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Revision marks

- Revisions to the above Divisions are indicated with sidebars and underlines.
- All pages are redated September 2020.
- See below for a summary of changes

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Design Office Signature /s/ Mike Flemming	Phone Number 360-705-7233
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Summary of changes September 2020

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- Routine updates based on revisions to Division 6

Division 4 - Contract Plans

Publications Transmittal

- PPM 400.06 has two added sentences pertaining to survey control points.
- Example 4-3 is changed to include new added note #3 pertaining to control points.
- Example 4-19 is changed to include new added note #4 pertaining to control points.
- Formatting, minor text edits, and links updated as needed.

Division 6 - Contract Provisions and PS&E Word User's Guide

- Division 6 is revised in several locations to remove outdated information about amendments.
- Removed section 6.02 Amendments entirely, as the Standard Specifications are no longer updated by amendments. Renumbers subsequent section numbers.
- 600.02(3) RSPs: Added table for region and Ferries specific file extensions for Region Special Provisions
- 600.02(4) Project-Specific Provisions: added information about concurrence or approval of project specific provisions.
- Formatting, minor text edits, and links updated as needed.

Division 7 - Miscellaneous Contract Considerations

- 700.01(6)(b) Specifying Proprietary Items: Revised to specify WSDOT Policy on Proprietary Items. Website changes also made: keeping blanket approvals page. Other webpages removed.
- 700.01(7) Buy America: Text added about steel and iron being driver for Buy America. Text added to check with HQ Design and Construction offices in your processes.
- 700.01(14) Agreements: Revised section provides general info on agreements, and links to Agreements Manual. Detour and Haul road agreements (was 700.01(15)) is moved to 700.01(14)(a) since fits under Agreements topic.
- 700.01(17) Liquidated Damages: Contract Time-Related Liquidated Damages section is revised. The working day LD calculations were not always equitable, especially for short duration/high cost projects
- 700.05(8) HMA Quality Assurance: Numerical % values revised to align with Standard Specifications
- 700.06 Structures: Two new structure related sections added.
- 700.08(3) Earthwork for Roadside Installations: content revised
- 700.09(10) State Force Work or State-Furnished Materials; 700.09(10)(a) RCW 47.28.030: Revised to include 2015 (current version) of this RCW
- Formatting, minor text edits, and links updated as needed.

Appendix 1 – Structure Notes, Quantity Tabulation Sheets, and Sign Specification Sheets

- Updated link to QTabs.



**Washington State
Department of Transportation**

Plans Preparation Manual

M 22-31.08

September 2020

Engineering and Regional Operations
Development Division, Design Office

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Foreword

The *Plans Preparation Manual* is intended to provide instruction and guidance for preparing Right of Way Plans, Contract Plans, Special Provisions, and Estimate packages for highway construction projects. It also provides direction and links to standards used in the preparation of these plans.

Updating this manual is an ongoing process, and revisions will be issued as required.

Questions, comments, improvements, and ideas are welcome. Please use the Comment Form on page v to contact us.

Steve Roark

Director & State Design Engineer,
Development Division

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400.01 Introduction

The contents of this manual can be applied to the majority of the projects a designer will encounter. It is understood that no two projects are the same and that it is not possible to provide information for every circumstance that may be encountered. There will be those projects, or portions of projects, that do not fit the standard applications. In those cases, the designer must be able to recognize the need to adjust the standards to best depict the work to be accomplished.

This manual is intended to show representative information and examples the designer can, and should, use as a basis to make decisions on what is to be included in the Plans, Specifications, and Estimates (PS&E), and how it is to be shown in the plans. The main responsibility of the designer is to assemble a thorough package that contains the precise information required by a contractor to submit a responsible bid and for WSDOT to get an acceptable finished product. Providing too much information can, at times, cause as many problems as not providing enough. Contract Plans should include only that information necessary for the contractor to properly bid and construct. Information intended for WSDOT inspectors should not be included. In addition, designers should look for opportunities to consolidate and reduce plan sheets where appropriate. The designer must remember that projects requiring contractor surveying will require more detail and information than a project being surveyed by WSDOT.

400.01(1) *Contract Plans and Provisions*

The Plans, Specifications, and Estimates are some of the documents required for the advertisement of a project.

The Contract Plans and Contract Provisions must set forth the work in a clear and concise manner to avoid misinterpretation.

The Contract Plans shall conform to the geometric design as documented in the Design Approval Package (DAP), the Project Definition (PD) package, and the Project File—specifically, the Design Documentation Package (DDP). (See the [Design Manual](#) for more information.) All plan details and Contract Provisions are to be specifically applicable to the project being developed. It is acceptable to use details and provisions from previous contracts. However, they should be examined closely and modified as required to ensure they are specifically applicable to the current project.

Deviations from Washington State Department of Transportation (WSDOT) policies and standard practices require approval by the appropriate approving authority, in accordance with the *Design Manual*, in advance of advertisement of the project.

The designer and the Headquarters (HQ) Bridge and Structures Office will coordinate design schedules when structures are involved to ensure the project will be completed in a timely manner.

The designer is to take every opportunity to reduce the volume of the plans by using logical combinations of plan series to best display the information. Avoid duplication whenever possible in the Contract Plans and Provisions. Because no two projects are exactly the same, the designer needs to examine the logical combinations of plan series for each project. Displaying too much information may cause confusion to the contractor bidding the project and could result in higher bid prices. On the other hand, a series of plan sheets with minimal information displayed on each sheet makes it difficult to determine the interrelationship of different items of work, which could also equate to increased prices by bidders estimating the project. A balance resulting in complete and accurate information on the correct series of plan sheets is what is necessary. For an example of how this can be accomplished, see the WSDOT Computer-Aided Engineering Example Projects website:

🔗 www.wsdot.wa.gov/Design/CAE/ExampleProjects.htm.

The designer must remember that standards are not developed to stifle their ability to design, but instead to provide consistency across the state. We should strive for consistent use of state standards, regardless of where the project is located, recognizing that unique situations may require varying from the standards. When standard materials are called for, the contractors and the suppliers know what we're looking for and what to expect in the way of testing and approvals. When the same work is specified and represented in the plans the same way, the contractors develop an understanding of our expectations. Using standard items and construction methods is almost always more economical. Proprietary items should be avoided unless there is proper justification.

A resource to help address required items during the PS&E preparation is the "PS&E Checklist Template," available on the WSDOT Design - Project Development Support website:

🔗 www.wsdot.wa.gov/Design/ProjectDev/default.htm. This checklist contains the type of information that will be examined during the Stewardship Process Review, conducted by Headquarters and the Federal Highway Administration (FHWA) at the end of the project.

400.02 Project Manager's Responsibilities

All projects must have formal approval action in order to be advertised. Refer to the Appendices of the *Advertisement and Award Manual* for a sample of the Memorandum "Approval for Advertising – HQ Ad & Award."

400.02(1) General

The Project Manager has the following responsibilities:

- a) Prepare the PS&E in the basic format presented in this manual and in accordance with the geometric design documented in the Design Approval Package (DAP), the Project Definition (PD) package, and in the Project File—specifically, the Design Documentation Package (DDP). (See the *Design Manual* for more information.)
- b) Obtain permits, approvals, clearances, and certifications for which the region is responsible. The PS&E shall reflect the contract-relevant requirements of these documents.
- c) Set up an Environmental Commitments Meeting to achieve the requirement in (b) above. This should include the Region Environmental Office as well as the Construction Project Engineer administering the contract.
- d) Provide and maintain accurate bid item quantities, reasonable and current unit prices, and backup data used to determine the estimated cost for lump sum bid items or other bid items that have little or no historical cost data. (See the program "BidTabs Pro" for current bid prices: www.wsdot.wa.gov/Design/ProjectDev/EngineeringApplications/default.htm.)
- e) Maintain the cost of the project within the budgeted amount. Address budget issues through the appropriate authorities as warranted.
- f) Ensure the aggregate total cost of State Force Work and state-supplied materials are in accordance with [RCW 47.28.030](#) and [RCW 47.28.035](#) (see Division 7).
- g) Determine the sources for materials and locations of sundry sites furnished by WSDOT to verify the quality and quantity of material available at the provided sources.
- h) Verify that required new right of way will be secured prior to the need to occupy the property.
- i) Coordinate the HQ Bridge and Structures Office PS&E preparation with the region PS&E preparation. Provide the HQ Bridge and Structures Office with design and bridge site data in a timely manner.
- j) Ensure the reviews by the region and the appropriate Headquarters offices have been completed. Ensure the title block in the PS&E has the correct first name and initial and last name of the personnel, the design team has returned a brief written response to all review comments, and all appropriate changes have been incorporated into the PS&E prior to advertisement.

- k) Coordinate activities and review for projects on National Forest System land in accordance with “Highways Over National Forest Lands,” a Memorandum of Understanding (NFS 00-MU-11060000-040) between WSDOT and the USDA Forest Service (USFS), Pacific Northwest Region. (see: www.wsdot.wa.gov/Publications/Manuals/M22-50.htm)
- l) Provide a memorandum, with written justification, to the appropriate Assistant State Design Engineer (ASDE) for the approval and use of all proprietary items (see Division 7).
- m) Provide a memorandum, with written justification and estimated costs to use state-furnished materials, state labor, a mandatory materials source, and/or a mandatory waste site to the correct approving authority in accordance with the *Design Manual* (see Division 7).
- n) Coordinate with the region (Utilities Engineer, Right of Way, and so on) to obtain written construction permits and easements for work to be performed outside WSDOT right of way.
- o) Coordinate with region permitting offices (Utilities Engineer, Right of Way Engineer, Highways and Local Programs, Environmental, and so on) to obtain all required agreements to perform work under the contract for governmental agencies, private companies, and private individuals. These agreements shall include how the work is to be funded. There shall be substantiation that the benefit derived from the work is equal to or greater than the cost to WSDOT. Ensure all local/state/federal regulations have been addressed for the project.
- p) Provide justification and obtain approval from the Transportation Data, GIS, and Modeling Office (TDGMO) for liquidated damages, including interim damages other than those specified in the *Standard Specifications for Road, Bridge, and Municipal Construction* (*Standard Specifications*) (see Division 1).
- q) Provide justification and obtain approval from the HQ Construction Office for incentive/disincentive pay and liquidated damages that revise Section 1-08.9 of the *Standard Specifications*.
- r) Provide justification for stockpiling materials for use on future construction contracts.
- s) Provide justification for not using all pipe alternates.
- t) Provide justification for the use of construction engineering percentages different from the percentages specified in Division 8.
- u) Ensure the project title on all deliverable documents exactly matches the latest official title as agreed to by the Region Program Management Office and the Region Plans Office at the time of their delivery. If for some reason the scope of the project has changed so dramatically that the official project title must be changed, the title change must be negotiated with and agreed to by the Region Program Management Office and the Region Plans Office.

- v) Provide justification and obtain approval from the HQ Construction Office or current delegated authority in each region for use of nonstandard time for project completion specifications.
- w) Provide justification and obtain approval from the HQ Construction Office or the delegated authority in each region for using project-specific specifications that alter the *Standard Specifications* and/or General Special Provisions (GSPs).
- x) Coordinate in a timely manner with the Region Traffic Office on the preparation of all signal, illumination, ITS, and other design elements needed to be incorporated in the PS&E preparation.
- y) Ensure the Contract Plans/Contract Provisions are stamped in accordance with WSDOT Executive Order E 1010, Certification of Documents by Licensed Professionals:
wwwi.wsdot.wa.gov/publications/policies/fulltext/1010.pdf
- z) Check the current Design Documentation Checklist and project File Checklist for additional reports or requirements that apply to the project:
<https://www.wsdot.wa.gov/Design/Support.htm>

400.02(2) Project Specifications

The HQ Construction Office desires to maintain consistency, accuracy, and legality with project specifications. For this reason, a project designer should always try to use the specifications listed in the *Standard Specifications*. It is not uncommon for a project to have a method of work or a working window of time that differs from those listed in the *Standard Specifications*. There are also items of work that are region-specific and as such aren't covered in the *Standard Specifications*. In those cases where there is a nonstandard item of work in a project, the designer may write a project-specific Special Provision to describe the work. In the case of a region nonstandard item of work, the region may write Region Special Provisions (RSPs) to describe the work. Approval must be given by the HQ Construction Office, or delegated authority. In some cases, the HQ Materials Lab must approve changes to Division 9 of the *Standard Specifications*, before project-specific Special Provisions or some RSPs may be used in a project.

Once a Region SP has been approved by the HQ Construction Office, or delegated authority, it can then be used on future projects without being submitted to the HQ Construction Office for another approval, unless the Region SP instructions state that approval is required for each project. However, project-specific Special Provisions, when approved by the HQ Construction Office, or delegated authority, are only to be used on the project for which they were written. They cannot be used on another project without reacquiring the HQ Construction Office's, or delegated authority, approval. When referencing the *Standard Specifications* in the Special Provisions, the headings from the *Standard Specifications* are never to be changed. When a section of the *Standard Specifications* is "Vacant," the designer is not to use these sections for their Special Provisions.

Alterations to plans or specifications should be performed and sealed by the person who originally sealed them. They may be performed and sealed by a different licensed professional

acting within their area of expertise if necessary. Licensed professionals who sealed the original documents shall be notified of changes to their work that are considered practice of engineering and shall be given an opportunity to review and comment, if possible. Licensed professional engineers who are no longer WSDOT employees or who are not available through a consultant services agreement need not be notified of changes to their work.

Changes regarding quantities, payment estimates, time lines, etc., are typically not considered technical changes or practice of engineering and therefore would not require sealing by a licensed professional. Changes not considered technical changes or practice of engineering should still be reviewed by the original designer/submitter of that item of work and should not be changed by the Project Manager without the specific permission of the original designer/submitter.

400.03 Headquarters Assistance/Review

Various offices of expertise are available for assistance if requested by the region. For examples of transmittal memos to Headquarters or region support offices, designers should contact their Region Plans Office for assistance.

(a) Many of the key Headquarters offices that are available to assist during PS&E preparation are listed below and can be found, along with other support offices, on the WSDOT internal website: wwwi.wsdot.wa.gov/siteindex/default.htm

1. Development Division Office (HQ Design Office)

- Bridge and Structures Office
- Cost Risk Assessment (CRA)
- Design Policy
- Design Standards (*Standard Plans*)
- Environmental Services Office
- GeoMetrix Office, CAE, ROW Plans, Surveying, and VERG
- Highway Access Control
- Hydraulics
- Printing Services
- Project Delivery
- Project Development
- Project Management
- Real Estate Services Office
- Right of Way Plans
- Roadside and Site Development
- Strategic Analysis Estimating
- Utilities, Railroad, and Agreements
- Value Engineering

2. Construction Office
3. Traffic Operations
4. Materials Laboratory
5. Maintenance and Operations
6. Office of Equal Opportunity (OEO)

One of the two units of the HQ Office of Equal Opportunity (OEO) is the External Civil Rights Office, which provides some of the following services, which are important in PS&E preparation and contract administration:

- Implement the On-the-Job Training (OJT) programs under the Training Special Provisions (TSP) of USDOT-assisted construction contracts.
- Implement the Disadvantaged Business Enterprises (DBE) program on USDOT-assisted contracts and procurements.
- Set annual DBE goals.
- Establish and monitor a DBE Supportive Services program.
- Implement the Minority and Women Business Enterprise (MWBE) program on state-funded contracts and procurements.
- Provide training and technical assistance to WSDOT and its subrecipients, as well as to contractors and consultants.
- Develop and revise program implementation plans.
- Investigate external civil rights complaints.
- Implement the Title VI program, which requires nondiscrimination by recipients of federal financial assistance.

Contact the OEO to establish DBE goals, obtain Special Training hours, and determine which WSDOT General Special Provision (GSP) is needed for your project.

9. Capital Program Development and Management Office (CPDM)
 - CPDM establishes and manages project control and management procedures, including the change management process and the execution procedures for authorization of work order expenditures (WOA).
 - CPDM builds and manages WSDOT programs for future biennia. They establish program and subprogram funding levels and the process for federal-aid project authorizations. Designers should work through Region Program Management offices regarding these processes and requests.

(b) The following Headquarters offices can be found on the WSDOT public website:

 www.wsdot.wa.gov/

- | | |
|-------------------------|-------------------------|
| • Bridge and Structures | • Highway Maintenance |
| • Local Programs | • Traffic Operations |
| • Construction | • Materials Laboratory |
| • Design | • Contract Ad and Award |

400.04 Drafting Requirements

400.04(1) General

How the plan information is displayed on the plan sheets can have a great impact on the usefulness of the plans. To get the best possible bid and the best possible finished product, the plans must present the information clearly and concisely. Everyone who examines the plan should be able to determine what work is required and arrive at a single interpretation of the information.

To ensure a clear and singular interpretation, it is imperative that:

- Overcrowding of plan sheets is avoided by displaying only information relevant to the plan series.
- The plan is drawn with appropriate drafting standards as specified in this manual.

The designer will need to determine what information is required for the contractor to bid and construct the project and for WSDOT to administer the project. The requirements of other readers such as FHWA and various Headquarter offices also need to be considered. Many of the requirements in this manual, such as “Begin Federal Aid” and “End Federal Aid” Number and Section Lines shown on the Vicinity Map, may not be required to construct or administer the project but have value to other users of the Contract Plans.

The designer also needs to determine what information does not add value and only serves to clutter the plans and create confusion for the reader. Following are some examples of information that should not be included in plan sheets and some ways to help eliminate excess plan sheets:

- Alignment and R/W Plans where no changes in alignment and R/W are planned or where the alignment and R/W staking is being conducted and maintained by WSDOT.
- Quantity Tabulations for all items of work or where only a few items of work are listed.
- Right of way lines that have no ties add no value. If right of way needs to be shown, it should have ties showing where it is.
- Future alignments that have nothing to do with construction of the project can clutter a plan sheet making it hard to find the needed information.
- Showing existing pavement markings/edge of existing roadway on Paving Plans or Pavement Marking Plans.
- Showing anything that is slated for removal on a Site Preparation Plan and not anywhere else in the plans.
- Repeating plan sheets just to keep the same number of sheets in each series. Use break lines to eliminate sheets of nonchanging information. If there is no drainage code on a Drainage Plan sheet, the sheet shouldn't be included in the series. Also, for Paving Plans and Pavement Marking Plans, if nothing changes between intersections or interchanges, use break lines to eliminate sheets.

- Whenever possible, the designer shall avoid the practice of cross-hachuring, polka-dotting, or shading of large areas to represent areas to be paved, planed, or anything else. The roadway sections will adequately show the areas to be planed and paved. The use of large areas of cross-hachuring only hides or detracts from the rest of the information being displayed on the sheet.
- Profile sheets showing overlay, grinding and inlay, or paving exception areas of the project add no value. Show only the portions of the project that have a change in the vertical alignment of the roadway under construction. In the same way repeating information already shown on roadway sections on Paving Plans without showing dimensions adds no value to the contract.

If it does not provide needed information or add value to the plans—*REMOVE IT!*

400.04(2) Plan Sheets

The designer, early in the design process, needs to give careful consideration to the different series of plan sheets that will be required and the information that will need to be displayed on each series.

The use of different levels of the computer-aided drafting and design (CAD) system allow the flexibility to provide additional series of plans easily and quickly if it turns out that more information is required than was originally anticipated. For this reason, it is important that all CAD work use the prescribed level scheme.

- (a) Most of the drawings created by CAD users in a design office are 11-inch by 17-inch plan sheets for PS&E. Therefore, references will pertain to that size unless otherwise noted. In general, the plotting scale for 11-inch by 17-inch plan sheets is 1 inch equals 100 feet (1"=100'), except as indicated below. Set the plotting scale in MicroStation under the WSDOT pull down menu.

There may be occasions when the scale of a plan sheet needs to be increased to as much as 1"=40' for an 11-inch by 17-inch plan sheet. When this is done, the designer needs to examine the sheet to be sure that required information is easily read. It may be necessary to resize some text or symbols to make them legible.

- (b) Vicinity Maps are to be drawn at a scale appropriate to the size of the project and the detail required to show the appropriate information, as discussed in 400.06, Plan Sequence.
- (c) Sheets requiring a larger scale to display a great deal of information in a small area should be drawn to an appropriate scale to allow all information to be easily read and understood.
- (d) Strip maps are to be drawn at a scale appropriate to display the information clearly.
- (e) Use cross-hachuring only for small, isolated areas of work such as pavement repair areas or butt joint planing locations that may get lost if not displayed in this manner. On occasion, with concurrence of the Region Plans Office, color may be used for clarity. Gray-area shading is reserved exclusively for use in an addendum to highlight changes to a plan sheet. (See the Appendices for Addendum Preparation.)

