalt surfaces.”

– PPM, vol 1, 7.2.8

713: Permanent Tape is an option for use on concrete surfaces.

High performance tapes are required for longitudinal markings; standard tapes are limited to transverse lines, arrows, and messages.



714: Motorist aid call boxes are still used along the Turnpike and selected major roadways.

Note that the call box pad is included in the payment for the complete call box installation.

When replacing/upgrading the pad, “modify”, don’t forget to detail the removal, storage, and reinstallation of the call box assembly. Damaged boxes must be replaced by the contractor, at no additional cost.

715: Most lighting installations are “furnish and install” for a complete installation. **The foundation is included in the cost of the pole**, even for high mast pole installations that require more extensive foundations.

Conduit is paid as the length from point A to B, with no additional quantity for sweeps or vertical distances. Note- when multiple conduits are included in a trench, payment is based on the total length of conduit, not the length of the trench.

For example: 4 conduits in a 100 foot trench = 400 total feet of conduit.

741-747: Coordinate the use of the Traffic Monitoring Site specifications and pay items with the responsible office. Technical specifications may be required.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 700s
 - 714 Motorist Aid Call Boxes
 - 715 Highway Lighting
 - 741-747 Traffic Monitoring Site
 - 750-751 Architectural Work**
 - 780-786 Intelligent Transportation System (ITS)

67

750-751: Architectural pay item should only be used with “significant” architectural work. Coordinate the use of these items with the State Architect.

New or Rehab work on a complete building is paid under Section 750. Component work only, i.e. water, HVAC, communications, or electrical, may be paid under the appropriate 751 items. Do not use the 751 items when complete work is paid under the 750 item.

When asbestos is known to exist, contact the Architectural Section for specific guidance. Special contracts exist for asbestos removal.

Refer to Section 465 for Bridge Tender House. Coordinate with the Moveable Bridge Section of the State Structures Design Office.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 700s
 - 714 Motorist Aid Call Boxes
 - 715 Highway Lighting
 - 741-747 Traffic Monitoring Site
 - 750-751 Architectural Work
 - 780-786 Intelligent Transportation System (ITS)**

68

780-786: ITS, or Intelligent Transportation Systems incorporate several types of vehicle detection to help traffic move efficiently.

Some ITS systems are incorporated into local signalization systems, and may be designed into the signalization plans.

Design guidance is provided in the PPM, Vol. 1, Chapter 7.

Revisions are currently underway to “merge” ITS and signalization specifications and pay items. Refer to the specifications and BOE for the latest information.

When possible, pay items for ITS components were specified for “complete assemblies”. For example, the Dynamic Message Sign (DMS) includes the sign, structure, foundation, electronics, and testing for a fully operational sign.

Refer to the specifications for work and materials included with each pay item.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 800s
 - **Mass Transit- Railroad**
 - **Mass Transit- other**

69

The mass transit items currently have very limited use. If your project involves mass transit, please coordinate with your District Estimates Office to further develop this group of items.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 900s
 - Developmental, Monitored, Limited use, or other Special Pay Items
 - 999- 2 Lump Sum Contract
 - 999- 16 Partnering
 - 999- 20 Disputes Review Board
 - 999- 25 Initial Contingency Amt
 - 999-102 Speed and Law Enforcement Officer

70

The 900s are a special group of items. They may involve new or different contracting rules, specifications, or other situations.

When a specification is under development, a pay item may be assigned using a 9xx-SSS-### format, where xx is the year, SSS is the proposed specification section number, and ### is a sequential number to define any additional description. It is not necessary to completely define an “abc-def” pay item structure while the specification is under development.

For developmental, monitored or limited use items, a monitor from the responsible office (structures, drainage, etc.) will review requests on a project-by-project basis, and may require coordination throughout the construction process.

999-2: Lump Sum contracts are frequently used for small contracts with known quantities, where minimal adjustments are anticipated. A “duplicate” project is maintained with pay items and quantities for estimating and reporting purposes.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 900s
 - Developmental, Monitored, Limited use, or other Special Pay Items
 - 999- 2 Lump Sum Contract
 - 999- 16 Partnering
 - 999- 20 Disputes Review Board
 - 999- 25 Initial Contingency Amt
 - 999-102 Speed and Law Enforcement Officer

71

999-16: When partnering is recommended by the construction office, a lump sum amount is included with the contract to provide for meeting rooms, facilitator fees, and travel expenses of the facilitator.

When this item is used, District Specifications Office should coordinate with the Contracts Administration Office.

999-20: There are several specifications available for a Disputes Review Board, depending on project conditions. The construction office should determine whether a Regional or Statewide Disputes Review Board is recommended.

The goal of the Disputes Review Board is to resolve project issues, before costly legal action becomes necessary.