- (f) Plan sheets may be plotted or be hand drafted. If hand drafted, use black ink on full-size Mylar sheets and then reduce at the time of submittal to the region.
- (g) Sheets utilizing a combination of CAD-generated base maps and inked construction features will be considered hand-drafted sheets. No stick-ons are to be used on plan sheets.
- (h) All screened (half-toned) portions of plan sheets shall be dark enough to adequately reproduce.
- (i) Line weight, lettering height, and symbols for Contract Plans shall conform to the standards contained in the [Electronic Engineering Data Standards Manual](#). It is important to conform to these standards for consistency and for reproduction.
- (j) Under most circumstances, lettering and dimensioning shall be placed so they may be read from either the bottom of the sheet or the right side of the sheet. Text shall not be placed across roadway centerlines or right of way lines. Text is to be clear of all lines and should normally be placed outside the drawing itself. Leader lines shall not cross one another or text. The two exceptions to the bottom and right reading text are:
 - 1. All Section Corner and Township line numbers shall have their tops to the north, and Range Line numbers shall have their tops to the west, regardless of the orientation of north to the sheet.
 - 2. All information identifying a centerline, such as line designation, stationing, tick marks, and bearings, shall be placed on top of the line and read left to right, with both the top of the line and left to right being based on the direction of the stationing.
- (k) When lines are coincidental, the following order of precedence for placing them on the sheet shall be used:
 - 1. Construction Centerline
 - 2. Right of Way Centerline
 - 3. Range/Township Line
 - 4. Section Line
 - 5. Corporate Limit Line
 - 6. County Line
- (l) When Corporate Limit lines coincide with other lines, the Corporate Limits will be labeled in an effort to clarify that the line is also the corporate limits.
- (m) Each plan view sheet shall have a north arrow and a scale bar. The north arrow will normally be oriented towards either the top or right side of the sheet.
- (n) All plan view sheets and profile sheets that physically show the Begin Project and End Project headings will identify these points as follows:

STATE-FUNDED PROJECTS:

Begin Project	End Project
SR XX, MP XX.XX	SR XX, MP XX.XX
STA XX+XX.XX	STA XX+XX.XX

FEDERALLY FUNDED PROJECTS:

Begin F.A. No.	End F.A. No.
Begin Project	End Project
SR XX MP XX.XX	SR XX MP XX.XX
STA XX+XX.XX	STA XX+XX.XX

- (o) If the “Begin and/or End Federal Aid” are different than the “Begin and/or End Project,” this information will be displayed similarly to the above on a separate leader line drawn to the appropriate location. Use “Begin Construction” and “End Construction” when work is being done on crossroads adjacent to the main line work or at ramp termini.
- (p) Each series of plan view sheets (such as site preparation, drainage, paving, and others) shall have a legend of features applicable to that series, and the legend will appear on each plan sheet of that series.
- (q) The legend is to contain all items that are shown on any of the individual plan sheets in that series. For example, if your Drainage Plan series consists of 15 plan sheets, and throughout these 15 plan sheets there are 12 items to be identified in the legend, all 15 of the drainage plan sheets in this series will have a legend that will have all 12 items listed and identified.
- (r) If a sheet in the series is too crowded to include a legend, a note shall be added to the sheet to tell the reader on which sheet the legend may be found. The preferred method is to refer the reader to the legend on the preceding sheet.
- (s) WSDOT Contract Plans show the slope of a line in several forms, such as ratio, percentage, and decimal. When a slope is shown in ratio form in WSDOT plans, it is shown as run over rise, which is opposite of mathematical standards in which a slope is always given as rise over run in ratio and fraction form. In WSDOT plans, a 4:1 slope means that the slope has a 4-foot horizontal run and a 1-foot vertical rise. Some WSDOT manuals further clarify the meaning of a 4:1 slope by adding a post text, such as 4H:1V, to further clarify that there are four units horizontal (run) and one unit vertical (rise). However, WSDOT Contract Plans will not carry such a post text.
- (t) Plan sheets prepared by architects and engineers for building facilities and associated site improvements shall be exempt from the requirements of the drafting standards described in this chapter. Drafting standards for building facilities and associated site improvements shall be determined by the Facilities Administrator.

400.05 Plan Sheet Sizes and Layout Format**400.05(1) General Information**

- (a) The Advertisement set of plan sheets shall be on 11-inch by 17-inch paper. See chapter 7, Drafting and Plans Preparation, of the *Electronic Engineering Data Standards (EEDS) Manual*.
www.wsdot.wa.gov/publications/manuals/fulltext/M3028/Deliverables7.pdf

- (b) If the Contract Plans have more than 225 sheets or Contract Provisions have more than 225 pages, they will need to be separated into volumes, with no volume having more than 225 sheets or pages.
- The break for volumes is to be made at a logical point in the package, which may not be at 225 sheets or pages.
 - If a project has 275 plan sheets, and the last 80 are bridge sheets, the logical break would be between the civil sheets and the bridge sheets.
 - If multiple volumes are required for the Contract Provisions, the logical break would be at the end of a main section. For example, break between HOT MIX ASPHALT PAVEMENT and the following main section, CULVERTS.
 - Do not place the break in the middle of a section.
- (c) Stamping: WSDOT plans and specifications shall be stamped with a seal, signature, and the date signed; the expiration date of the license is optional. Licensees are directed to WSDOT Executive Order [E 1010](#), [RCW 18.43](#), and [WAC 196](#) (Engineers and Land Surveyors); [RCW 18.08](#) and [WAC 308-12](#) (Architects); and [RCW 18.96](#) and [WAC 308-13](#) (Landscape Architects).
- The licensee's seal shall be placed on all plan sheets adjacent to the WSDOT logo, except for the Index to the plans, Vicinity Map, Summary of Quantities, and Quantity Tabulations. Bar-Lists are not required to be stamped. This space should be reserved during initial plan sheet layout.
 - The following plan sheets prepared by WSDOT are not required to be stamped: index, Vicinity Map, Summary of Quantities, Quantity Tabulations, Bar-Lists, TESC sheets, and Traffic Control Plans.
 - For plans prepared by consultant/developers, the Licensed Engineer's seal, signature, date signed (expiration date of license is optional), and logo is to be placed on all plan sheets adjacent to the WSDOT logo. The index to the plans, Vicinity Map, Summary of Quantities, Quantity Tabulations, and Bar-Lists are not required to be stamped. This space should be reserved during initial plan sheet layout.
- (d) Construction notes shall be numbered consecutively within each plan sheet series of the project. However, only the construction notes that are applicable to a particular sheet shall be shown on that plan sheet. Once you have created a construction note 1, it will always be the same for that plan sheet series. Continue sequencing of construction notes consecutively as you add them. DO NOT resequence from one plan sheet to the next. Each plan sheet series will have consecutive construction notes.

400.05(2) Title Bar Information

All plan sheets have a title bar on the bottom of the plan. Fill in the information according to the following instructions:

- PLOTTED BY: The first name initial and last name of the person who created the plot.
- DESIGNED BY: The first name initial and last name of the person who designed the sheet.
- ENTERED BY: The first name initial and last name of the CAD operator who electronically entered the plan.
- CHECKED BY: The first name initial and last name of the design team leader or person who checked the plan.
- PROJ. ENGR.: The first name initial and last name of the design Project Engineer.
- REGIONAL ADM.: The first name initial and last name of the Region Administrator.
- REVISION box: To be filled out when there is a revision made after the Advertisement Date. This is generally for the purpose of issuing an addendum.

In the block labeled REVISION, give a brief description of the revision that was made.

- DATE: Enter the date in which the revision was made.
- BY: Enter the initials of the person who made the revision.
- REGION NO.: This is an FHWA number; 10 is for Washington State.
- STATE: This should always be WASH.
- JOB NUMBER: Enter the number used for the Estimate Bid Analysis System (EBASE) that is issued by the Region Plans Office.
- CONTRACT NO.: This field is left blank.
- FED. AID PROJ. NO.: Enter the Federal Aid Project Number if there is federal aid in the construction phase of the project. This number can be obtained from the Region Program Management Office.
- LOCATION NO.: Enter the preliminary engineering work order number.
- PE STAMP BOXES: All plans that are considered final and that will be part of the advertised contract must contain the seal/stamp of the licensee who prepared or directly supervised the work. Preliminary documents—those documents not considered final—shall be stamped by the licensee who prepared or directly supervised the work. For more direction, refer to Executive Order [E 1010](#), [WAC 196-23-020](#), and [RCW 18.43](#).
- PROJECT TITLE BOX: This is the upper portion of the box that is directly to the right of the WSDOT logo. Enter the exact project name, as determined by the Region Plans Office.
- SHEET TITLE: This is the lower portion of the box that is directly to the right of the WSDOT logo. Enter the sheet name as it appears in the Title column of the Index.
- PLAN REFERENCE: This is the upper portion of the box farthest right on the title bar. This is an alpha/numeric number. The alpha portion is selected by the design team; it should be logical in nature, containing letters that refer to the type of plan. The numeric portion is sequential. The plan reference shall match the Plan Reference No. column of the Index. For suggested Plan Type Codes to be used for plan reference abbreviations, see the [Electronic](#)

Engineering Data Standards Manual, Division 1, Deliverables 4, Naming Conventions, section D4.04(2).

- SHEET NUMBER: This is the lower portion of the box farthest right on the title bar. This field is filled in on the plans that are advertised when the total number of sheets is fixed. Contact the Region Plans Office for instructions on filling in this field for the review of the plans.

400.06 Plan Sequence

400.06(1) Assembling Plans

The following outline is the sequence to follow when assembling plans for a construction project. It is a list of possible plan sheets and is not intended to represent a project.

400.06(1)(a) Plan Sequence

1. Index.
2. Vicinity Map.
3. Summary of Quantities.
4. Borrow, pit, quarry, stockpile, waste sites, and reclamation plans.
5. Roadway sections: main roadway, ramps, frontage roads, detours, others.
6. Grading sections, if applicable.
7. Stage construction plans, if applicable.
8. Alignment or Alignment/Right of Way.
9. Quantity Tabulation sheets (Q-tabs). These sheets will be placed immediately prior to the plan sheets showing the work being tabulated, such as site preparation items, temporary erosion and sediment control (TESC) items, guardrail items, and traffic items.
10. Site Preparation. Existing topography and removal and demolition work may be shown on Alignment Plans; however, if extensive details are required and the plan sheet becomes too crowded, it should be on a separate series.
11. Existing Utilities. This is an extension of the Site Preparation Plan and is only required if the existing utilities are so extensive that they cannot be clearly shown on the Site Preparation Plan.
12. Roadway profiles—normally only required when grade is being revised.
13. Environmental Compliance Plans (ECP).
14. TESC Plans—may not be required if work is minor and can be combined with Drainage Plans or other plan sheets. Refer to Division 7 for information on when a TESC Plan is required.
15. TESC details.
16. Drainage structure notes—will precede plan series showing drainage features.
17. Drainage Plans—may not be required if work is minor and can be combined with another series of plans.

18. Drainage profiles—will follow plan series showing drainage features.
19. Drainage details.
20. Stream Plans.
21. Stream Profiles.
22. Stream Details.
23. Utility Structure Note sheets—only required if there is work to be done by the contractor on existing utilities.
24. Utility Plans—only required if there is work to be done by the contractor on existing utilities.
25. Utility details—only required if there is work to be done by the contractor on existing utilities.
26. Irrigation Structure Note sheets.
27. Irrigation Plans.
28. Irrigation details.
29. Landscape, wetland, rest areas, roadside restoration, and viewpoints.
30. Interchange contours.
31. Paving Plans are required for overlay projects when paving breaks, paving dimensions, intersection paving, taper lengths, dimensions of taper widths, and so on, can't be shown adequately on the roadway sections. In this case, the Roadway Sections, Paving Plans, and Paving Detail sheets are to be prepared in conjunction with each other to show all paving work.
32. Paving details.
33. Curb ramp plans.
34. Minor structures such as retaining walls.
35. Illumination Plans—may be shown on Paving Plans if illumination is minor and Paving Plan will not be too crowded.
36. Illumination details—will follow plan series showing illumination layout.
37. Traffic Signal Plans.
38. Traffic signal details.
39. Intelligent Transportation System (ITS) Plans.
40. ITS details.
41. Sign Specification sheets—will precede the plan series showing the signing.
42. Signing Plans—may be shown on Paving Plans if signing is minor and Paving Plans will not be too crowded.
43. Signing details—will follow plan series showing signing.
44. Bridges and other structures.
45. Building plans and details.

46. Traffic Control Plans.
47. Detour routes and detour signing. If the detour is simple and straightforward, this information may be shown on the Vicinity Map, as long as the additional information does not detract from the Vicinity Map.

400.06(2) Plan Sheets

The designer is to determine the actual plan sheets required to best depict the project. Each project will require the designer to verify the order of plan sheets to determine what is or isn't required. A basic P1 paver will normally not require as many sheets as a project that has safety, mobility and paving work. When two or more projects are merged into one project, the plan sheet sequence will be followed. Even with logical combinations of plan sheet series, the following basic order of sheets shall be maintained:

- **Item information:** Quantity Tabulation/Structure Note/Sign Specification.
- **Plan series:** The series showing the items of work described on the Quantity Tabulation/Structure Note/Sign Specification sheets.
- **Details:** For work associated with items shown on the plan sheets.

400.06(3) Index

See Contract Plan Examples 4-1 and 4-2.

An index is required for all projects with 30 or more plan sheets. A project with more than one volume of plan sheets shall have a complete project index in each volume, providing information on all volumes.

List the plan sheet titles exactly as they appear on the plan sheets. Avoid sheet titles such as "Miscellaneous Details." If a sheet contains guardrail and drainage details, use "Guardrail and Drainage Details" as the sheet title and in the index. Note that not everyone using the plans will be as familiar with them as the designer.

On small projects, and as scale permits, the index can be placed on the Vicinity Map plan sheet. However, DO NOT reduce your Vicinity Map size to allow you to combine the index and Vicinity Map as one plan sheet.

Regardless of the size of the project, it is recommended that Plan Reference Nos. be used on all projects in lieu of plan sheet numbers during the design phase.

Plan sheet numbers are not critical during the design phase of the project. Until the design team leader or region plans reviewer has all the plan sheets for all the separate series (such as paving, drainage, and signing) to be included in the project, the total number of plan sheets to be included in the contract is unknown.

There are several advantages to using Plan Reference Nos. to identify plan sheets for individual series during the design phase:

- The designer doesn't have to know the total number of plan sheets included in the contract.

- Once Plan Reference Nos. have been assigned to individual plan sheets included in a series, these numbers should not have to be changed. This makes referencing details on other plan sheets easy to do and should help eliminate the habit of forgetting to do this. Once the statement “FOR DETAIL, SEE SHEET D12” is placed on the plan sheet, this reference will almost always be correct unless plan sheet D12 is deleted from the contract.
- Plan sheets can be inserted or deleted within the series with slight modifications to reference number. For example, a plan sheet that needed to be inserted between D6 and D7, sheets D7 through the end of the series would need to be renumbered. The use of D6A should be only used in an addendum. (See Appendix 5 for additional information.)

400.06(4) Vicinity Map

See Contract Plan Examples 4-2, 4-3, 4-4, 4-5, and 4-6.

Every project will have a Vicinity Map plan sheet that shows and has labeled all construction centerlines, detours, and haul routes.

Projects may be broken into Sections (see Contract Plan Examples 4-3 and 4-4) when it is required or necessary to split the project into different areas.

This is the logical way of showing the work to be performed, listing quantities, and so on, when all the work involved is not conveniently located in one continuous area with no exceptions or gaps.

If the entire project is on one State Route (SR), but has breaks in the areas where work is to be performed between the Begin Project and End Project, these breaks should be labeled “exceptions” or “exception areas.” If there are numerous exceptions or exception areas, an alternate method of showing these exceptions is to label as “Sections” the areas where work is to be performed.

If the project has multiple SRs, where the work is definitely spread out, it is highly recommended that the work be broken into Sections. When multiple SRs are used in a title, the smallest SR number followed by et al. is used to shorten the title.

AN IMPORTANT REMINDER

If the project is broken into Sections, make sure all references to a Section are exactly the same throughout all plan sheet series (Summary of Quantities, Roadway Sections, Quantity Tabulation sheets, Structure Note sheets, Profile sheets, and so on) in the plan set for that Section. All exception work areas and gaps must be shown identically in all locations and references throughout the Contract Plans and Provisions.

- (a) Project limits are to be referenced to State Route Mileposts (SRMP) based on the State Highway Log (TRIPS System).
- (b) Stationing shall be stated at the Begin Project and End Project on the main line and the Begin Construction and End Construction for secondary crossroads.
- (c) The Begin Project and End Project are defined as follows:

- For projects with one applicable State Route, the beginning and ending of any permanent work on the main line highway is assigned as Begin Project and End Project.
- (d) If the project includes multiple SRs, there is still only one Begin Project and End Project location. Projects with multiple SRs may have a Begin Project on one SR but an End Project on a different SR. Begin Project is assigned to the beginning of permanent work at the most westerly or southerly portion of the project, and the End Project to the most easterly or northerly portion, determined by the general direction of the project activities.
- (e) Begin Construction and End Construction are defined as follows:
- The limits of permanent work, such as signing, guardrail, striping, drainage, landscaping, and so on, to be performed on city, county, or state roadways not on the project main line, included in the contract.
- (f) The Begin and End of Federal Funding shall be shown and referenced by Federal-Aid Number, milepost, and stationing. The federal funding limits will most often be the same as the project limits, but will cover all work.
- (g) All equations and exceptions shall be shown on the Vicinity Map. If the scale of the Vicinity Map is such that equations can be shown with headers and leader lines to the approximate point where the equation is located (by stationing), this is the preferred method to identify the equation. If there is insufficient room on the Vicinity Map itself (because of scale) to clearly identify the equation and exception areas, they may be shown in tabular form (data box) on the Vicinity Map plan sheet.
- (h) The distance in miles from the beginning of project (Begin Project) to the nearest city or town and in the opposite direction from the other end of the project (End Project) to the nearest city or town shall be shown. Do not use “local” descriptions such as “10 miles to EZ Corners.” If the nearest city or town is shown on the WSDOT highway map, it should be recognizable enough to be used for this purpose. The city or town shall be one that is shown on the WSDOT highway map.
- (i) The Vicinity Map is the only place in the plans where the overall layout of the main line, ramps, frontage roads, and street locations are shown. County roads and city streets shall be shown and labeled if they are important to the project. Do not show county roads and city streets just to “fill up” the sheet. As with all plan series, delete anything that does not add value to the plan sheet or that provides detail or information that your reader does not need. **DO NOT LABEL LOCAL BUSINESSES ON THE VICINITY MAP.**
- (j) The scale of the Vicinity Map shall be large enough to easily identify all construction lines and appropriate local and private streets or roadways. A scale bar will be provided on the Vicinity Map. In addition to including the scale bar, the scale of the plan sheet, detail, and so on, will also be shown in text underneath the scale bar.
- (k) Material sites, waste sites, stockpile sites, and haul routes will be shown. Do not reduce the scale of the Vicinity Map so that these sites can be shown to scale. If they are too far removed from the project to be shown at the scale appropriate for the Vicinity Map, they can be shown in a separate box in a corner of the Vicinity Map sheet at a smaller scale. The

- haul route from the site to the highway shall be shown, and the distance in miles from the site to the nearest point on the project will be shown or noted.
- (l) Features such as railroads, waterways, and streams, as well as overcrossing and underpassing roadways, shall be shown and named. Railroads running parallel to the project and adjacent to the right of way are also to be shown. If the railroad crosses through the project, there is to be a clear indication of whether or not the intersection is at grade.
- (m) Wetland and wetland mitigation sites are to be shown on the Vicinity Map. The designer may have to enlarge sections of the Vicinity Map in order to make wetland and wetland mitigation sites visible.
- (n) Identify each bridge found within the Project Limits on Vicinity Map as follows:
- For existing bridges, identify the bridge by bridge number and the type of bridge work. Examples of the most common types of work are: WIDENING, BRIDGE REMOVAL, BRIDGE WIDENING, RAIL RETROFIT, MILL/FILL, CONCRETE OVERLAY, HMA OVERLAY, BST (Bituminous Surface Treatment), NEW APPROACH SLAB, SEISMIC RETROFIT, BRIDGE REPAIR, UTILITY ATTACHMENT, and SIGN BRACKET.
 - When there is no contract work on an existing bridge and the contract work does not affect a bridge, or the work is beyond the end of the bridge (such as guardrail transitions attached to the bridge barrier), then identify the bridge number and include "NOT INCLUDED IN PROJECT" as the type of work.
 - For new bridges, a bridge number is not available at the time of PS&E preparation. Show the project stationing at the beginning of the bridge, and include "NEW BRIDGE" as the type of work.
- (o) Cadastral information (Township, Range, and Section) is to be shown on the Vicinity Map and any plan sheets that show dimensioned right of way and/or limited access.
- (p) Township, Range, and Section information will be shown on the Vicinity Map as follows:
- Township and Range Lines will be shown and identified if they fall within the limits shown on the Vicinity Map.
 - If Township and Range Lines do not fall within the limits shown on the Vicinity Map, Township and Range information will be shown at the top center of the Vicinity Map plan sheet.
 - Section Lines will be shown with associated Section Corners, with Section Numbers. On small projects, or larger scale Vicinity Maps, this may require the use of break lines to bring the corners within the limits shown. If the corners are found, the ties to centerline are to be shown. If there are no Section Corners within the limits shown, a quarter or sixteenth Section Line can be shown and the cadastral information (Township, Range, and Section) given to indicate location.
- (q) Primary control points are displayed in their coordinate location and labeled with the designation ID only (see Example 4-3).

400.06(5) Summary of Quantities

See Contract Plan Examples 4-7, 4-8, and 4-9.

The Summary of Quantities sheet provides a complete tabulation of all bid items and pay quantities that have been determined by the designer/design team to be required for the project. Bid items and quantities are entered into the project estimate via EBASE. The Summary of Quantities Plan sheet is generated from the estimate database by requesting a Summary of Quantities report. Utilization of the program [BidTabs Pro](#) will give the designer access to current bid prices for use on the estimate.

The Summary of Quantities shall be divided into groups and columns within the groups.

400.06(5)(a) Groups

A separate group is required whenever:

- There is a change in program item number (PIN).
- There is a change in program or subprogram (I2, P1, P2, and so on).
- There is a change in funding: any change in funding participants, their individual participation rates, or their source of funding. Funding participants may be the FHWA, a state agency or other public agencies, a county, a city, or private organizations.
- There is a change in control section.

A separate state-funded group (one per project) is required for third-party damages. The bid item “Reimbursement for Third Party Damage” is included in this group; it will be a minimum of \$5.00 (see the EBASE User’s [Guide](#) available here: [Design - Project Development - Overview of Engineering Applications](#)).

400.06(5)(b) Columns

Each group is required to have at least one column associated with it. Additional columns within a group are required for the following:

1. Each bridge and structural retaining wall—those covered in Section 6-11 of the [Standard Specifications](#)—shall have its own column in order to identify materials quantities required to construct this item.
2. Each state-furnished pit site (mandatory or not) shall have its own column.

There are exceptions that will be allowed for item 1 above. For projects with a single wall, a single bridge, or both, the wall and bridge quantities may be entered into a single column or combined with another column. For projects with multiple walls, if the materials quantities required for each wall are clearly tabulated in the plans, these wall quantities may be entered into a single column or combined with another column in the Summary of Quantities.

In addition, when paving across multiple bridges, the paving quantities need not be separated out for each bridge and may be included in main line paving quantities in the Summary of Quantities.

The intent of item 1 above is to be able to identify the quantities of work at each wall or bridge during construction activities.

The designer is advised to use additional columns within groups to show quantity breakouts for individual construction lines. For example, by using separate columns for the main line, a frontage road, and each ramp, it is much easier to track and make quantity revisions during design, and much easier to track quantities for overruns or underruns during construction, than it is if all of the quantities are combined in a single column.

400.06(5)(c) Quantities

The quantities for the following types of items will typically appear only in the Summary of Quantities:

- Lump sum items: LS will appear on the Summary of Quantities for these items; the approximate quantity for lump sum items will appear in the Special Provisions.
- Force account items.
- Water.
- Aeration items.
- Structure items, such as bridges and structural retaining walls—although separate Quantity Tabulation sheets are desirable for structural retaining walls when there is more than one wall in a project.
- Borrow materials—unless the conditions noted in Division 7 apply.
- Surfacing materials.
- Paving materials.
- Sign covering.
- Sequential arrow sign.
- Contractor piloted traffic control.
- Traffic control labor.
- Construction Signs Class A.
- Traffic Control Supervisor.
- Traffic control vehicle.
- Spill Prevention Plan.
- ESC Lead.

Bid items shall be listed in the same order as they appear in the current Standard Item Table.

Bid items not listed in the Standard Item Table shall be intermixed, according to type of work, with the bid items that are listed.

Bid item names for nonstandard bid items shall be singular in form and close to similar nonstandard bid item names used in previous projects. This information can be found in [BidTabs Pro](#). (See Division 7 for additional information on standard items.)

400.06(5)(d) Standard Item Table

The Standard Item Table provides useful information to the designer in the last column to the right (Item Use Message). Listed in this column is a statement that will tell the designer what, if anything, needs to be done if this bid item is used in the project. Some of the statements that are listed in this column are as follows, with a definition of the statement:

STANDARD ITEM

Indicates that this bid item is a standard item and is covered in the *Standard Specifications*. The designer may not need to do anything to revise or supplement the information provided in the *Standard Specifications*.

However, the designer must decide whether information concerning this bid item, as addressed in the *Standard Specifications*, is sufficient or whether more “project-specific” information is required.

REQUIRES SPECIAL PROV.

Indicates that the designer needs to do one of the following:

- Revise the appropriate section or sections in the *Standard Specifications*.
- Supplement the appropriate section or sections in the *Standard Specifications*.
- Write a “stand-alone” project-specific specification because the *Standard Specifications* does not contain information/direction for this item of work.

STD. ITEM, GSP REQUIRED

Indicates this bid item is a standard item, it is covered in the *Standard Specifications*, and there is a General Special Provision (GSP) that needs to be included in the contract Special Provisions when it is used. It is the designer’s responsibility to ensure the GSP is applicable or “project-specific” to the contract.

GSP ITEM

Indicates that a GSP exists and must be included in the contract Special Provisions. It is the designer’s responsibility to ensure this GSP is applicable or “project-specific” to the contract.

AMENDMENT ITEM

Indicates that an Amendment exists and must be included in the contract Special Provisions when this bid item is used.

REQ SPECIAL, HQ APPROVAL

Indicates that when this bid item is used, a project-specific Special Provision must be written and HQ Construction Office approval must be given prior to including this Special Provision in the contract.

HEADQUARTERS USE ONLY

Indicates this bid item will be included in contracts only when directed by the HQ Construction Office.

TECHNICAL SPECIFICATION

Indicates this bid item will require a technical Special Provision to be written. Architects generally write this type of Special Provision. These bid items are typically used only for architectural-type work (such as building facilities construction at ferry terminals and rest areas).

SUPERSTRUCTURE ITEM

Indicates this bid item is to be used in conjunction with Standard Bid Item 4300 ONLY. The 9000 series bid items are to be used only to provide lump sum breakout data for bid item 4300 "Superstructure – XXXXXX."

DO NOT use the 9000 series bid items as stand-alone bid items in your contract estimate.

400.06(5)(e) Quantities

A quantity shall not be duplicated within the body of the plans. The item totals shown in the Summary of Quantities shall be the sum of the quantities shown for the item throughout the plans. Quantities are typically listed in the Quantity Tabulation, Structure Note, and Profile Plan sheets. When quantities for an item appear in places other than where your reader would expect to find them, or when quantities for an item appear in two or more places throughout the plans, a cross-referencing statement, such as "FOR ADDITIONAL QUANTITIES – SEE SHEETS Qnn and Wnn," shall be included.

Quantities for work items such as pigmented sealer, whose cost is included in the cost of the associated concrete, are shown in the plans for the sole purpose of aiding the contractor in the bidding process and shall be accompanied by the note, "Informational Only."

Care must be taken when calculating quantities for surfacing and paving materials to ensure reasonable accuracy. The *Design Manual* contains units and conversion factors for estimating surfacing and paving quantities.

Quantities listed in the Summary of Quantities are intended to be representative of the work to be performed. Rounding will take place each time a quantity is placed on a Quantity Tabulation sheet, a Profile sheet, or another location in the plans. The total of the rounded quantities will be carried forward to the Summary of Quantities.

400.06(5)(f) Rounding of Quantities

The following general rules shall apply to the rounding of quantities:

1. Items having an estimated unit price of \$9.99 or less will be shown to the highest multiple of 10; for example, 3,640 (not 3,637) units of haul at \$0.50, and 560 (not 554) tons of ballast at \$1.25.
2. Items with an estimated unit price of \$10.00 to \$99.99 will be shown to the nearest full digit; for example, 61 (not 60.5) cubic yards of concrete at \$43.00.
3. Items with an estimated unit price of \$100.00 or more will be shown to one decimal place; for example, 18.3 (not 18.25) acres of clearing at \$1500.00.
4. Exceptions to numbers 1, 2, and 3 above:

- Earthwork items, roadway excavation, embankment compaction, and borrow excavations are to be rounded to the nearest multiple of 10 units, regardless of price. The rounding for roadway excavation and embankment compaction will be made for each entry on the Profile sheets. The borrow quantities will be rounded to the nearest 10 units and placed on the Summary of Quantities. On a new construction project with extremely large earthwork quantities, the quantities could even be rounded to the nearest 50 units at each entry on the Profile sheets.
- HMA and crushed surfacing items are to be rounded to the nearest 10 units.
- Pipe items will be rounded to the nearest foot for each pipe run entered on the Structure Note sheets, regardless of price.

400.06(5)(g) Unit Bid Prices

Good sources to use for determining the estimated unit bid prices for quantities are BidTabs Pro and Unit Bid Analysis. If these are not available through your Region Intranet Home Page, they can be accessed via the WSDOT [Design - Project Development Support website](http://www.wsdot.wa.gov/design/projectdev/) under the “Engineering Applications” heading: www.wsdot.wa.gov/design/projectdev/

400.06(6) Contract Reclamation Plans

See Contract Plan Example 4-10.

A Contract Reclamation Plan will clearly set forth all reclamation work to be accomplished in the contract.

A Contract Reclamation Plan is required for every WSDOT contract that contains a WSDOT furnished-material source. The Contract Reclamation Plan will be based on the Ultimate Reclamation Plan (ultimate REC plan). A reproducible (reverse-reading Mylar) of the approved ultimate REC plan can be obtained from the Region Materials Laboratory. This plan will be modified to create a Contract Reclamation Plan, which will be included in the Contract Plans.

By [RCW 78.44](#), the approved ultimate REC plan must be followed or WSDOT is subject to fines for each incident. If the contract work requires deviation from the ultimate REC plan, a modification to the ultimate REC plan has to be submitted for Department of Natural Resources (DNR) approval prior to beginning work at the site.

In some cases, Contract Reclamation Plans need to be developed during Contract Plan preparation for sites that do not have ultimate REC plans. Materials sources located on federal land or sites smaller than 3 acres in area usually do not have ultimate REC plans.

400.06(6)(a) Contract Reclamation Plan Elements

1. The existing contour lines shown on the Ultimate Reclamation Plan when it was approved will be updated to show the topography as it exists immediately prior to the contract. Only the contours in the portion of the site affected by your project need be shown, not for the entire site.
2. The contractor's designated work area will be noted.
3. The available raw material will be indicated, or, when appropriate, a note may be added on the plan stating that sufficient raw material is available for the project.
4. A block detailing materials to be produced and reclamation items needed under this contract.
5. The interim and reclaimed slopes shall be no steeper than the slopes on the ultimate REC plan.
6. Specific directions for excavation will be added as a note; for example, "Excavation shall progress to full depth from the existing face of excavation toward the southeast."
7. Only notes on the ultimate REC plan that are applicable to work being performed under the contract are to be included on the Contract Reclamation Plan.
8. Other notes and information necessary to the specific contract will be added. It is the intent that the Contract Reclamation Plan stand alone for the work (reclamation) to be accomplished under the contract.

400.06(6)(b) Contract Materials

It is the designer's responsibility to verify with the Region Materials Laboratory that the quantity of available material is accurate and that it is possible to produce all the materials listed within WSDOT specifications. If the contractor will be required to perform some special or extra work to manufacture material that meets the specifications, the special or extra work requirements are to be included in the Special Provisions.

Quantities for stripping, clearing, and grubbing, and all other items of work to be performed within a site, shall be tabulated on the plan. For a nonmandatory site, the items of work shall be site-specific ("Clearing and Grubbing – Site QS-A-495"). For a mandatory site, the work will fall under the general contract work item ("Clearing and Grubbing"), but will be shown in a separate column.

Identification numbers for stockpile and waste sites are assigned by the Region Materials Laboratory. Although a Contract Reclamation Plan is not required for stockpile or waste sites, the plans shall indicate any restrictions on the use of such sites.

Access to the sites shall be shown. If an access road is to be built, rebuilt, or widened, indicate the width of right of way, and clearly identify all work to be performed by the contractor on the access roads as a part of the contract. How the contractor will be paid for the access road work will be outlined in the Contract Provisions.

Agreements are required with the owners of all roads that make up the haul route. These agreements will indicate WSDOT's and the contractor's responsibilities for returning the roadway to the "before hauling" condition.

400.06(7) Roadway Sections

See Contract Plan Examples 4-11, 4-12, 4-13, 4-14, 4-15, and 4-16.

Roadway sections are to provide complete geometric information on the roadway cross section from the subgrade up and general information left and right of centerline. The information on the roadway sections will tie directly to the Paving Plans and the profiles if these series of plans are included in the project.

On federal-aid projects, future paving and surfacing depths required to bring the roadway to the ultimate design cross section shall be shown in order to qualify for future participation by the FHWA.

Roadway sections are required for every combination of surfacing and paving depths used on the main line, ramps, detours, frontage roads, road approaches, city streets, and so on.

Consider the use of tables with a section example in order to reduce the number of unnecessary plan sheets.

Roadway sections are to represent conditions from the subgrade up for the entire length of the construction line(s) (such as main line, ramps, detours, frontage roads, road approaches, and city streets) included in the project. Start at the beginning station on an alignment and identify all stationing to the end of line without gaps/overlaps.

When drawing roadway sections, it is recommended that proportional scaling be used to indicate lane widths and depths of materials to be placed. A 12-foot lane should be drawn so that it appears slightly larger than a 10-foot shoulder. A 0.15-foot lift of hot mix asphalt (HMA) should be drawn so that it appears approximately one quarter the thickness of a 0.60-foot lift of gravel base course.

Roadway sections should be drawn to reflect how the work is expected to be performed in the field. If HMA is to be placed in multiple lifts, draw the roadway section to reflect this fact by showing the number of lifts with the required depths of each lift. Show each lift with an edge line that would indicate where each lift would end left and right of centerline. DO NOT simply draw each lift of HMA to extend out into the shoulder unless this is exactly how the HMA is to be placed.

Variable dimensions (for example, Varies 2' to 10') may be used to represent differences in shoulder or lane widths, or transition areas, only if there is a Paving Plan that clearly shows, by stationing, the actual widths desired. If the project is a pavement overlay project and no Paving Plan is going to be provided, the use of variable horizontal dimensions is discouraged unless construction notes or a table is used to describe, by stationing, where the variable paving widths or transitions begin and end.

A generic roadway section for bridges must be provided to avoid having gaps in stationing. If the bridge is being overlaid, additional detail will be required; be sure the roadway section matches any bridge information in the plans. When a project has a structure on the main line or a secondary line that is not included in the project, a paving exception should be noted on the Roadway Section sheet.

Bridge approach slabs, if required, shall be shown as a separate roadway section.

Station equations, paving exceptions, and project exceptions are to be shown in proximity to the roadway section to which they apply.

400.06(7)(a) Roadway Section Items

Each roadway section in the project shall show the following applicable items:

1. Horizontal dimensions of the roadways, as approved in the Design Decision Summary.
2. Project-specific design details and required features such as curbs, sidewalks, or riprap.
3. The depths of surfacing and paving.
4. Station-to-station limits for each line represented by the roadway section.
5. The position of the profile grade, the pivot point for super transition, and the construction centerline.
6. The depth from profile grade to the roadway surface being constructed if the project does not include ultimate design surfacing. This depth shall be labeled "Future."
7. The type, width, and thickness of the existing surface if the characteristics of the existing surface will affect construction.
8. A general note indicating that all surfacing and paving depths are compacted depths.
9. The roadway ditch depth shall meet the design criteria in the *Design Manual*. A slope table should be used when embankment and excavation heights vary enough to require different slope rates. Show sideslopes for embankment sections and inslopes and backslopes for excavation areas.
10. A section showing shoulder widening for guardrail. If shoulder widening for guardrail is isolated to one or two roadway sections, it can be shown as part of the particular section. If shoulder widening for guardrail applies to several roadway sections, a separate shoulder-widening section can be drawn and referenced from the applicable roadway sections.
11. A section showing the shoulder design on the outside of a curve (super elevation section) if the project involves constructing subgrade on the outside of curves (a standard CAD detail that need only be shown once).
12. A surfacing legend is to be shown on each sheet indicating the type of surfacing material, with the exact item name as found on the Summary of Quantities. For HMA, it is necessary to indicate the class of material used, but not the performance grade (PG), when only one grade is used for the entire project. However, if there are two or more performance grades

- used on the project, they must all be detailed on the roadway sections. Each type of material shall be assigned an identifying number enclosed by a hexagon symbol.
13. Construction notes shall be numbered consecutively, but only the construction notes that are applicable to a particular sheet will be shown on the sheet. Once you have created a construction note 1, it will always be the same for that series. Continue the sequencing of construction notes consecutively as you add them. DO NOT resequence from one plan sheet to the next. For example:
- Sheet R1 may have construction notes 1, 2, 3, and 4.
 - Sheet R2 may have construction notes 1, 3, and 5. (Notes 1 and 3 on sheet R2 would be identical to notes 1 and 3 on sheet R1, and note 5 on R2 is a new note, consecutively numbered).
14. If the total paving depth for a class of HMA exceeds the nominal compacted depth specified in the *Standard Specifications*, one of the following methods of indicating the paving requirements will be used:
- Multiple lifts shall be drawn on the roadway section indicating the desired minimum compacted depth of each lift.
 - A construction note shall be provided for the roadway section specifying the number of lifts required and the maximum allowable compacted depth for any lift shall be in accordance with Section 5-04 of the *Standard Specifications* for Road, Bridge, and Municipal Construction.

400.06(7)(b) Paving Depths

The plans supersede the *Standard Specifications*. If the roadway sections do not indicate the maximum paving depths, the contractor could use thicker paving lifts than allowed in the *Standard Specifications*. Using one of the two methods above ensures the maximum lift thickness will not exceed the requirements of Standard Specification Section 5-04.3(7). If the total paving depth is less than the maximum nominal compacted depths shown in the *Standard Specifications*, the use of the two methods above is optional.

Lifts need to comply with minimum lift thicknesses in addition to maximum lift thicknesses.

Minimum lift thickness for each class of HMA are found in Section 8.2.3 of the WSDOT Pavement Policy [available here](#):

<https://www.wsdot.wa.gov/sites/default/files/2013/07/08/Establishing-A-Uniform-Policy-for-Selecting-Pavement-Type.pdf>

400.06(8) Grading Sections

See Contract Plan Example 4-17.

These plan sheets will show items such as: types of embankment; use of waste in slope flattening; drainage layers; composite sections; relief ditch details; slope tables; unsuitable stripping depth tables; controlled blasting slopes; wetland sections; horizontal drain details; surcharge details; large unsuitable foundation excavation and backfill areas; and soil stabilization details. Most projects will not require grading sections.

400.06(9) Alignment/Right of Way Plan

See Contract Plan Examples 4-18 and 4-19.

The alignment and right of way (R/W) information will appear on the same series of plan sheets for most projects.

In the past, right of way was required to be shown for projects having work outside the existing toe of fills or existing bottom of ditches. Now, for the purpose of reducing the number of plans sheets, the designer should include Right of Way Plans only when they are necessary for contractors to perform their work.

If R/W information is not required (such as for a paving project), the alignment information could be shown on another plan series, such as the Site Preparation Plan series or the Paving Plan series, as long as the additional information does not cause overcrowding of the plan sheet.

Site preparation information may appear with the Alignment Plans, but only if there is minimal existing topography and minimal site preparation work to be shown. If there is considerable topography or a great deal of site preparation work to be shown, the information is to be placed on a separate plan series.

400.06(9)(a) Alignment/Right of Way Plan Series

The following information will normally appear on the Alignment/Right of Way Plan series:

1. Construction centerlines for all roadways being constructed.
2. All stationing, bearings, and curve data associated with each construction centerline. For new construction, ramp stationing will always run in the same direction as the main line stationing.
3. Right of way centerline—not always required (see discussion below).
4. Right of way lines. All WSDOT R/W Boundary Lines (proposed and existing), without exception, will always be solid lines on the Contract Plans.
5. Ties of all right of way breaks to either the right of way or construction centerlines—show both station and offset distance.
6. Construction permits with private citizens, and all easements, identified by type and use.
7. Ties of all construction permits and all easements to either the right of way or construction centerline—show both station and offset distance.