Basis of Estimates- Part 2

- Selecting Pay Items
 - 900s
 - Developmental, Monitored, Limited use, or other Special Pay Items
 - 999- 2 Lump Sum Contract
 - 999- 16 Partnering
 - 999- 20 Disputes Review Board
 - 999- 25 Initial Contingency Amount
 - 999-102 Speed and Law Enforcement Officer

72

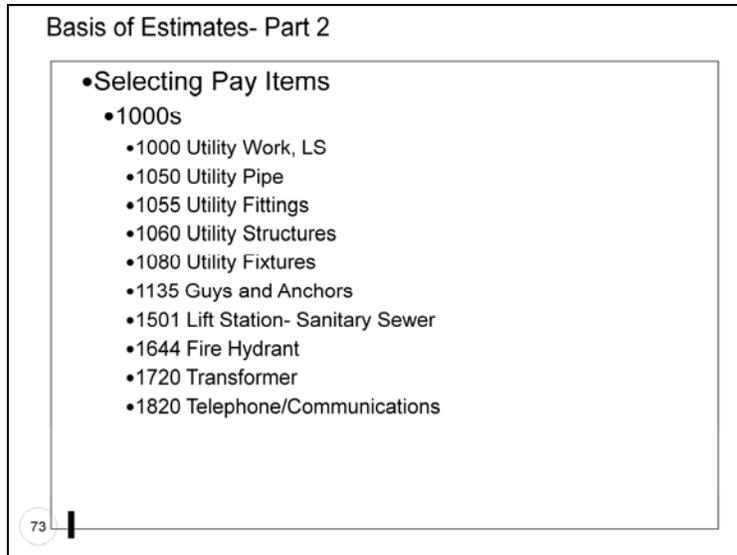
999-25: The initial contingency amount is determined by construction, in accordance with the CPAM.

While this is a non-bid item, it allows the construction office to encumber funds for unforeseen work and supplemental agreements.

Note that the initial contingency amount is based on the construction total for the proposal, not the individual projects, but the amount is pro-rated for each project. (The speed & law enforcement officer cost is not included in the construction proposal total for determining initial contingency amount.)

999-102: The Speed and Law Enforcement Officer is a non-bid pay item used where active law enforcement is necessary. The funds included with this pay item are used for contracts between the department and state or local law enforcement. This pay item is used at the discretion of the Engineer, and not for the Contractor's operations.

Refer to the Maintenance of Traffic pay item when a Traffic Control Officer is needed for controlling signalized intersections, traffic pacing, or other actions detailed in the design standards.



Pay Items within the 1000-1999 range are for use on Utility JPA projects only.

Common use utility items, such as pipe and fittings, are included in sections 1000-1099. Other utility applications are:

1500s Sanitary Sewer, 1600s Water Main, 1700s Power Transmission

1800s Communications, 1900s Fuel Transmission

All of the utility items will require Technical Special Provisions and/or plan details to cover the description, materials, installation, measurement, and payment information.

Note that historical costs for utility items vary widely, due to project-by-project requirements and specifications.

Consider incidental work with utility pay items. For small diameter pipe, some fittings are normally incidental. For example, small diameter pvc fittings are normally incidental. Thrust blocks are normally incidental to the fitting.

All testing & sterilization work is normally included in the cost of the pipe.

If the utility company requests further breakdown for an item of work, generic pay items are frequently recommended. Since there is no need to track the historical cost, we are much less concerned with consistent use of a utility pay item. (Very different from standard pay items.)

Basis of Estimates- Part 2

- Selecting Pay Items
 - Generic Items
 - 000-AAA-BBB
 - 000-100-BBB Structures
 - 000-200-BBB Roadway
 - 000-300-BBB Signing/Pavement Marking
 - 000-400-BBB Lighting
 - 000-500-BBB Signals/ITS
 - 000-600-BBB Landscaping

Caution: Read the rules!

74

Generic Items are “intended to support *one-time usage* pay items or *specialty situations* where a standard pay item is not available, and for which it is not practical to create a new pay item.”

While these pay items are readily available, there are no specifications, plan details, or cost history available.

Complete rules for these items are included in Chapter 6. Here is a brief summary of the rules:

- ❖ Must not be used if there is an existing pay item.
- ❖ Must not be used to violate or circumvent standard pay items.
- ❖ Must not be used to circumvent the approval process on developmental items.
- ❖ Must not be used as a work-around for a pay item that has been rejected for statewide usage by Central Office.
- ❖ Must not to be used for sole-sourcing of materials/ methods for items of work.

Coordination with the responsible office (Roadway, Structures, Traffic Ops, etc.) is recommended, as similar requests from multiple districts may encourage development of specs, standards, and/or pay items.

Basis of Estimates- Part 2

- Selecting Pay Items
 - Generic Items
 - 000-AAA-BBB
 - 000-100-BBB Structures
 - 000-200-BBB Roadway
 - 000-300-BBB Signing/Pavement Marking
 - 000-400-BBB Lighting
 - 000-500-BBB Signals/ITS
 - 000-600-BBB Landscaping

75

Generic Pay Items are formatted as 000-AAA-BBB, where AAA is the Design Group/Transport Category (100 for Structures, 200 for Roadway, etc.), and BBB is the Sequential Number that can be re-used.

For all generic pay items, the unit of measure is shown as “ZZ”. Within the supplemental description, the Estimator provides a brief description of the work and unit of measure.

As an example, a Roadway “Widget” using a Generic Pay Item might be shown as:

000-200- 1 Roadway Design Group- Generic Pay Item 1 (Widget, each)

Complete specs and/or details are required for each item. Load the generic pay item into the corresponding Transport category.

Basis of Estimates

- Part 1: Introduction
- Part 2: Pay Item Use
- Part 3: Estimating and Review



76

This concludes this part. Thank you for you time.

Comments and suggestions are appreciated- whether they address training overall, pay item issues, or project specific “lessons learned”.