8. Township and Range Lines that cross centerline, with appropriate descriptive information (such as bearing and distance to found corners), including centerline stationing at intersection point.
9. Limited access hachures when appropriate. Hachures need to be drawn to the correct stationing, but the stationing of the ends or breaks in limited access does not have to be identified on the construction plans.
10. Found Section Corners and monuments, with station and offset ties to construction centerline.
11. Station and offset ties to railroads and railroad rights of way that intersect the project or are affected by the project.
12. Corporate limit and county lines with station identification where they cross the construction centerline.
13. Names of rivers, streams, bays, and inlets, their direction of flow and meander lines, and the ordinary high tide or high-water lines of navigable waterways.
14. On all projects that include grading, the slope catch lines shall be shown. It may be desirable to show slope catch lines on the Drainage Plan; however, if this is done, the right of way line must also be shown on the Drainage Plan.
15. The outline of sand drainage blankets, unsuitable foundation excavation, and toxic waste excavation areas.
16. Show all found property corners along WSDOT R/W lines with a note stating "Per RCW 58.09.130, any monument or corner disturbed by the Contractor's operation shall be replaced at no cost to the Contracting Agency."
17. Primary Control Point – Primary control points are displayed in their coordinate location and labeled with the designation ID only. The primary control point table and basis of bearing content will be on the first sheet or the first sheet that can accommodate both without obscuring pertinent sheet information (see Example 4-19).

400.06(9)(b) Right of Way Centerline

When the right of way centerline is coincidental with the construction centerline, an equation shall be provided at the Begin Project and End Project to show the relationship between the official right of way stationing and the construction centerline stationing. An equation will be provided to show relationship between the construction centerline and the right of way centerline at the location of Right of Way Plan equations. All right of way offsets and associated stationing will then be referenced to the construction centerline.

When the right of way centerline is **not** coincidental with the construction centerline, the same procedure described in the previous paragraph may be used. The offset distance between the right of way and construction centerlines shall be shown at the Begin Project and End Project. In addition to the equations at the Begin Project and End Project, equations shall be shown at all

points where the right of way and construction centerlines cross and at the location of Right of Way Plan equations.

400.06(9)(c) Right of Way Stationing/Alignment

The official Right of Way Plans may be included in the Contract Plans under the following circumstances:

- The official right of way stationing runs the opposite direction of the construction stationing.
- The right of way alignment is substantially different than the construction alignment and is not easily tied. For example, the right of way alignment has numerous curves that do not exist in the construction centerline and the right of way would have to be described using metes and bounds as opposed to offsets from the construction centerline.

If either of the two circumstances above exists, the designer needs to contact the HQ Right of Way Plans Section and request that it prepare the existing Right of Way Plans to be included in the Contract Plans. The designer will have to provide the HQ Right of Way Plans Section with the equation relating the Begin Project and End Project construction centerline to the existing R/W stationing. If this option is used, the HQ Right of Way Plans Section needs to be notified early in the design process so that the work can be added to its schedule, to ensure the plans can be prepared within the PS&E schedule.

If the project requires that Profile sheets be included in the Contract Plans, the layout of the Alignment Plan sheet must take into account that the station limits on each Profile Plan sheet are to match exactly the station limits of each Alignment Plan sheet. Horizontal alignment and steep grades can each affect the matching of stationing limits between the Alignment and Profile sheets, so they must be examined together. The alignment and profile may be shown on the same plan sheet by showing both the plan and profile on same sheet.

400.06(9)(d) Vicinity Map

Township and Range information is to be shown on the Vicinity Map. It does not have to be shown on the Alignment Plans unless one or both of the following cases occurs:

- The Township or Range Lines cross the centerline, in which case the line will be shown with the station of the intersection identified.
- Right of way boundary lines are shown WITH dimensions from the roadway alignment.

Section Lines only have to be shown on the Alignment Plans if the Section Corners are found, requiring that the ties to centerline be shown.

The following information will be shown for all horizontal alignments:

1. Line identification, using alpha designation and stationing (M 5+50).
2. Station ticks shown on the top side of the alignment line—top as related to the direction of the stationing.
3. Tangent bearings.

2. Overlap equation 150+00 BK =
 110+00 AHD
add 1 to the first digit of the Ahead station would become
Gap equation 150+00 BK =
 210+00 AHD

When showing the equation in the plans, the BACK station goes on the back-side of the equation line and the AHEAD station goes on the ahead-side of the equation line.

400.06(10) Quantity Tabulation Plan Sheets

See Contract Plan Examples 4-20 and 4-38.

Quantity Tabulation Plan sheets are used to tabulate the locations, quantities, and notes pertaining to specific bid items. Quantity Tabulation Plan sheets may not be required on projects where the information is shown elsewhere in the contract.

400.06(10)(a) Quantity Tabulation Plan Sheet Items

The following types of items will normally appear on Quantity Tabulation sheets:

1. Removal items—except items paid by lump sum.
2. Asphalt concrete curb and asphalt concrete gutter.
3. Timber and lumber—except bridge items.
4. Cement concrete approach.
5. Cement concrete curbs, and curb and gutter.
6. Guardrail items, including anchors, terminals, and transition items.
7. Concrete barrier items.
8. Impact attenuators.
9. Guideposts.
10. Raised pavement markers, paint lines, and pavement marking items.
11. Conduit pipe—except bridge, illumination, and traffic signal system items.
12. Wildlife reflectors.
13. Steel reinforcing bars and wire mesh—except bridge structural retaining walls and drainage items.
14. Monument cases and covers.
15. Cement concrete sidewalk.
16. Asphalt concrete sidewalk.
17. Concrete slope protection.
18. Fencing items, including gates and end, corner, and pull posts.
19. Adjustment items.
20. Delineation lights.
21. Temporary Erosion and Sediment Control Devices.

400.06(10)(b) Quantity Tabulation Plan Sheet Preparation

Quantity Tabulation Plan sheets are to be prepared on 11-inch by 17-inch paper. The Quantity Tabulation spreadsheet program is available through the Region Plans Offices or the HQ Project Development Unit. For additional information and instructions for the Quantity Tabulation spreadsheet, see the Appendices).

Standard sheets have been prepared with the heading "Quantity Tabulation." A descriptive addition (see types of items above) may be added after the plan sheet heading "QUANTITY TABULATION – XXXXXXXX XXXXXX" to indicate what type of work is included on this plan sheet.

Quantity Tabulation Plan sheets will be placed immediately preceding the plan sheets that contain the tabulated items. This will intersperse them throughout the plans.

For projects involving only a few items, the quantities may be placed in data boxes on appropriate plan sheets or on Profile sheets, eliminating the need for Quantity Tabulation Plan sheets. Data boxes should be laid out in the same manner as the Quantity Tabulation sheets.

Blank columns shall be provided between listed bid items, and blank rows shall be provided in station listing (about every fifth entry and a space or two between each reference sheet listed). This procedure allows for the addition of bid items and stationing with ease, even during the addendum phase.

400.06(10)(c) Bid Items

Bid items shall be placed from left to right in the same order in which they appear in the Summary of Quantities Estimate.

Bid items shall be identified on the Quantity Tabulation Plan sheets exactly as they appear in the [Standard Specifications](#) (spelling, punctuation, spacing, and so on) and in the same order as they appear on the Summary of Quantities.

If there are more bid items to be tabulated than will fit across the top of the sheet, with the appropriate blank spaces, additional Quantity Tabulation Plan sheets will be required. The station listing will be identical for the continued sheets. Likewise, if there are more station listings than will fit on a single sheet, with the required blank spaces, additional Quantity Tabulation Plan sheets will be required. The bid items across the top will be identical for the continued sheets.

Each time an item is used in a different location, it will have a separate quantity entry. Related items, however, may be included in a single entry if the station limits are the same. For example, a single entry could include the type of guardrail, required anchors, and transition types.

Each quantity entered on the Quantity Tabulation Plan sheet is to be rounded appropriately at the time of entry. Do not add up the unrounded quantities and round the total to carry forward to the Estimate/Summary of Quantities. (See the information on rounding in [400.06\(5\)](#), Summary of Quantities.)

The bid item totals on the Quantity Tabulation sheets must be consistent with the bid item totals entered in the Summary of Quantities Estimate.

400.06(10)(e) Plan Reference No.

The **Code** column shall contain the Quantity Tabulation code number, which is made up of the Plan Reference No. and the number identifying the individual construction feature on the sheet (for example, P1-1, P1-2, ... P1-6, P2-1, P2-2, ... P2-26). The numbers shall be listed in the ascending order of plan sheets.

Bid items, identified by station(s) and quantity or quantities, on individual Quantity Tabulation Plan sheets are tied directly to the plan sheet series they are related to by the number immediately following the Plan Reference No. mentioned above. The related series sheet shall have its own consecutive series of numbers identifying construction features (octagonal enclosed numbers beginning with number 1) beginning in the top left corner of the sheet and progressing across and down the sheet. A light, arrowless line shall be drawn from the octagon to the construction feature. When a construction feature is continued on more than one sheet, the octagon on the continued sheet shall be divided with a horizontal line, and the Plan Reference No. on which the construction feature first appears shall be inserted in the upper half and the first sheet individual identifying number shall be inserted in the lower half. If this is done, a larger-scale octagon may be used. The octagonal symbol shall not be used for any other purposes.

For items such as pavement markings that are continuous for the entire project, list the station limits and leave the code column blank.

400.06(10)(f) General Notes

The General Notes will include information required to complete the data for a particular construction feature, such as:

- Guidepost type and color.
- Guardrail placement case, terminal connection, alternate anchor type, and connection type when connecting transition to stiffer barrier like bridge rail.
- Acceptable impact attenuators for each location.
- References to applicable Special Provisions identify the Special Provision by the exact name.
- References to applicable details in the Contract Plans. Identify the exact plan sheet (using the Plan Reference No.) where the detail is located.
- Reference to applicable Standard Plan(s). Provide the Standard Plan number, which is located in the bottom right corner of the page.
- Type of curbing to be used.

If the quantities for an item appear on other plan sheets in addition to the Quantity Tabulation Plan sheets, cross-references shall be made to the sheets where the additional quantities can be found.

400.06(11) Site Preparation

See Contract Plan Example 4-21.

The Site Preparation Plan series is where all existing topography within your project limits is to be shown, as well as all the project removal and demolition work.

If there is very little topography to be shown and very little removal and demolition work to be performed, this information can be shown on the Alignment/Right of Way Plan series as long as it does not compromise the information required on the Alignment/Right of Way Plans.

The construction centerlines will be shown on the Site Preparation Plans; however, lanes, shoulders, and other features being constructed are not to be shown.

Removal and demolition of existing features, paid as separate items, are to be identified using the General Notes in the Quantity Tabulation sheets.

Items included in the lump sum price for "Removal of Structures and Obstructions," are to be identified with notes located directly on the appropriate plan sheet. For example, removal of wire fence should be identified with a note such as "wire fence to be removed." Items of work (such as removal of guideposts) included in the lump sum price for "Removal of Structures and Obstructions" that cover the entire project do not have to be identified on the plan. Items of work being paid as "Removal of Structures and Obstructions" will not appear on Quantity Tabulation sheets.

If large, complete areas of pavement, sidewalk, or curbs and gutters are being removed, it is best not to use cross-hachuring to identify these areas. Large areas of cross-hachuring actually detract from the plans and often hide important information. It will suffice to show the limits of the removal and identify the area with a General Note on the Quantity Tabulation sheet, or note on the plan sheet "begin pavement removal/end pavement removal." If there are a number of small, isolated areas of pavement removal, cross-hachuring may be used to identify these areas.

400.06(12) Profiles

See Contract Plan Example 4-22.

Roadway profiles are required only when there is a change in the vertical alignment of the roadway under construction. If only a section of the vertical alignment is changed, a profile is required only for that section.

The station-to-station limits shown on each Profile sheet match exactly the station-to-station limits shown on the corresponding Alignment sheet.

400.06(12)(a) Profile Sheets

The following information is required on Profile sheets:

1. The limits of roadway sections will appear with arrows. These are always to be the topmost entry on the Profile sheets.
2. Super elevation diagrams. These should be shown on a separate sheet if they cause crowding of other required information.

3. The finished profile grade line will be shown as CAD weight 5 solid line style.
4. The datum symbol and information shall be shown on all sheets. North American Vertical Datum (NAVD) 88 is the desirable vertical datum. However, National Geodetic Vertical Datum (NGVD) 29 is acceptable in certain situations. If there is a need to use NGVD 29 datum on a project, the HQ Right of Way Plans Section, Land Survey Support, needs to be contacted for concurrence for use.
5. Show all vertical control, including benchmarks that exist in the area of the alignment profiled on the sheet—both temporary and permanent. Be sure to include all pertinent information associated with vertical control points such as location, offset, stationing, elevation, and so on.
6. Beginning station and elevation (BVC) and ending station and elevation (EVC) of each vertical curve will be shown. Elevations and stations through each vertical curve will be shown on even stations at intervals not shorter than 50 feet but not greater than 200 feet.
7. The station and elevation of the point of intersection of the gradients (VPI) will be shown.
8. Gradients between vertical curves—shown as a percentage, carried out to a sufficient number of places so that the calculation from the elevation at one VPI on the given gradient will give the elevation at the next VPI.
9. Length of each vertical curve.
10. Elevation and station at each break—angle point; AP—in gradient with elevation shown to 0.01 foot.
11. The existing ground line will be shown as a dashed line.
12. Areas of work or quantities will be shown, with arrows, between the station-to-station limits of the work, or at 10 station (1,000') totals if the work extends beyond 10 station totals, or at other logical breaks such as bridges or group breaks. If these logical breaks are slightly more or less than 1,000 feet apart, it would be appropriate to have a 1,300-foot total or a 700-foot total.
13. Quantities to be shown will be, but will not be limited to roadway excavation; controlled blasting; vertical sand drains; unsuitable foundation excavation; toxic waste excavation; embankment compaction; special backfill; clearing and grubbing; seeding; compost; topsoil; and fertilizing and mulching.
14. The use of the term “embankment” by itself is permitted only when Method A compaction is specified. In this instance, it must be noted that embankment quantities are shown for informational purposes only.
15. Details showing sideslopes for unsuitable foundation excavation and toxic waste excavation shall be shown on the profiles or detailed on separate sheets. The bottom of unsuitable foundation excavation and toxic waste excavation will be shown, but should be shown as a squiggly line to indicate that the actual bottom elevation of the excavation is unknown.

The designer needs to give some thought to the layout of the Profile sheets prior to placing information, because the layout is to be the same on each Profile sheet in the series. All quantity

arrows are to be placed in the same position on each sheet to allow quantities to be located easily.

If there is only minor grading on the project, and Profile sheets are not used, 10 station totals, or similar quantity breakdowns, will be shown on a Quantity Tabulation sheet.

400.06(13) Structure Notes

See Contract Plan Examples 4-23 and 4-28.

All of the information shown on the Structure Note sheet and the Drainage Plans and Profiles will meet the requirements contained in the *Hydraulics Manual* and the *Standard Plans for Road, Bridge, and Municipal Construction (Standard Plans)*.

- (a) Structure Note sheets are used to tabulate locations, bid items, quantities, and notes pertaining to drainage items, utilities, water lines, and so on.
- (b) The Structure Note sheets are to be on 11-inch by 17-inch paper. The Structure Note spreadsheet is available through Region Plans Offices or the HQ Project Development Unit. For additional information and instructions for this microcomputer spreadsheet, see the Appendices.
- (c) Standard sheets have been prepared with the heading "Structure Notes." A descriptive addition such as "Utilities" or "Irrigation" shall be added after the heading "STRUCTURE NOTES – XXXXXX XXXXX" to indicate what type of work is included on the plan sheet. Structure Note sheets are to be placed immediately preceding the plan sheets that contain the features being tabulated.
- (d) For those projects involving only a few drainage bid items at a few locations, the information normally provided on Structure Note sheets may be provided on the appropriate plan sheets, in either a tabular form in data boxes, or placed in a convenient location on the sheet, with a leader line used to connect the information with the corresponding drainage feature.
- (e) Blank columns shall be provided between listed bid items, and blank rows shall be provided in station listing—about every fifth entry and a space or two between each reference sheet listed. This procedure allows for the addition of bid items and stationing with ease, even during the addendum phase.
- (f) The bid items shall be placed from left to right in the same order in which they appear in the Summary of Quantities Estimate.

Bid items will be identified on the Structure Note Plan sheets exactly (spelling, punctuation, and spacing) as they appear in the WSDOT Standard Item Table.

- (g) If there are more bid items to be tabulated than will fit across the top of the sheet, with the appropriate blank spaces, additional tabulation sheets will be required. The station listing will be identical for the continued sheets. Likewise, if there are more station listings than will fit on a single sheet, with the required blank spaces, additional tabulation sheets will be required. The bid items across the top will be identical for the continued sheets.

- (h) Each time an item is used in a different location, it will have a separate quantity entry. Related items, however, may be included in a single entry if the station limits are the same. For example, a single entry could include a catch basin, pipe, structure excavation, and riprap.
- (i) Each quantity entered on the Structure Note Plan sheet is to be rounded appropriately at the first point of entry. Do not add up the unrounded quantities and then round the total to carry forward to the Summary of Quantities Estimate. (See the information on rounding in [400.06\(5\)](#).)
- (j) The Code column shall contain the structure code number, which is made up of the Plan Reference No. and the number identifying the drainage features on the sheet (for example, D1-1, D1-2, ... D1-6, D2-1, D2-2, ... D2-26). The numbers shall be listed in ascending order of plan sheets.
- (k) Indicate the construction centerline stationing on the Structure Note sheet for cross culverts, and indicate station and offset for each end of longitudinal pipe installations. If a sanitary or storm sewer line stationing is used, the sewer line stationing will be used on the Structure Note sheet, and the plan sheets will indicate the appropriate ties to the construction centerline.
- (l) The bid item for storm sewer pipe will be "Schedule ___ Storm Sewer Pipe ___ In. Diam." A table indicating the acceptable pipe alternates is included in Section 7-04 of the [Standard Specifications](#). There will be times when not all of the pipes shown as acceptable alternates in the table will be acceptable because of conditions on a specific project. When there are pipes not acceptable for a specific project, the designer will include a General Note on the Structure Note sheet identifying the unacceptable pipe type. The [Hydraulics Manual](#) contains a complete discussion on storm sewer pipes and is to be used for guidance.
- (m) When WSDOT does sanitary sewer pipe work, it is usually to extend or replace a system affected by the highway work. The utility or local agency will normally specify the type of pipe, or specify that the pipe extension or replacement be in kind. The system owner's request for pipe type is to be placed in the P&SE portion of the Project File to serve as backup justification. The bid item will be the pipe type requested by the owner, and the General Note on the Structure Note Plan sheet will read either "no acceptable alternates" or "replace in kind," whichever is appropriate.
- (n) The General Notes will include information required to complete the data for a particular drainage feature, such as:
- Acceptable or unacceptable pipe alternates for drain, underdrain, and culvert pipes.
 - Unacceptable alternates for culvert and storm sewer pipes bid on a schedule basis.
 - The appropriate treatment for pipes, except when the treatment is described by the bid item name.
 - The corrugation dimension for corrugated steel pipe when a size other than the standard size corrugation is required.

- Specific vertical elongation where elliptical-shaped steel or aluminum pipes are required, whether the elliptical pipe is specified in the bid item or as an alternate.
- Procedures or instructions necessary to complete construction of the drainage feature.
- Required features, such as beveled end sections, safety bars, and other improvements.
- References to applicable details in the Contract Plans. Identify the exact plan sheet using the Plan Reference No. where the detail is located.
- References to applicable *Standard Plans*, with the full Standard Plan number.
- References to applicable Special Provisions. Identify the Special Provision by the exact name.

The bid item totals on the Structure Note sheets must be consistent with the bid item totals entered in the Summary of Quantities Estimate.

- (o) If the quantities for an item appear on other plan sheets in addition to the Structure Note sheets, cross-references shall be made to the sheets where the additional quantities can be found.

400.06(14) Drainage Plan

See Contract Plan Example 4-24 and 4-27.

Each plan sheet will have its own consecutive series of numbers identifying drainage features. The numbers (beginning with number 1 enclosed in circles) will begin in the top left corner of the sheet and progress across and down the sheet. A light, arrowless line will be drawn from the circle to the drainage feature or features. These numbers relate directly back to the Structure Note plan sheets.

When a drainage feature is continued on more than one sheet, the circle will be divided with a horizontal line. The plan sheet reference number on which the drainage feature first appears will be inserted in the upper half and the individual identifying number will be inserted in the lower half. A larger-scale circle may be used if this is done. The circle symbol is reserved for the purpose of identifying drainage features and is not to be used for any other purpose.

If a sanitary or storm sewer line stationing is used, the plan sheets will indicate the appropriate ties to the construction centerline.

Each cross pipe will have a separate code number, which will include any attached drainage structure and any riprap, quarry spalls, or other end treatment being constructed in conjunction with the pipe.

Each run of pipe in a closed sewer system will have a separate code number, which will include the pipe and the drainage structure on the inlet end of the run of pipe.

If multiple pipes are to be placed in the same trench, they may be combined under a single structure code.

The skew angle for all skewed cross pipes shall be indicated on the plan sheets, unless both ends are controlled by station and offset and the stations and offsets appear on the Structure Note sheet.

A roadway ditch that is shown as part of a roadway section does not need to be shown on the Drainage Plans. This roadway ditch is included in the earthwork for Roadway Excavation Incl. Haul. This roadway ditch shall not be assigned a Structure Note number.

When a ditch is constructed based on a drainage profile in the Drainage Plans, then this ditch shall be assigned a Structure Note number and the excavation is included in the bid item Ditch Excavation. This excludes ditches that are part of the roadway.

400.06(15) Drainage Profiles

See Contract Plan Examples 4-25 and 4-26.

The established scale controls the drainage profiles vertically. There is usually no horizontal scale for the drainage profiles, but it is recommended that distances represented be drawn proportionately. Each profile will be drawn in proportion horizontally for the length of the profile (the space representing 10 feet will appear the same for the length of the profile, and it will appear to be approximately two times a space, representing 5 feet).

The profiles can be made visually easier to follow by using an elongated triangle to represent manholes and an elongated rectangle to represent other drainage structures (such as catch basins or inlets). The distance shown between drainage structures is not the length of pipe but the horizontal distance from center of structure to center of structure. If it happens to appear to be the same as the length of pipe shown in the Structure Note Plan sheet, it is merely coincidental.

Pipe diameters are to be drawn with proportionate scale, so a 12-inch-diameter pipe will be drawn half the size of a 24-inch-diameter pipe.

The drainage profiles are to be drawn as a straight line representation of the path the water will take as it flows through the system, without regard for the actual plan view direction the pipes are running. The designer does not have to break the profile because a system that had been running parallel to the centerline has turned ninety degrees at a catch basin and crossed the roadway.

At locations where two or more pipes bring water to a drainage structure and one pipe carries the water away, there will have to be breaks in the profiles. One profile will continue through the common drainage structure and show the water leaving the structure, while the other profiles will stop or start at the common structure. There will be a leader line drawn between the representations of the common drainage structure with the note "same catch basin," which is the tie between the profiles and completes each without having to draw the exit pipe a number of times. The information for the common structure will only be shown on one profile, usually the one that shows the outlet pipe.

400.06(15)(a) Drainage Profile Information

The following information is to appear on the drainage profiles:

1. Inlet and outlet flow line elevations of pipes—shown below the pipe profile. Inlet and Outlet flow line elevations are those elevations derived from pipe slopes carried to the center of drainage structure.
2. Outflow treatments such as riprap, quarry spalls, and, if the ditch is other than a roadway or median ditch, ditch profiles.
3. Debris deflectors, standpipes, and headwalls.
4. The type of drainage structure and station and offset location of the structure—shown above the structure.
5. The rim elevation of manholes, catch basins, inlets, or other drainage structures—shown above the structure.
6. The horizontal distance between adjacent drainage structures from center of structure to center of structure.
7. The size of pipe in each run—you do not have to include the type of pipe.
8. The pipe slope—carried out to sufficient decimal places so that when the calculation is made from the indicated inlet flow line, on the given grade, for the given distance, the result will be the outlet flow line indicated.
9. Finished ground line above the pipe.
10. Original ground line if pipes will be placed prior to embankment construction or if original ground differs from the finished ground line.

400.06(16) Utility Plan

See Contract Plan Example 4-29.

When the contractor is to work on the existing utilities as part of the contract, plan sheets for utility structure notes, plans, and details will be required. These shall follow the same general guidelines as specified for Drainage Structure Notes/Plans/Details.

To locate utilities in areas where only a few utilities exist, consider using tables with stations and offsets in lieu of creating additional plan sheets.

RCW 19.122.040 requires WSDOT to identify and locate known underground utilities in our contracts. The designer should make every effort to also identify and locate aboveground utilities.

RCW 19.122.040 “Underground facilities identified in bid or contract – Excavator's duty of reasonable care – Liability for damages – Attorneys' fees,” reads as follows:

- (1) Project owners shall indicate in bid or contract documents the existence of underground facilities known by the project owner to be located within the proposed area of excavation. The following shall be deemed changed or differing site conditions:

- (a) An underground facility not identified as required by this chapter or other provision of law; and
 - (b) An underground facility not located, as required by this chapter or other provision of law, by the project owner, facility operator, or excavator if the project owner or excavator is also a facility operator.
- (2) An excavator shall use reasonable care to avoid damaging underground facilities. An excavator shall:
- (a) Determine the precise location of underground facilities which have been marked;
 - (b) Plan the excavation to avoid damage to or minimize interference with underground facilities in and near the excavation area; and
 - (c) Provide such support for underground facilities in and near the construction area, including during backfill operations, as may be reasonably necessary for the protection of such facilities.
- (3) If an underground facility is damaged and such damage is the consequence of the failure to fulfill an obligation under this chapter, the party failing to perform that obligation is liable for any damages. Any clause in an excavation contract which attempts to allocate liability, or requires indemnification to shift the economic consequences of liability, that differs from the provisions of this chapter is against public policy and unenforceable. Nothing in this chapter prevents the parties to an excavation contract from contracting with respect to the allocation of risk for changed or differing site conditions.
- (4) In any action brought under this section, the prevailing party is entitled to reasonable attorneys' fees.

[2011 c 263 § 8; 1984 c 144 § 4.]

Identified utilities are to be shown in the bid or contract documents as stated in the RCW. The Site Preparation Plan series is where they would normally be shown (see [400.06\(11\)](#), Site Preparation). If the project is in an area with many utilities, as well as many other topographical features, it may be necessary to separate the utilities on a separate series of plans following the Site Preparation Plan series. The best available information as to the location of underground and overhead utilities is to be used. Contract Plan Example 4-19 shows how utilities are typically shown on a plan sheet.

Do not forget to include WSDOT utilities, such as traffic signal, illumination, and ITS conduits and fixtures.

The required amount of detail related to utility location is directly proportional to the amount of underground work involved in the contract and the proximity to the utility. A simple paver should require less utility detail than a project with excavation at or near a 24-inch natural gas line or a 96-inch sewer line.

400.06(17) Contour Grading Plan

Contour Grading Plans provide finished ground contours. These plans require the Region Landscape Architect's stamp (or the HQ Landscape Architect's stamp for regions without a Landscape Architect), regardless of whether they are prepared by the design team or the landscape section. (See the [Design Manual](#) for more information.)

400.06(18) Wetlands, Mitigation Sites, Detention/Retention Site Plans and Stream Plans

400.06(18)(a) Wetlands

All wetlands, whether inside the right of way or not, that could be impacted by the construction work shall be shown on the construction plans, using standard symbols found in the [Electronic Engineering Data Standards Manual](#).

Wetlands within the right of way must be delineated in the field by a qualified wetland biologist and survey data collected. Delineated wetlands will, in most cases, have buffer zones associated with them. Construction contract plans must accurately show the location of wetlands and their buffers based on the survey data collected. Wetlands that are outside the right of way may have buffers that extend into the work areas shown on the construction contract plans. Impacts to buffers of off-site wetlands may result in indirect impacts to the wetland that reduces its functional value.

The buffer zone is established by the local jurisdiction and may not always be identified on the permit. For each wetland identified within a project area, the designer will have to check with the Region Environmental Office to get the buffer zone information. The buffer zone is developed by adding the required buffer width to the surveyed wetland boundary.

If a contractor is allowed to work within an existing wetland or wetland buffer zone, the allowable work area shall be delineated by the cut and fill line. The contractor shall possess a permit identifying each wetland in which work is allowed.

Wetlands and their buffers are shown on the Vicinity Map and all other construction contract plan sheets, such as those showing cut/fill lines, staging and stockpile locations, drainage, TES, or other features that could impact them.

For further information, see the [Roadside Policy Manual](#).

400.06(18)(b) Mitigation Sites

A wetland mitigation site is a wetland area that has been or is being established (created), restored, enhanced, or preserved to compensate for wetlands impacted by construction.

All wetland mitigation sites shall be shown on the construction contract plans and identified as either "existing" or "to be constructed." A mitigation site, whether existing or to be constructed, is always identified as a mitigation site on construction contract plan sheets. Wetlands in mitigation sites become subject to regulatory jurisdiction as soon as they are constructed.

If a contractor is allowed to work within an existing wetland mitigation site, the allowable work area shall be delineated by the cut and fill line. The contractor shall possess a permit identifying each wetland in which work is allowed.

Designers should contact the [HQ GeoMetrix Office](#) with the Township, Range, Section, State Route (SR), and Mileposts (MP) of their project, to obtain copies of the Sundry Site Plans that show existing mitigation sites on record.

400.06(18)(c) Detention/Retention Sites

All facilities related to the detention, retention, and treatment, filtration, or drainage of stormwater or surface water, whether existing or to be constructed, shall be shown on the construction contract plans and labeled as Stormwater Treatment Areas. It is important to identify stormwater treatment areas so they will not be misconstrued to be wetlands or mitigation areas in the future.

400.06(18)(d) Stream Plans

See Contract Plan Examples 4-30, 4-31 and 4-32

When realigning or regrading a stream or river as part of the contract, a Stream Plan, Stream Profile, and Stream Details are required. The Stream plan set requires the stamp of an Engineer from the HQ Hydraulics Office.

The Stream Plan will show the stream slope breaklines, the limits of fill and or excavation, begin and end of channel grading, and the centerline of the new stream alignment. Stream stationing shall increase from downstream to upstream.

Existing contours and existing features shall be shown outside of the perimeter of the new stream. If major roadway changes are proposed, new contours and features may be appropriate in lieu of the existing contours in the vicinity of the roadway.

Large Woody Material (LWM), boulder clusters, and/or scour holes shall be included on the Stream Plan, if they are included in the stream design. The following note must be added to the Stream Plan if LWM is included: "LOCATIONS AND ORIENTATION OF LARGE WOODY MATERIAL (LWM) STRUCTURES AS SHOWN ON THIS SHEET ARE APPROXIMATE AND WILL BE STAKED BY THE ENGINEER."

If a culvert is included in the design, the inside width of the culvert and wing walls shall be shown. Culvert details may be incorporated into the Stream Plan, Profile and Details series; however, this may require a dual stamped set of plan sheets as this work is not done by the HQ Hydraulics office.

The stream profile sheets will show the new grade relative to the existing grade. The depth of the streambed material will be depicted, also the beginning and ending of walls, culverts, and grading.

Informational quantities for channel excavation, streambed sediment, streambed cobbles, boulder clusters, and LWM structures shall be provided on these sheets, as well as structure excavation, and shoring, when appropriate.

Stream Details will require stream sections drawn facing upstream and show the grading design for the stream. Slope and width of streambed slope breaks shall be provided.

Provide an appropriate note for streambed material referencing the Special Provisions (for example): 'SEE SPECIAL PROVISION "AGGREGATES FOR STREAMS, RIVERS, AND WATERBODIES" FOR STREAMBED MATERIAL AND COARSENEDED STREAMBED MATERIAL. FINAL INSTALLATION WILL PROVIDE A WELL GRADED MIX OF STREAMBED SEDIMENTS AND STREAMBED COBBLES.'

If the project has large woody material, separate sections and anchoring details are required. If included in the design locations of slash and scour holes will be shown. The following note must be added to the LWM sections: "LOCATIONS AND ORIENTATION OF LARGE WOODY MATERIAL (LWM) STRUCTURES AS SHOWN ON THIS SHEET ARE APPROXIMATE AND WILL BE STAKED BY THE ENGINEER."

400.06(19) Paving/Pavement Marking Plan

See Contract Plan Examples 4-34, 4-35, and 4-39.

Paving and pavement marking information will normally be combined on a single series of plans.

If the project requires the paving information to be separate from the pavement marking information, the Paving Plan will show the total roadway and shoulder widths described by the roadway sections, not lane widths. The Pavement Marking Plans will show the lane configuration and widths. The information is not to be repeated on both series of plans.

The Paving/Pavement Marking Plan series may be necessary when the work cannot be shown adequately on the roadway sections. If the roadway sections adequately describe most of the project, only the areas requiring more detailed or specific information need be shown in Paving/Pavement Marking Plans.

Pavement marking will conform to the requirements shown in the [Design Manual](#) and the pavement marking applications shown in the [Standard Plans](#). Pavement marking layout information is not required in the plans if the required pavement markings are as shown in the [Standard Plans](#). Pavement marking quantities are to be tabulated on Quantity Tabulation sheets if not accurately shown elsewhere.

When Paving/Pavement Marking Plans are included, they will show all lane and shoulder widths, information on pavement taper lengths and widths, widening for guardrail, and the locations of concrete barrier, guardrail, impact attenuators, and traffic islands. The various areas and types of pavement marking will be identified by General Notes in the Quantity Tabulation sheets; if there is only minor pavement marking, the beginning and ending stations could be shown in the plan for each type in the area.

The only existing information that will appear on the Paving/Pavement Marking Plans will be the existing roadways and approaches beyond the point where the new construction begins or ends to show the tie between the new and existing. The "old" roadway and lane lines through the construction area are not to be shown.

If there is only minor drainage, signing, or illumination work on the project, it can be shown on the Paving/Pavement Marking Plans, provided it does not compromise the clarity of the paving and pavement marking information being shown.

Paving or pavement marking details showing the layout of traffic islands or other features (such as curb ramps) may need to be drawn at a larger scale on separate detail sheets to provide sufficient information or required dimensioning. These details will follow immediately after the Paving/Pavement Marking Plan series.

400.06(20) Plan Detail Sheet

See Contract Plan Example 4-36

Details specific to the project being developed will have to be provided by the designer to ensure the contractor has a clear picture of the work to be performed.

The plan details are to be organized on plan sheets so they are grouped according to plan series. The detail sheets will then be placed as the last set of plans in the plan series. For example, all of the drainage details will be grouped on the appropriate number of sheets and will become the last sheets in the Drainage Plan series—normally following the drainage profiles.

It is important that details be complete, meaningful, and necessary. It is also important that details be drawn at a scale that will clearly show the information when reduced and placed on the 11-inch by 17-inch plan sheets.

Plan details are not to be a redrawn Standard Plan. Many times, however, it is necessary to draw details showing a project-specific modification to a Standard Plan. In these instances, sufficient detail is to be provided to indicate the modification, but all of the information on the Standard Plan that is still applicable is not to be redrawn. Instead, a note stating “FOR INFORMATION NOT SHOWN, SEE STANDARD PLAN X-XX” is to be included on the detail.

Details that are not associated with a Standard Plan must be complete, because the contractor is only obligated to provide what is shown on the detail.

The [Electronic Engineering Data Standards Manual](#) contains a number of generic or standard details found in the CAD system. Many of these details can be used as is, or they may be modified to fit requirements for a specific application. Use of these details can save both the designer and the CAD operator considerable time over developing and inputting details from scratch.

400.06(21) Minor Structures

Projects with quantities for minor structures, such as nonstructural retaining walls (see Section 8 24 of the [Standard Specifications](#)) or other like items of work, shall have these quantities shown in the plans in one of the following methods:

- Quantities shall be shown on Quantity Tabulation sheet(s).
- Quantities shall be shown in tabular form (in data boxes) on the individual plan sheet(s).

400.06(22) Illumination Plan

See Contract Plan Example 4-40 and 4-41.

The design of illumination systems will conform to guidelines in the [Design Manual](#).

If the illumination work is minor adjustments to an existing system or the installation of a small system (one or two luminaires) at an intersection, it can often be shown on another series of plans.

400.06(22)(a) Illumination Plan Information

The following information is required for Illumination Plans:

1. The location of light standards: new and existing.
2. The light standard number for new luminaires.
3. The location of the power source: whether new or existing.
4. The layout of the conduit and electrical circuitry.
5. The mounting height for new luminaires: for existing if being relocated.
6. The mast arm length for new luminaires: for existing if being relocated.
7. Base requirements, fixed or slip, for new luminaires: for existing if being relocated.
8. Conduit size and fill for new installation: for existing affected by, or affecting, the project.
9. Service cabinet requirements for new: or modifications to existing.
10. Junction box locations and types for new: for existing affected by, or affecting, the project.
11. Luminaire light source, distribution, and voltage for new luminaires.
12. All other features unique to the specific project.

400.06(22)(b) Stationing and Offsets

Stationing and offsets, shown in the foundation schedule for light standard locations, are to be reasonably accurate to ensure the design light levels are achieved.

400.06(23) Traffic Signal Plan

Traffic Signal Plans are normally provided by either the Region Traffic Office or the HQ Traffic Office, and the designer simply incorporates them into the project. The Traffic Signal Plans will follow the guidelines in the [Design Manual](#).

400.06(24) Intelligent Transportation System Plan

See Contract Plan Example 4-42.

The Region Traffic Office normally provides Intelligent Transportation Systems (ITS) Plans, and the designer simply incorporates them into the project. ITS Plans will follow the guidelines in the [Design Manual](#).

Even though the designer is not responsible for the design of the Intelligent Transportation System, the designer is responsible for providing the appropriate base maps to the HQ Traffic

Office. The base map information provided to the traffic designer will show the locations of all new and existing features, such as utilities, drainage pipes, and structures, so that these features can be taken into account during the initial design. It is also the designers' responsibility to keep the traffic designer aware of all design revisions made to the plans from the time the initial layout was given to the traffic designer.

400.06(25) Sign Specification Plan Sheet

See Contract Plan Examples 4-43 and 4-44.

Sign Specification Plan sheets are to be prepared on 11-inch by 17-inch paper sheets plotted from CAD or an Excel program.

A separate Sign Specification Plan sheet will normally be prepared for the installation of new signs, the removal of signs, and the relocation of signs. If the signing work is minor, it is permissible to combine the different types of work on a single sheet, but there should be a distinct, identifiable section of the sheet for each type of work presented.

There will be a separate sign-numbering system for each of the three types of signing work, and each will be continuous from the beginning of the project to the end.

The Sign Specification Plan sheets are to be completely filled out.

Remember that the material stock used for the signs comes in 48-inch by 96-inch sheets, so sign sizes need to be adjusted to make the most efficient use of the stock material. The following guidelines should be used:

- For signs having a horizontal dimension of 48 inches or less, all dimensions shall be specified in inches.
- For signs having a horizontal dimension of greater than 48 inches, all dimensions shall be specified in feet and inches.

Wood posts are to be called out as nominal dimensions. A 4 x 4 (the common name for a 3-1/2" x 3-1/2" piece of lumber), 4 x 6, and so on, as long as there is no reference to inches.

When a sign installation requires multiple steel posts, the designer will have to specify which base type is to be used (see the [Standard Plans](#) for each multiple-post installation).

400.06(26) Signing Plan

See Contract Plan Examples 4-45, 4-46, 4-47 and 4-48.

The Signing Plans will follow the guidelines in the [Design Manual](#).

Signing will always be shown in a plan view; however, the designer needs to assess the need for the Signing Plan series. In many cases, there are not sufficient signs to require a separate series of plans. In these cases the signing information can be combined with another series, such as the Paving/Pavement Marking Plan series, without affecting the clarity of the overall plan.

Signing Plans do not normally require a great deal of roadway detail. The centerline and edge of the roadway is normally all that is required for two-lane highways. For multilane highways, additional detail and roadway information may be required.

For region-wide signing projects, where an extensive area is covered, a smaller scale (even a strip map) can be used for directional sign placements. However, even in these instances, larger-scale details may be required to show sign installations at intersections and other areas where there are numerous signs being installed in a small area.

There is never to be a light standard within 50 feet of the front of an overhead sign installation.

Signs will be located in the plans and identified using the plan sign number. For new installations, the plan sign number will be enclosed in an oval. The plan sign number for sign removals will be enclosed in a rectangle and “R-” will precede the number. Sign relocations will show both the original and relocated locations of the sign and the plan sign number will be enclosed in a square. There will be a leader line from the plan sign number to the sign location. Sign relocations will have two leader lines: a dashed line from the plan sign number to the original location and a solid line from the plan sign number to the relocated location.

The Signing Plans will show the following:

- Construction centerlines—all that is required for signing, such as destination and speed limit.
- Basic roadway layout in areas where detail is required, such as intersections with considerable signing.
- Sign locations.
- Small-scale layout of directional and special signs, showing required details, such as where upper- and lower-case lettering is to be used, location of directional arrows, and so on. Details may be placed on a separate sheet to avoid overcrowding of the plan.
- Small-scale layout of standard control signs may be shown in the plans. This can be very helpful to both the contractor and the inspector.
- Plan sign number with leader line pointing to sign location.
- WSDOT Sign Fabrication code number adjacent to plan sign number.
- Signs to be installed.
- Signs to be removed.
- Signs to be relocated. Show the sign locations for both the original, using a dashed leader line, and the relocated, using a solid leader line.
- Power source for all illuminated signs. If the source is coincidental to an illumination or traffic signal system and shown on those plans, a construction note referencing the sheet where the source is identified will suffice.

400.06(27) Signing Details

When overhead signs are being installed on a sign bridge or cantilever structure, the Sign Specification and/or Sign Detail needs to show the following information:

- Simple drawing of the new structure and signs
- Distance between signs
- Distance between signs and end supports or posts
- Location of overhead signs in relation to lanes
- Sign light spacing, when sign light(s) are required
- Maintenance walkway position
- Other data called for in the plans

400.06(28) Bridge Plan

Bridge Plans are prepared by the HQ Bridge and Structures Office. The designer may be required to provide field information for use by the HQ Bridge and Structures Office during the design. Required data/guidelines are shown in the [Design Manual](#).

Most projects with bridge construction will have items of work required because of the bridge work, but are indicated on the Bridge Plans as “not included in bridge quantities.” The designer is to provide the required PS&E information for these items.

Following are some of the items typically “not included in bridge quantities”:

- Drains
- Gravel backfill for drain
- Gravel backfill for wall
- Underdrain pipe behind or around abutments or walls
- Drain pipe in embankments at bridge ends
- Utility conduits and anchorage
- Slope protection
- Concrete barrier
- Guardrail connections

The bridge designer will provide the designer with a list of items that are not included in the bridge work.

400.06(29) Traffic Control Plan

See Contract Plan Examples 4-49 through 4-57.

As required in the highway administration rules and regulations ([23 CFR 630 Subpart J](#)), every project shall have a Temporary Traffic Control Plan (TTC). “Traffic Control Plans” is the common name for typical, site-specific, or project-specific TTC Plans. Primary consideration should be given to public safety, worker safety, and maintaining mobility for vehicles, bicyclists, and pedestrians (including pedestrians with disabilities) through or around a work zone. (See the [Design Manual](#) for further guidance.)

The designer may consider typical Traffic Control Plans found in the [Standard Plans](#), [Work Zone Traffic Control Guidelines for Maintenance Operations](#), or the [MUTCD](#), Part 6, as a starting point for developing contract Traffic Control Plans. The [Plan Sheet Library](#) includes many typical Traffic Control Plans. On smaller projects, such as a two-lane paver, the designer may consider the use of an item for contractor-prepared Traffic Control Plans in lieu of providing plans in the contract.

It is important for the designer of the Traffic Control Plans to remember that when the contractor uses the traffic control layouts shown in the plans, WSDOT is in a high-liability position should anything go wrong when the traffic control called for is in place. Because of the high liability, this portion of the plan needs to be developed with a great deal of thought, by someone with an understanding of the project as well as an understanding of traffic control requirements.

The size and color of all traffic control signs are to be shown on the plan. Warning (W series) signs are required by WSDOT policy to be a minimum of 48 inches by 48 inches, but this information still has to be on the plan. Traffic control signing is laid out in respect to the distance from the work area. These distances, from the work area and between signs, are to be shown as plus/minus (+/-) distances. For example, if the required spacing between signs is 1,500 feet, it will appear on the plan sheet as 1,500'+/-. This does not mean the sign can be put any place the contractor chooses within the 1,500-foot range; it means the sign is to be placed at 1,500 feet unless there is an engineering reason to move it slightly. (See "Work Zone Safety and Mobility" in the [Design Manual](#) for additional items to be included in these plans.)

Tables have been developed for sign spacing, taper lengths, pavement marking, device spacing, and buffer zone data that establish criteria for a variety of speeds. It is recommended that these tables be utilized for consistency and to eliminate the possibility of errors in calculations.

The guidance in the [Standard Specifications](#) allows the contractor to develop Traffic Control Plans or revise those furnished in the contract (see “Traffic Control Plans” in the [Standard Specifications](#)).

Traffic Control Plans may contain certain required items, not supplied by WSDOT, for which bid items will be provided in the project. The Traffic Control Plans shall be reviewed to ensure all items required for traffic control and bidding are shown as either separate bid items or included in bid items for a lump sum bid—if approved by the proper delegated authority.

When Traffic Control Plans are prepared by someone other than the primary project designer, ensure they are familiar with all the project elements so they will produce compatible plans. The primary designer should keep the Traffic Control Plan designer aware of any design changes and thoroughly review the Traffic Control Plans to make sure they address all the project's work zone impacts.

400.07 Plan Examples

In order to help illustrate the intent of WSDOT contract plan sheets, examples of typical plan sheets and electronic data files is available. These examples are strictly for informational purposes. Final approval of plan sheets will be in accordance with this manual and the Region Plans Review Office.

400.07(1) Example Plan Sheets

This section provides examples of typical PS&E plan sheets showing general plan requirements.

400.07(2) Example Projects

Additional plan examples may be viewed from the [Computer Aided Engineering - Example Projects](http://www.wsdot.wa.gov/Design/CAE/ExampleProjects.htm) website: www.wsdot.wa.gov/Design/CAE/ExampleProjects.htm

These plans represent an information-only example of a complete project plan set. This project shows the relationship between "Base" information, plan view sheets, section view sheets, profile view sheets, and other spreadsheet-based sheets per the *Plans Preparation Manual* and the [Electronic Engineering Data Standards Manual](#).

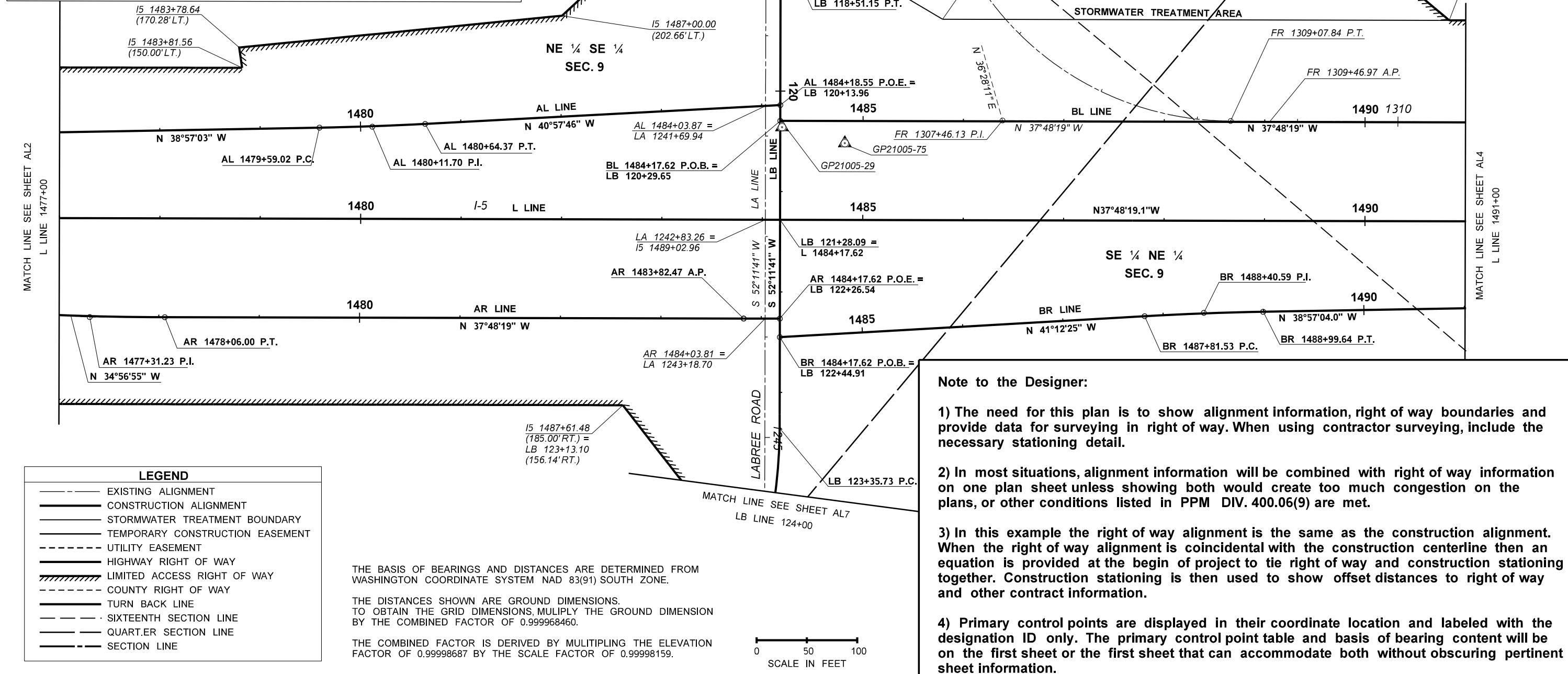
Plans may be viewed in PDF format from the website, or downloaded in native MicroStation (dgn) and Microsoft Excel (xls) file format compressed by WinZIP (zip).

T. 13N. R. 2W. W.M.

CURVE DATA							
P.I. STATION	NORT.HING	EASTING	DELT.A	RADIUS	TANGENT	LENGTH	SUPER
FR 1307+46.13	809209.67	1357202.23	74°16'30" LT.	300.00'	227.20'	388.90'	
AL 1480+11.70	808718.52	1357592.87	2°00'42" LT.	3000.00'	52.68'	105.34'	4% LT.
AR 1477+31.23	808613.05	1357915.39	2°51'24" LT.	3000.00'	74.80'	149.57'	4% RT.
BR 1488+40.59	809485.54	1357229.98	2°15'21" RT.	3000.00'	59.06'	118.11'	-3% RT.

PRIMARY CONTROL TABLE					
HORIZONTAL DATUM NAD (83/91) WA SOUTH US FEET			PROJECT DATUM COMBINED FACTOR 0.999968460		VERTICAL DATUM NAVD 88
DESIGNATION	NORTHING	EASTING	NORTHING	EASTING	ELEVATION
GP21005-28	477870.120	1031576.369	805997.914	1359755.678	222.523
GP21005-74	478119.690	1031525.604	806247.507	1359704.909	220.741
GP21005-29	480910.387	1029161.180	809038.463	1357340.265	230.646
GP21005-75	480969.468	1029135.314	809097.550	1357314.396	232.788

TRANSFORM SPC TO PDC (SPC US Feet * (1/CF)) + ((39.37/12) * 100000)=PDC
 TRANSFORM PDC TO SPC (PDC US Feet - ((39.37/12) * 100000)) * CF=SPC



Note to the Designer:

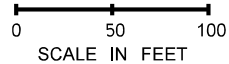
- The need for this plan is to show alignment information, right of way boundaries and provide data for surveying in right of way. When using contractor surveying, include the necessary stationing detail.
- In most situations, alignment information will be combined with right of way information on one plan sheet unless showing both would create too much congestion on the plans, or other conditions listed in PPM DIV. 400.06(9) are met.
- In this example the right of way alignment is the same as the construction alignment. When the right of way alignment is coincidental with the construction centerline then an equation is provided at the begin of project to tie right of way and construction stationing together. Construction stationing is then used to show offset distances to right of way and other contract information.
- Primary control points are displayed in their coordinate location and labeled with the designation ID only. The primary control point table and basis of bearing content will be on the first sheet or the first sheet that can accommodate both without obscuring pertinent sheet information.

LEGEND	
---	EXISTING ALIGNMENT
—	CONSTRUCTION ALIGNMENT
---	STORMWATER TREATMENT BOUNDARY
---	TEMPORARY CONSTRUCTION EASEMENT
---	UTILITY EASEMENT
---	HIGHWAY RIGHT OF WAY
---	LIMITED ACCESS RIGHT OF WAY
---	COUNTY RIGHT OF WAY
---	TURN BACK LINE
---	SIXTEENTH SECTION LINE
---	QUARTER SECTION LINE
---	SECTION LINE

THE BASIS OF BEARINGS AND DISTANCES ARE DETERMINED FROM WASHINGTON COORDINATE SYSTEM NAD 83(91) SOUTH ZONE.

THE DISTANCES SHOWN ARE GROUND DIMENSIONS. TO OBTAIN THE GRID DIMENSIONS, MULTIPLY THE GROUND DIMENSION BY THE COMBINED FACTOR OF 0.999968460.

THE COMBINED FACTOR IS DERIVED BY MULTIPLYING THE ELEVATION FACTOR OF 0.99998687 BY THE SCALE FACTOR OF 0.99998159.



FILE NAME	c:\users\graham\jpw_wsdot\0260152\PPM_Div_4_Example_4-19.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation	EXAMPLE 4-19	Plot 3
TIME	6:37:47 AM			10	WASH	NH-0000(000)			AL3
DATE	9/25/2020			JOB NUMBER					SHEET
PLOTTED BY	grahamj			CONTRACT NO.		LOCATION NO.		OF	
DESIGNED BY	DESIGNER					SP1234		SHEETS	
ENTERED BY	CAD OPERATOR								
CHECKED BY	TEAM LEAD								
PROJ. ENGR.	PROJECT ENGINEER								
REGIONAL ADM.	REGIONAL ADM.			REVISION	DATE	BY			

Division 6 Contract Provisions and PS&E Word User's Guide

600.01 Introduction

600.02 Special Provisions

600.03 Format

600.01 Introduction

Contract Provisions are legally enforceable specifications to contracts formed between the Washington State Department of Transportation (WSDOT) and contractors.

600.01(1) General

Contract Provisions consist of the following:

1. Notice to Planholders
 - Project Engineer's name, address, phone number, and email address.
2. Table of Contents
3. Amendments
 - As of September 1, 2019, there are no Amendments to the Standard Specifications for Road, Bridge, and Municipal Construction (Standard Specifications). All changes to the Standard Specifications will be accomplished through General Special Provisions (GSPs).
4. Special Provisions
 - A combination of the General Special Provisions (GSPs), Region Special Provisions (RSPs) and project-specific provisions
5. Boring Logs
 - All final boring logs provided by the WSDOT Geotechnical Division, Region Materials Engineers, and/or consultants
6. Federal-Aid Provisions
 - For federal-aid projects
7. Prevailing Minimum Hourly Wage Rates
 - State, federal, or both, depending on project funding
8. Proposal (informational copy)
 - Proposal Bond
 - Declaration of Non-Collusion (Federal Aid Contracts)
 - Certification for Federal-Aid Contractors (Federal Aid Contracts over \$100,000)
 - DBE/UBE Utilization Certification and Written Confirmation (Federal Aid projects with a Condition of Award (COA) DBE/UDBE goal.
 - Subcontractor List (Contracts Estimated over \$1,000,000)
 - Wage Law Compliance Certification
 - Signature Page
9. Appendices to the Special Provisions
10. Forest Service Provisions (if applicable)
11. Railroad Insurance Forms (if applicable)
12. Other Documents

600.01(2) PS&E Word Program

This section will discuss the PS&E Word Program, GSPs, RSPs and project-specific provisions.

The Special Provisions sections of the Contract Provisions are created using the WSDOT "PS&E Word Program" (see the Appendices for a User's Guide). Each GSP and RSP is given a unique file name. That file name is a number that corresponds to the section of the *Standard Specifications* being supplemented or revised by the document. Project-specific provisions are assigned a unique file name by the writer of the document.

The designer makes a list, called the run-list, of the applicable file names, and the computer system compiles the actual documents in the order requested on the run-list.

The PS&E Word Program allows the designer to access the GSPs through the region's computer network system and enables designers to:

- Read the documents.
- Compile the run-list.
- Write the project-specific information.
- Insert the information in the run-list.
- Compile the completed Contract Provisions.
- Create the Table of Contents.

WSDOT staff may contact the HQ Materials Lab to request access to PS&E Word. Offices not connected to the WSDOT computer network system, consultants, and local agencies can download the PS&E Word program and GSPs from the Internet. The PS&E Word applications and documents can be accessed on the WSDOT Construction Office – General Special Provisions website at:

<http://www.wsdot.wa.gov/Business/Construction/SpecificationsAmendmentsGSPs.htm>

The Internet information is updated on the same schedule as the WSDOT system, so the information is always current. It is the user's responsibility to regularly check for program and GSP updates at the Project Development Specifications website (see above) or by signing up for e-mail alerts at: http://service.govdelivery.com/service/subscribe.html?code=WADOT_75

Assistance with application support issues should be directed to the HQ Material Lab at: MLOHelp@wsdot.wa.gov, Assistance with the PS&E Word Program and the GSP information is available through the HQ Construction Office at:

<http://www.wsdot.wa.gov/Business/Construction/SpecificationsAmendmentsGSPs.htm>

For complete instructions on how to use the PS&E Word Program, access the User's Guide for PS&E Support Contract Provisions at:

<https://www.wsdot.wa.gov/sites/default/files/2012/03/30/PSEWord-UserGuide-2018.pdf>

600.02 Special Provisions

600.02(1) General

The Special Provisions consist of the General Special Provisions (GSPs), Region Special Provisions (RSPs), and the project-specific provisions.

600.02(2) GSPs

GSPs are provisions that are written to cover legal and construction requirements that may occur on a project. They supplement or revise the Standard Specifications and are written to provide statewide standardization for the work covered. The State Construction Engineer, or delegated authority, is the approving authority for all changes made to the *Standard Specifications*, including GSPs. Consequently, after approval, these are available for use, in their original state, for multiple projects.

The Index to the GSPs contains the file name, section heading, date of last revision, and instructions for use.

The GSP file names are directly related to the divisions in the *Standard Specifications*. For example, 8-01.3.OPT1.GR8 would be a GSP that either revises or supplements Section 8-01.3. The extension GR (General Roadway) is followed by the division number of the Standard Specification. The file name 8-01.3 refers to the section (8-01) and subsection (03) in the division.

A GSP is to be used, as is, if it is applicable to the project being developed. HQ Construction Office approval is needed for any revisions to GSPs.

600.02(3) RSPs

RSPs are provisions that are written to cover the legal and construction requirements that occur on projects that differ from region to region. They supplement or revise the *Standard Specifications* and are written to provide regionwide standardization for the work covered.

RSPs are approved for region use by the State Construction Engineer or delegated authority. After initial approval, an RSP can be incorporated into your contract package. Any modifications to an already approved RSP will require resubmittal to the State Construction Engineer or delegated authority.

The Index to the RSPs contains the file name with a region identifier, section heading, date of last revision, and instructions for use.

The RSP_file extension has a region identifier assigned to each region after the file name. The identifier is .DT1 through .DT6 depending on what region is applicable. For example, 8-01.DT1 would be for the Northwest Region.

The file extensions for each region are provided on the following table.

<u>File Extension</u>	<u>Description</u>
<u>.DT1</u>	<u>NWR RSPs</u>
<u>.DT2</u>	<u>NCR RSPs</u>
<u>.DT3</u>	<u>OR RSPs</u>
<u>.DT4</u>	<u>SWR RSPs</u>
<u>.DT5</u>	<u>SCR RSPs</u>
<u>.DT6</u>	<u>ER RSPs</u>
<u>.DT7</u>	<u>Vacant</u>
<u>.DT8</u>	<u>Vacant</u>
<u>.DT9</u>	<u>Ferries RGSPs</u>
<u>.FT?</u>	<u>Fill-Ins</u>

600.02(4) Project-Specific Provisions

The project-specific provisions are written by the designer to supplement or revise information in the *Standard Specifications* to make them fit the project being developed. Project-specific provisions are not to duplicate information contained in the *Standard Specifications*, GSPs, or plans.

Approval of project-specific specifications that alter the *Standard Specifications* (WSDOT Spec. book) is required prior to inclusion in your contract. All project-specific specifications are to be sent, along with justification, to the State Construction Engineer, or delegated authority for concurrence and approval. Special provisions prepared by a support group must be reviewed to ensure they fit within the specifications/Special Provisions of the project. Any changes to a support group Special Provision must have concurrence and approval prior to sending it to the State Construction Engineer, or delegated authority.

FHWA retains approval authority for any modifications to Division 1-02 through 1-09 of the Standard Specifications, General or Region Special Provisions, and any Project Specific Special Provisions on Federal-aid contracts that; Change policy, Change content that may materially affect the specification's intent, or Change content that may affect federal eligibility or involve federal regulations. Therefore, any proposed revisions to Divisions 1-02 through 1-09 must be presented to the State Construction Office as early as possible to determine if FHWA approval will be required. If FHWA approval of a special provision is required, allow for a minimum of 30 days to submit the changes and receive comments or FHWA acceptance. A project will not be allowed to advertise before receiving FHWA approval of special provisions if required.

Think of project-specific provisions as “project-specific revisions to the *Standard Specifications*.” In order to know what information needs to be added to supplement the information in the *Standard Specifications*, or what information in the *Standard Specifications* needs to be revised to be applicable to the project, be familiar with the information in the *Standard Specifications*. The field inspector uses the *Standard Specifications* during project construction, so it is reasonable to use it as a design tool and the basis for project-specific provision writing.

Project-specific provisions will be preceded by six asterisks in parentheses (*****). The asterisks are to be placed after Standard Specification headings and ahead of the project-specific information that either supplements or revises the Standard Specification, as follows:

ROADWAY EXCAVATION AND EMBANKMENT (Spec. book heading)

Construction Requirements (Spec. book section)

Roadway Ditches (Spec. book subsection)

Section 2-03.3(9) is supplemented with the following:

(*****)

Project-specific information goes here

If the designer has written a new project-specific subsection, the asterisks would go after the Standard Specification section heading and ahead of the new subsection heading, as follows:

ROADWAY EXCAVATION AND EMBANKMENT (Spec. book heading)

Construction Requirements (Spec. book section)

Roadway Ditches (Spec. book subsection)

Section 2-03.3(9) is supplemented with the following:

(*****)

Rock Fallout Ditches (new, project-specific subsection)

Project-specific information goes here.

600.03 **Format****600.03(1)** **General**

The Special Provisions will follow the format found in the *Standard Specifications*. Most of the information will appear under the same main headings as the division headings in the Standard Specifications.

Generally, Divisions 2 through 8 in the Standard Specifications each have the following five sections:

1. Description
2. Materials
3. Construction Requirements
4. Measurement
5. Payment

There will be occasions when the work being performed does not fall under one of the divisions in the *Standard Specifications* and the designer will have to write a complete new specification, these are called a Stand Alone Special Provision. The format will remain the same, however the designer is responsible for providing all of the information for all five sections. Stand Alone Special Provisions do not revise or supplement divisions. In these types of specials, the designer will not include a reference to a division being supplemented or revised.

Because the *Standard Specifications* are the beginning point for every GSP and project-specific provision, before writing anything, you need to first explore and be familiar with the *Standard Specifications*.

If the information is adequately covered in the *Standard Specifications*, then there is nothing to write. The most difficult part of writing good Special Provisions is providing the proper amount of information—not too much, not too little—to get the desired results.

600.03(2) **Description**

The description is a brief statement of what the work is, written in the following format example:

“This work shall consist of removing and disposing of concrete inlets.”

If the work is “furnishing and installing modified catch basins,” a description would not be required, since the description in Section 7-05 of the Standard Specifications covers the construction of all kinds of manholes, inlets, and catch basins. The writer could move on to the materials section and explain any differences in the materials for the modified catch basin.

If a description is required, it will **not** contain:

- Detailed information, such as station limits of the work or quantities.
- Phrases like “as detailed in the Plans,” “as shown in the Plans,” or “as directed by the Engineer.”

If there is a detail in the plans, save this information for the construction requirements section.

It is the designer's responsibility to show the location of every item of work in the plans. It is not necessary to keep stating this in the Special Provisions.

Engineers do not direct the work on the project—they administer the project. The only work that is “directed” by the Engineer is force account work and work that is done off the project; for example, “the Contractor shall deliver the salvaged material to the maintenance site and stack it as directed by the Engineer.”

600.03(3) Materials

The Materials section will normally reference the appropriate section of the *Standard Specifications* or the appropriate section of a nationally recognized material specification such as AASHTO or ASTM.

All materials information is to be in the Materials section of the Special Provisions. If a detail in the plans has materials information on it, do not repeat the information in the Special Provisions. However, there will have to be a reference in the Special Provisions to let the reader know where to find the information. A statement such as “Materials requirements for (work item X) are on the detail in the Plans” is all that is required to get the reader to the information. Do not indicate a specific plan sheet number, but rather reference a series of plans (such as Drainage Plans or Drainage Details) using the same wording as shown on the Index sheet, so the information can be easily found.

The *Standard Specifications* defines the requirements for materials used in road and bridge construction. There are occasions when the regions have the need to change these requirements by Special Provision. The regions will notify the Construction Materials Engineer at the HQ Materials Laboratory and request concurrence with the specification change prior to including the Special Provision in the contract documents.

In some situations, the regions may have a need to reduce the testing frequency of certain materials. This can be accomplished by one of the two following methods:

- Before construction: Contact the Construction Materials Engineer at the HQ Materials Laboratory and request concurrence with the frequency change prior to reducing the testing frequency.
- During construction: Follow the guidance in Section 9-1.1B of the *Construction Manual*, Reducing Frequency of Testing.

To change the testing requirements of a material, such as testing aggregate by visual inspection, request and obtain approval from the HQ Construction Materials Engineer.

When writing a materials specification that includes a revision to Division 9 materials requirements, include the materials requirements within the Special Provision it pertains to—do not place the materials specification in Division 9.

600.03(4) Construction Requirements

The construction requirements must be written to clearly describe what needs to be done. Define the work that the contractor is to perform, and provide any specific requirements that need to be completed or met in order to complete the work. Do not specify *how* to do it or explain *why* the work needs to be done.

Construction requirements are to be shown in the order in which the work is to be performed.

If there is a detail in the plans, this is where a statement would tell the contractor to “construct

the (work item X) as detailed in the Plans.”

Construction requirements are to be placed in the Special Provisions where they are enforceable.

600.03(5) Measurement

The measurement statement will be written to describe how the work or material will be measured, not the pay item name. For example, write “measure the removal of linear feet of drainage structures,” not “Removing Drainage Structures,” (pay item name), or “measure culvert pipe,” not “Schedule A Culv. Pipe 12 In. Diam.” (pay item name).

It is important to read the measurement statement found in the *Standard Specifications*, because many times it will apply to items that would seem to be project-specific. For example, if the project has the item “Special Culv. Pipe 12 In. Diam.,” the measurement statement found in the *Standard Specifications* applies to all culvert pipe: standard, special, modified, and so on.

To be complete, the measurement statement needs to include not only the unit of measure, but information as to when and where the measurement will be made. For example, “The length of culvert pipe or pipe arch will be the number of linear feet of completed installation measured along the invert.”

600.03(6) Payment

The bid item in the payment statement needs to be written in quotes and followed by the unit of measure. The bid item has to have the exact same name found in the Summary of Quantities; for example, “Adjust Catch Basin”, per each. Generally this is all that would be required for the payment statement.

If there is additional work associated with the item, the payment statement needs to also describe the work included. For example:

“Removing Manhole”, per each.

The unit contract price per each for “Removing Manhole” shall include all costs for sawcutting existing pavement associated with the removal.

There should be no surprises in the payment statement. If sawcutting is required and is to be included in the cost of the catch basin removal, it has to have been discussed in some other section of the Special Provision. It will not just show up in the payment statement as being required and included in the cost of the item.

600.03(7) Text General Guidelines

Special Provisions and the plans shall adhere to several general guidelines:

1. Write in a clear, concise, and complete manner.
2. Avoid the use of nonstandard words or numerous cross-references to other specifications.
3. When cross-referencing is necessary, ensure the provision is capable of standing alone as an explanatory document.
4. Place punctuation outside the quotation marks used with a bid item.
5. Capitalize the following words within the text: Contractor, Engineer, Plans, Section (referring to a specific section of the *Standard Specifications*), Special Provisions, Standard Specifications,

Standard Plans, State, and Contracting Agency.

6. Use "all costs" or "all expenses," but not both.
7. Use "as shown in the Plans" rather than "as shown on the Plans."
8. Avoid repetition of information available from other parts of the contract document, including the *Standard Specifications*.
9. Avoid abbreviations, except for those included within a bid item name.
10. Use the word "shall" to denote work to be done by the Contractor.
11. Use the word "will" to denote something the State is to do.
12. Do not use "Incidental to and included in" as a combination phrase. "Incidental to" refers to a general type of work, such as earthwork or paving, whereas "included in" links payment to a specific item of work.
13. Avoid "As directed by the Engineer." Both "As designated by the Engineer" or "As stated by the Engineer" are applicable within the project limits.
14. Avoid using "to the satisfaction of the Engineer." If enough information is available to describe a standard of work, the description is preferable.
15. Avoid "and/or" where possible. For example, "steel, wood, or both" is preferable to "steel and/or wood."
16. Avoid "as per" as a substitute for "in accordance with."
17. Use alpha notation when referring to a number of things; for example, install two catch basins.
18. Express all measurement units in Arabic numerals; for example, 6 inches, 20 feet, 1.5 miles, and so on.
19. Express counted numbers as follows:
 - Spell out numbers 1 through 10 (for example, six working days, seven catch basins, and so on).
 - Use Arabic numerals for numbers larger than 10 (for example, 35 working days, 24 hours, and so on).
 - Spell out all numbers that begin a sentence. If your sentence starts with a large number, try to reconfigure your sentence.
 - **Do not use Arabic and spelled-out numbers together.**

- 700.01 General Requirements
- 700.02 Earthwork
- 700.03 Production From Quarry and Pit Sites and Stockpiling
- 700.04 Bases
- 700.05 Surface Treatments and Pavements
- 700.06 Structures
- 700.07 Drainage Structures, Storm Sewers, Sanitary Sewers, Water Mains, and Conduits
- 700.08 Miscellaneous Construction
- 700.09 Other Contract Considerations

700.01 General Requirements

700.01(1) DBE or MWBE Goals

Disadvantaged Business Enterprise (DBE) goals for federally funded projects are condition of award goals. In order for the bid to be considered responsive, the low bidder must either meet the established goal or demonstrate Good Faith Efforts in meeting the goal. The HQ External Civil Rights Branch establishes these goals and monitors DBE participation. Minority and Women's Business Enterprise (M/WBE) goals for state-funded projects are voluntary; however, the outreach efforts to provide M/WBEs maximum practicable opportunities are not. On state-funded projects, prime contractors shall submit an M/WBE Participation Plan as part of their responsibility, before work begins.

700.01(2) Alternate/Cumulative Bids

700.01(2)(a) Alternate Bids

It is, at times, desirable to solicit bids using alternates for specific bid items for work to be performed under the contract. The contract Estimate, Proposal, and Summary of Quantities will be divided into sections. One section will contain the base information, and there will be a section for each of the alternates. This requires the contractor to bid the base portion of the project and to bid the alternates as required by the Special Provisions. By comparing the base bid plus the alternate bids, WSDOT is able to determine the most economical combination.

One of the conditions of setting up a project in this manner is that WSDOT has to treat each of the alternates as equal, and make the decision regarding which is the best bid based on the lowest cost Alternate Plus Base Bid.

This is different than allowing the contractor the latitude to choose between different material options available for a contract item.

For additional information concerning alternates, refer to the [EBASE Users Guide](#).

700.01(2)(b) Cumulative Alternative Bids

Use in contracts when the award process is modified to include Cumulative Alternates. The region shall determine and notify the Ad and Award Office of the Funds Available. The bid items shall be segregated into a Base Bid and Alternates, as appropriate. Fill-ins consist of a brief description of the portion of the project or of the work that is included in the noted Alternates. The specification language may be adjusted to suit the number of Alternates.

For further information on how this is to be used in a project, see Division 1-02.6, General Special Provisions.

700.01(3) **Addenda**

Addenda are revisions to the plans and contract provisions that are made **during** the advertising period. Addenda are to be issued only when the revision will affect the contractor's ability to provide a responsible bid. Consult with the Region Plans Office to coordinate preparation and notification to plan holders.

Items to be considered for preparing addenda, which would affect the scope of work and the contractor's ability to accurately bid the project, might include:

- Material specification changes.
- New bid item(s).
- A substantial quantity revision (generally, a 25% or greater increase or decrease) for an item in the bid documents.
- A revision to a legal requirement in the contract.
- A new supplement or a revision to the Special Provisions.

Small adjustments to quantities, spelling, and punctuation, and design changes that do not affect quantity and relocation of items of work within the project will not normally require an addendum because they will not affect the way the contractor bids the project. These items are not to be ignored, but the information, in the form of revised plan sheets, need only be passed along to the office of the construction project engineer, so they can be incorporated into the project and given to the contractor that is awarded the project. For example:

- **Addenda Not Required:** The advertised project has 23 catch basins to be installed, and it is discovered that an additional catch basin, not shown on the plans, will be required. This would not warrant an addendum if this were the **only change** being made. The small change in quantity will not impact the contractor's bid. This can be handled under construction as any other increase in quantity.
- **Addenda Required:** The addition of the one catch basin causes the 18-inch-diameter pipe item to increase from 985 feet to 1,250 feet. This increase in pipe length is greater than 125% of the original, which could cause this item to be renegotiated under the contract, so the addendum would be justified. Since the addendum is required for the pipe, the additional catch basin would also be included in the addendum.

For instructions and procedures on preparing addenda, see the [Appendices](#).

700.01(4) **Reference Information**

Reference Information is information available to the contractor during the bidding period that is not part of contractual documents (see [Standard Specification](#) 1-04.3). This information may be text reports that are helpful to the contractor or they may be data files, all provided electronically on the WSDOT HQ Contract Ad & Award website. If you provide electronic data Reference Information, it is recommended you provide the existing ground DTM, the finished grade DTM, and alignment and project control file. The electronic DTMs can be provided in XML format that is universally accepted by other earthwork software. Other electronic documents that may be useful are cross sections, roll plots, and bridge condition reports. No guarantee or warranty is made by the Contracting Agency that the content of Reference Information is accurate. For further detailed information, review Division 1-04 of the WSDOT [Construction](#)

Manual and the WSDOT *Advertisement and Award Manual*. Contact your ASDE for more information.

There are rare cases where the project office may want to keep the information on the website after ad and award. In this case, special fees may apply. Contact the HQ Contract Ad & Award Office for additional information.

700.01(5) Standard Plans

WSDOT's *Standard Plans* are made a part of contracts by reference in the Special Provisions. Plan details that duplicate details in the *Standard Plans* are not to be drawn, and the designer is not to redesign a Standard Plan by detail in the project. It is important that standard work be done the standard way, and that standard materials be used whenever possible; in almost all cases, standard materials cost less.

700.01(6) Competitive Bidding, Proprietary Items, and Use of the Qualified Products List (QPL)

700.01(6)(a) Competitive Bidding

WSDOT uses competitively acquired products to fulfill the requirements of a contract whenever feasible. This helps achieve the lowest prices, the best product quality, and the most efficient use of resources.

There are several ways to specify bid items or materials in a contract that create a competitive bidding environment. Following are three different methods, listed in order of preference:

1. Specifying by Standard or Nonstandard Bid Items

This method doesn't use brand names. The contractor is allowed to choose the product, as long as it meets the requirements of the *Standard Specifications* and contract provisions. This method fosters a competitive bidding environment and does not require approval for proprietary items.

2. Specifying Brand Names and Allowing for Approved Equals

When brand name specifying, the designer is providing the bidder with options by naming at least two products or manufacturers that are acceptable and allowing for "approved equals" followed by a performance specification. When this is done, no approval is required for usage; it is not considered a proprietary item.

A good specification for brand name specifying will read as follows:

The (type of product) furnished shall be (brand name, model), (brand name, model), or an approved equal having the following features (functions):

- a. (feature)
- b. (feature)
- c. (feature)

In order to find the two acceptable items, the designer had to be looking for certain features or functions. These features or functions are the ones that need to be clearly identified in the Special Provision.

3. Specifying at Least Three Brand Names

Listing a reasonable number (three or more) of brand names/models that are acceptable is a competitive bidding environment also and doesn't require approval. A performance specification is not required.

700.01(6)(b) Specifying Proprietary Items

There are instances in which competitive bidding may not or cannot be provided and a specific proprietary product is allowed. This applies to temporary items/ materials as well as permanent items/materials incorporated into the project.

WSDOT has adopted the the following policy for use of proprietary items on all projects. Use of proprietary items must meet at least one of the following:

1. It is purchased or obtained through competitive bidding with equally suitable other items (the three methods found above).
2. It is certified that:
 - a. The proprietary item is essential for synchronization with existing highway facilities. Synchronization may be based on:
 - Function (the proprietary product is necessary for the satisfactory operation of the existing facility. A product could be essential due to the fact that it has been tested with other components and is documented to work with existing components or that it is a one-of-a-kind item. A product or manufacturer could be essential because using anything else would require replacing other components of the existing highway system,
 - Aesthetics (the proprietary product is necessary to match the visual appearance of existing facilities),
 - Logistics (the proprietary product is interchangeable with products in an agency's maintenance inventory), or
 - Any combination thereof.

Or

- b. No other equally suitable alternative exists:
 - The product (or manufacturer) is one of a kind.
 - Other workable alternative products or manufacturers are not equal in longevity, cost, delivery, durability, compatibility, warranty, and so on.
3. It is used for research or for a distinctive type of construction on relatively short sections of road. It is for experimental purposes to obtain experimental information on a product or manufacturer for the public good. When requesting this type of usage, approval documentation showing the scheduling, monitoring, results, and conclusion are needed.

700.01(6)(c) Using Proprietary Items in Contracts

Prior to advertisement, the designer needs to request and receive written certification for any proprietary material, work, manufacturer, or product included in a project. It is the designer's responsibility to submit a memorandum of justification to the approval authority in sufficient time for it to be reviewed and acted upon.

There are two basic types of requests that can be submitted for approval:

- Use of the proposed proprietary item will be allowed for regionwide or statewide use, referred to as a “blanket certification” (this is usually valid for a biennium). A copy of the original certification shall be placed in the Design File. Copies can be found on the “Current Blanket Proprietary Certifications” web page at:
<http://www.wsdot.wa.gov/design/projectdev/blanketapprovals.htm>
- Use of the proposed proprietary item will be allowed for a specific project only (just for the duration of the project). The original signed certification shall be placed in the Design File.

Approval of a proprietary item does not override the federal specification for foreign steel (Buy America) or the applicable General Special Provisions (GSP, Division 1).

When a proprietary item has been certified, the designer will, in the Special Provisions, give the product manufacturer, model, model number, and any additional information required to ensure only the specified item will be furnished. There will usually be only one item named in the Special Provisions when listing a proprietary item. The phrase “or approved equal” will **never** follow the naming of a proprietary item in a Special Provision. There are no options allowed. The contractor’s bid is to reflect the price to supply and incorporate the one item specified.

700.01(6)(d) Using the Qualified Products List (QPL)

There is a definite difference between specifying a proprietary item and specifying a brand name, and using the Qualified Products List (QPL) which has nothing to do with either proprietary or brand name specifying.

The QPL is a list of products and materials that have been preapproved for use on WSDOT projects. If the contractor chooses to provide items listed on the QPL, there is no need to submit a Request for Approval of Materials. For some products or materials on the QPL, there is no requirement to submit the items for testing prior to using the product or material on the project. However, the listing of a product in the QPL does not preclude the need for a proprietary item request if the conditons described in the previous sections apply.

The preapproval of items in the QPL does not mean they are the only products or materials that will be allowed. The contractor can provide any product or material that meets the specifications, whether they are listed in the QPL or not.

700.01(7) Buy America

For projects with federal funding in any phase (Right of Way, Design, or Construction), Buy America obligates the majority of steel and iron construction material permanently incorporated into the project to be manufactured in the United States of America. Incorporate GSPs associated with Buy America requirements as necessary. Check with the HQ Design Office during project development to verify whether or not Buy America is required for the project. Check with HQ Construction Office for contract compliance related inquiries during construction. Use this link to review the Buy America memorandums from FHWA and the HQ Design/Construction Offices: www.wsdot.wa.gov/design/support.htm#america. Due to the conditions set forth by Buy America, both new and salvaged materials fall under the same requirements when applied to Buy America.

Buy America requirements do not apply to steel items that are considered to be temporary, such as form work or false work.

700.01(8) Legal Relations and Responsibilities to the Public

Section 1-07.1 of the *Standard Specifications* requires the contractor to comply with all federal, state, or local laws and regulations that affect work under the contract. These laws and regulations do not need to be identified in the contract. However, certain project-specific regulations, such as permits, agreements, MOUs, licenses, variances, or others, need to be identified in the contract. Examples of such regulations with conditions that need to be part of the contract are: HPA, EIS, Noise Variance, Shoreline Permit, Department of Ecology MOU, and other documents that would affect or restrict work on the contract.

In many cases, the GSPs will trigger the need for the text of such documents to be listed in the Special Provision, either as a fill-in or as an appendix. When construction activities require the need for a permit, variance, agreement, MOU, or other regulations, the designer should always discuss the need for such documents to be put in the contract with the appropriate region support personnel.

700.01(8)(a) Decommissioning of Wells Procedure

The water well abandonment procedure shall adhere to the Washington State Department of Ecology (Ecology) regulations for abandonment of water wells following the guidelines in [WAC 173-160-460](#) and [RCW 18.104.048](#). Notice shall be given at least seventy-two hours in advance of commencing work. The notice shall be submitted on forms provided by Ecology, along with the proper fees.

700.01(9) Washington State Laws

Following is a partial listing of laws that are frequently used in the administration of WSDOT contracts:

1. [RCW 4.24.360](#): Any clause in a construction contract that disallows a contractor, subcontractor, or supplier any damages due to unreasonable delays in performance caused by WSDOT is void and unenforceable.
2. [RCW 18.27.090](#): Contractors are exempt from contractor registration laws provided they are prequalified by WSDOT.
3. [RCW 18.104.048](#): Prior notice of well construction, reconstruction, or decommissioning of wells is required (see [700.01\(2\)\(a\)](#)).

4. [RCW 19.122.040](#): Existing utility locations (see [400.06](#) for the contents of this RCW).
5. [RCW 39.12](#): Wages (see Section 1-07.9 of the *Standard Specifications*).
6. [RCW 39.19](#): See the GSP concerning minority and women’s businesses.
7. [RCW 46.44](#): Vehicle weight limitations within project boundaries.
8. [RCW 47.28.030](#): State Force Work and materials (see [700.09\(10\)\(a\)](#)).
9. [RCW 47.28.035](#): Related to RCW 47.28.030, State Force Work and materials (see [700.09\(10\)\(b\)](#)).
10. [RCW 47.28.070](#): Prequalification of contractors (see Section 1-02.1 of the *Standard Specifications*).
11. [RCW 47.28.100](#): Contractors are allowed 20 days after award to execute a contract. WSDOT may extend this time no more than an additional 20 days (see Sections 1-03.3 and 1-03.5 of the *Standard Specifications*).
12. [RCW 47.28.120](#): Contractors must file their claims within 180 days after acceptance (see Section 1-09.9 of the *Standard Specifications*).
13. [RCW 47.30](#): Requirements for paths and trails.
14. [RCW 49.28](#): Wages – overtime.
15. [RCW 60.28.011](#): WSDOT must hold 5% of the contract amount in reserve for material and worker claims. Contractors can post a bond in lieu of the reserve fund (see Section 1-09.9 of the *Standard Specifications*).
16. [RCW 78.44](#): A Contract Reclamation Plan is required for every WSDOT contract that contains a WSDOT-furnished materials source (see [400.06](#)).

Some of the laws are referenced in the *Standard Specifications* or the GSPs; some are not. In either case, these laws are not to be altered. All Special Provisions that appear to alter a law should be questioned.

700.01(10) Asbestos Removal

When the removal of asbestos or items containing asbestos is required, or when asbestos is suspected, the specifications shall include sufficient information and detail to inform the contractor of the nature and location of the asbestos. There are GSPs that are to be included in the contract provisions. The WSDOT *Asbestos Abatement Manual* is to be used to determine whether there are special conditions or requirements that should be included in the contract provisions. (You can access a copy of the *Asbestos Abatement Manual* through the WSDOT Library at: www.wsdot.wa.gov/library, or send them an e-mail at: library@wsdot.wa.gov.)

700.01(11) Permits

Ensure all permits necessary for the project are completed and signed prior to the project going to Ad. However, in the event this cannot be accomplished, it is the responsibility of the region to determine the risk involved in going to Ad without the completed permit, in accordance with the *Advertisement and Award Manual*.

700.01(12) Training Goals

The bid item for “Training” is to be provided on most federal-aid projects. For projects with

federal-aid dollars, [23 CFR Part 230.111](#) requires all state highway agencies to review projects to determine their ability to support the inclusion of “Training Special Provisions” hours. The training goals, in terms of the total number of training hours required, are established by the HQ External Civil Rights Office. The number of training hours, if assigned to a project, is based on the following:

- Total estimated project labor hours
- Availability of minorities, women, and other disadvantaged individuals
- Potential for effective training
- Duration of the contract
- Dollar value of the contract
- Anticipated workforce size
- Project location
- Scopes of work

The region may submit a training recommendation for consideration by the HQ External Civil Rights Office. If the region is submitting a training recommendation, it needs to provide an estimation of total projected project labor hours.

Note: If you have any questions regarding either of the two programs referred to above, please contact the WSDOT Office of Equal Opportunity at 360-705-7090.

700.01(13) Assigning the Risk

It is important that the contractor be able to determine whether the risks on the project will be the contractor’s responsibility or will be borne by WSDOT. In most cases, it is best to assign the risk to WSDOT. This keeps the contractor from having to inflate bid prices to offset the possible risks of doing the work. These inflated prices cost WSDOT extra dollars when the problem does not materialize.

- For example, do not say, “The contractor may encounter obstructions during the excavation.” The contractor has to assume that obstructions will be encountered and that they will be the contractor’s problem when they are. The unit price for the excavation will include the cost of obstruction removal, and WSDOT will pay for the removal even if there are no obstructions encountered.
- It would be much better to say, “If obstructions are encountered during excavation, the Engineer will pay for the removal of the obstruction in accordance with Section 1-09.4 of the [Standard Specifications](#).” Now the contractor can bid the actual cost of doing the excavation work and be confident that if something out of the ordinary is encountered, the cost of removal will be dealt with fairly, and if there are no obstructions encountered, there is no cost to WSDOT.

700.01(14) Agreements

An agreement (for the purpose of this section) is a written contract between WSDOT and another party or parties (public, private, or both) establishing an exchange of benefits and/or obligations.

Another party may be financially responsible for some of the work in WSDOT's contract, such as the construction of sidewalks, utility installations, signal systems, pavement markings, intersection improvements, and so on.

Agreements that include work that WSDOT's contractor will perform, or work performed by others that WSDOT will reimburse a third party for, should be clearly stated in the project Special Provisions.

Ensure that the quantities, bid item names, units of measurement, and prices in the agreement are the same as those in the PS&E.

Each bid item needs to be set up with a separate bid item name and placed in a separate group in the Summary of Quantities. Each bid item needs to be addressed, clearly, in the Special Provisions.

When preparing the estimate of cost for an agreement for work under the contract that is the financial responsibility of an outside agency, include mobilization, engineering, and contingencies.

Complete and sign all agreements necessary for the project before the project is advertised. If this cannot be accomplished, it is the responsibility of the region to determine the risk involved in going to Ad without the completed agreement, in accordance with the [Advertisement and Award Manual](#).

See the *Agreements Manual* for guidance on agreement elements, structure and processes or contact the HQ Utilities, Railroad, and Agreements Section.

700.01(14)(a) Haul Road and Detour Agreements

When the project provides a materials source, or requires traffic to be detoured from the state highway, the region may be required to acquire agreements with the owners of the roads that will be used as the haul road or the detour route. (See the Haul Road/Detour Agreements chapter in the [Agreements Manual](#) for guidance.) The process of generating an agreement should be started as early in the design phase as possible. Discuss with region personnel responsible for processing agreements. The lack of a completed agreement may cause a project Ad date to be delayed. It is the responsibility of the region to determine the risk involved in going to Ad without the completed agreement, in accordance with the [Advertisement and Award Manual](#).

The agreement will normally provide compensation to the owner of the haul road or detour for damage done to the road by the hauling equipment or by the extra traffic on the roadway. The compensation may be in the form of work to be done under the contract to bring the roads back to precontract conditions, or the owner may be paid a cash settlement and would be responsible for making the repairs.

All haul roads and detours are to be clearly shown and labeled on the Vicinity Map.

700.01(15) Vehicle Weight Limitations Within Project Boundaries

The designer is to review each individual project to determine whether the vehicles employed in the construction that exceed the gross weight limitations, per [RCW 46.44](#), can be tolerated.

When existing bridges or major drainage structures are involved, overweight clearance is obtained from the HQ Bridge and Structures Office. The clearance information provided by the HQ Bridge and Structures Office is to be included in the PS&E portion of the Project File.

The designer is to use the information in the [Standard Specifications](#), or include the appropriate GSP in the contract provisions, to inform the contractor of the load limit restrictions for the project.

700.01(16) Working Days

The designer needs to give careful consideration to the number of working days allowed for a project. Too many working days can cause as many problems as not enough working days.

The determination of working days for the different work items is to be based on production rates and other considerations (see the [Appendices](#)). Using the time required for the individual work items, the Critical Path Method (CPM) (see [Appendix 6](#)) is then used to determine how the project work will fit together, and the total number of working days will be determined.

The working days required for bridge construction are to be coordinated with the working days required for the other construction.

The CPM will be placed in the PS&E portion of the Project File.

700.01(17) Liquidated Damages

700.01(17)(a) HQ Construction Office Approval Required

Liquidated damages are monies assessed or withheld from the contractor's payment for failure to complete the project within a specified period of time. Liquidated damages are not to be considered a penalty, but reimbursement for the costs to the contracting agency for the contractor's failure to perform within the time frame of the project.

There are two types of liquidated damages to be considered for a project:

1. Contract Time-Related Liquidated Damages

Liquidated Damages are calculated for each WSDOT Design-Bid-Build project for failure to complete the physical work within the allotted contract time. Liquidated Damages are not to be considered a penalty, but reimbursement for the costs to the contracting agency associated with administering the contract beyond the specified contract time.

The design team is responsible for completing the [Design Liquidated Damages Calculation Sheet](#) to determine the liquidated damages (LD) amount, which will be used in a fill-in for [Special Provision 1-08.9.OPT3.FR1](#). Within the calculation sheet workbook are instructions and a completed example calculation sheet, for reference.

This calculation should be accomplished near to the 90% design milestone. The Design Project Engineer should coordinate with the Construction Project Engineer to evaluate workforce projections, as well as any other available information, such as per diem, overtime, and travel time, to fill out the calculation sheet.

It is recognized that work force fluctuates during the life of the project. Review the

work force for the duration of the project and select a day that best represents the staffing levels anticipated for the majority of the project. Document the workforce assumptions in the Comments/Assumptions/Staffing Notes section at the bottom of the form.

The Liquidated Damages Calculation Sheet will be kept in the Project File documentation in the region.

2. Interim Completion of Phases (Staging)

Interim liquidated damages are monies assessed or withheld from the contractor's payment for failure to complete a part (phase or stage) of the project within a specific period of time identified in the Special Provisions.

Large or complex projects often have interim completion times, with liquidated damages for such things as failure to open a closed lane(s), ramp(s), or detour(s) to all traffic by a specified time, or for completion of all work identified for a specific stage or phase of a project as defined in the Special Provisions. These types of liquidated damages can be assessed in time increments that range from 15-minute to full-day segments.

Liquidated damages assessed for failure to have a lane, ramp, or roadway open to traffic, or to have an Intelligent Transportation System (ITS) operational at the specified time, are an estimate of the actual cost to the contracting agency and the traveling public for not having that portion of the road or ITS available. The Transportation Data, GIS, and Modeling Office (TDGMO) has standardized methodology for calculating the cost, based on traffic counts. This is the only acceptable way of calculating these costs (see http://wwwi.wsdot.wa.gov/planning/data/travel/liquidated_damages.htm).

Once the designer has received these calculated costs from the TDGMO, the region must make the determination whether or not the damages represent a sufficient benefit to the state to put them in the contract.

Interim liquidated damages for two or more separate reasons can be additive for the same time period.

A copy of the data used to justify liquidated damages and a copy of the TDGMO information is to be placed in the PS&E portion of the Project File.

700.01(18) Fuel Cost Adjustment

The GSP Instructions contain guidance for use of the Fuel Cost Adjustment item.

Check with the HQ Construction Office to verify whether or not this item is required for the project.

700.01(19) Steel Cost Adjustment

The Steel Cost Adjustment item can be used in projects which contain 50,000 pounds or more of steel. Instructions for its use are contained in the GSP Instructions. A Steel Cost Worksheet Template, found under "Design Support" on the [Project Development Support](#) webpage, can be used to calculate this adjustment.

Check with the HQ Construction Office to verify whether or not this item is required or needed for the project.

700.01(20) Force Account Work

Standard Item Number 7715, "Force Account _____," has been created to monitor the total amount of money spent on force account work. This standard item, with the appropriate fill-in information, is to be used for all force account bid items, except for those that already have a standard item number.

If work can be measured and clearly identified, the design should use existing standard bid items. If the work is not quantifiable or cannot be easily measureable, the use of this item may be appropriate.

The use of this standard item number does not preclude the need for a project-specific provision to describe the work to be accomplished.

The force account item is to be placed in the appropriate section on the Summary of Quantities. (A force account removal item would be placed with the other removal items; a force account structure item would be placed with the other structure items.)

700.01(21) Lump Sum Bid Items

A lump sum bid item may include several items of work or the same item of work at different locations. The Special Provisions must cover the complete item of work, including the description of work, materials, construction requirements (which includes the approximate quantities for bidding purposes), and payment statements. The quantities listed should be double-checked to avoid contractor claims.

Only work that can be easily defined by quantity, amount of effort, and equipment and labor requirements is to be included in lump sum items. If any of these items are unknown/uncertain, payment at unit prices or by force account would be more appropriate.

The backup data used to determine the estimated cost for lump sum bid items is to be placed in the PS&E portion of the Project File.

The designer must decide whether each lump sum bid item is to be prorated or whether individual Summary of Quantities column costs are to be assigned for each lump sum bid item.

700.02 Earthwork

700.02(1) Earthwork Measurement

Measurement of earthwork other than as specified in the *Standard Specifications for Road, Bridge, and Municipal Construction (Standard Specifications)* requires the approval of the HQ Construction Office. (See [Division 6](#) for more information on developing a Special Provision.)

700.02(2) Clearing and Grubbing

For estimating purposes, clearing is to be calculated as being performed 10 feet, and grubbing 7 feet, beyond the toe of slope for embankments and the upper limit of slope treatment in cuts. Coordinate with the Region Landscape and Environmental offices on the proposed limits, and show these limits on the proper plan sheets.

If clearing requires the cutting of merchantable timber amounting to at least one log truck load (approximately 5,000 board feet) from within the right of way, the General Special Provision (GSP) for Timber Export Restrictions is to be included in the contract provisions. This GSP notifies the contractor that they will be required to pay to the Department of Revenue the

forest excise tax on the harvested lumber.

700.02(3) Removal of Pavement, Sidewalks, or Curbs

The method of measuring and paying for work requiring removal of pavement, sidewalk, or curb, is determined by where work is occurring: within or outside the limits of an excavation area.

700.02(3)(a) Outside

When pavement, sidewalk, or curb removal is required **outside the limits** of an excavation area, it can be included in the lump sum price for "Removal of Structures and Obstructions," or separate bid items may be established for the work.

If the work is included as part of the lump sum item, the Special Provisions will indicate the approximate locations and quantities. If separate bid items for removal are established, the individual items will appear on the Quantity Tabulation sheets, where the approximate locations and quantities will be indicated. In either case, the locations of the removal items will be indicated on the plans as well.

700.02(3)(b) Within

When pavement, sidewalk, or curb removal is required **within the limits** of an excavation area, nothing is required on the plans or in the Special Provisions. All costs for the removal of the pavement, sidewalk, or curb are included in the excavation work, and no additional compensation is made to the contractor.

The other possibility is that, for some reason, the designer wants the contractor to remove the pavement, sidewalk, or curb that lies within an excavation area prior to performing the excavation. In this case, the work would be handled as described above for removal outside an excavation area.

700.02(4) Borrow Material

Because WSDOT is committed to conserving valuable mineral resources, it is imperative that careful consideration be given to the earthwork portion of every project, to ensure the most efficient and cost-effective use of the material from the roadway excavations.

If there is insufficient roadway excavation material due to a shortage of on-site material or because all, or a portion of, the on-site material is known to be unacceptable for constructing embankments, material will have to be imported, and a borrow item will be included in the project.

If the borrow is required because the roadway excavation material is not acceptable for embankment construction, the Special Provisions shall identify the locations of the unacceptable roadway excavation material. Consult with the Region Plans Office on how this information is to be presented.

If a single type of borrow material is required to supplement the quantity of roadway excavation material, it will be the contractor's responsibility to determine the most efficient and cost-effective means and operations of using the on-site material and the borrow to construct the embankments. In this situation, the borrow material quantities will appear only on the Summary of Quantities, and they will not be shown as a quantity on the roadway profile sheets. The designer needs to note in the Contract Plans or the Specials that the quantity of borrow shown in the Summary of Quantities is to be used to supplement the quantity of roadway excavation at

his discretion for constructing embankments. Otherwise, the contractor will not know it is WSDOT's intent to have the two items used together.

If the borrow material is being used only at specific, well-defined locations on the project (bridge end embankments, for example), the exact locations are to be identified on the roadway profile by showing the quantity arrow, indicating the station-to-station limits and quantity of borrow material needed for the embankment construction. If profiles are not included in the project, the Special Provisions are to contain a statement such as, "Gravel borrow shall be used to construct the bridge end embankments, L X+XX to L X+XX."

If two or more types of borrow material are required, the specific locations for all but one of the types of borrow shall be identified on the profiles, or in the Special Provisions, as described above. For example:

- If gravel borrow is required for the construction of bridge end embankments, and common borrow is required to supplement the roadway excavation material to construct other embankments, the station-to-station limits of the gravel borrow material are to be shown on the profiles or in the Special Provisions. It will remain the contractor's responsibility to determine the most efficient and cost-effective way to use the common borrow and the roadway excavation material to construct the remaining embankments. Therefore, show the common borrow quantity only in the Summary of Quantities.

In all cases, the quantities for roadway excavation and embankment shall appear on the Summary of Quantities and on the Profile sheets or, on smaller projects, tabulated on Quantity Tabulation sheets.

700.02(5) Embankment In Place

This bid item is to be used on projects where earthwork consists mainly of borrow excavation. It provides payment for acquiring, excavating, hauling, placing, and compacting borrow materials to construct the embankment.

If there are minor quantities of roadway excavation included in the project, this work can be included in the item "Embankment In Place." Measurement for payment will be by the cubic yard volume between the original ground line and the neat lines of the embankment template. No allowance is made for subsidence or settlement.

The use of this item requires a Special Provision and approval by the HQ Construction Office. Include the following information when requesting to use this item:

- Assurance that the foundation on which the embankment material is to be placed is unyielding.
- Estimated quantities of excavation, embankment compaction, and roadway excavation.

700.02(6) Aeration

If it is found necessary or desirable to include the bid item "Aeration" in a project, approval by the Headquarters (HQ) Construction Office is required. A copy of this written approval is to be included in the Plans, Specifications, and Estimates (PS&E) portion of the Project File.

700.02(7) Shoring or Extra Excavation

All excavations of 4 feet or more in depth shall be shored, protected by cofferdams, or shall meet the open-pit requirements specified in the [Standard Specifications](#).

RCW 39.04.180 requires that a separate bid item for shoring or extra excavation be included in the estimate and proposal. In no case shall the costs for shoring or extra excavation be included in other bid items.

700.03 Production From Quarry and Pit Sites and Stockpiling

700.03(1) *Materials Sources and Waste Sites*

Materials sources provided by the contracting agency can be either mandatory or nonmandatory sites. For mandatory sites, verify with the region ASDE on the appropriate documentation needed, and refer to *Design Manual* Chapter 300 for approval authority of mandatory sites.

When mandatory materials sources or waste sites are specified, the region shall provide a memorandum of justification. For mandatory materials sources, justification shall be made in accordance with 23 CFR 635.407, showing a definite finding that it is in the public's best interest to require the use of the mandatory sites furnished or designated by the contracting agency. The use of mandatory sites can also be designated based on environmental considerations, provided the environment would be substantially enhanced without excessive cost. The memorandum of justification is to be placed in the Project File.

When nonmandatory sites are specified, the contracting agency makes the site available to the contractor, but the contractor has the option to use or not use the site.

For any mandatory source or waste site to be used, coordinate with the Region Plans, Materials, and Environmental offices.

Bid items for work to be performed within a nonmandatory site are to be site-specific; for example, "Wire Fence Type 1 – QS-X-XX." (See the GSP for State Furnished Material Sources for more information.) This allows the contractor the opportunity to bid zero for these site-specific items if they do not intend to use the site. If the contractor decides later to use the site, the work specified by the site-specific items will be performed, and the contractor will be paid at the bid amount of \$0.00.

Site-specific items are not required for work to be performed on mandatory sites.

A separate column, under the appropriate group, is to be set up for each material source or waste site provided by the contracting agency. This allows the contractor to easily identify the work to be performed within a site and also allows for easy accounting of the work by WSDOT.

The region shall prepare a Haul Road Agreement if the haul route to or from the site is other than a state highway.

700.03(2) *Stockpiling Aggregates*

Under the construction contract, the regions are authorized to spend M5 funds for acquisition of aggregates, provided the region's biennial M5 allocation is not exceeded.

The following Headquarters offices need to be advised by the region of all M5 aggregate stockpile acquisitions made under a construction contract:

- Administrative Services Office, Purchasing and Inventory Branch
- Comptroller's Office, Budget Management Branch
- Program Management Office, Program Manager
- Pre-Contract Administration Office

700.03(3) Amortization of Materials and Stockpile Sites

If a state source of materials is provided, the project report form is to include the dollar amount to be amortized, providing the region intends that amortization be included in the project.

The estimate will include the dollar amount so that federal-aid participation can be obtained on federal-aid projects, or so that proper accounting procedures can be followed when only state funds are involved.

700.03(4) Royalties on Materials Sites

If the contracting agency furnishes a materials site owned by others, and the owner requires that a royalty be paid for materials removed from the site, the dollar amount of the royalty, and who will be responsible to pay the royalty, will be specified in the Special Provisions. FHWA has authorized federal-aid participation in royalty payments.

700.04 Bases

Vacant

700.05 Surface Treatments and Pavements**700.05(1) Asphalt for Fog Seal**

The item "Asphalt for Fog Seal" is normally associated with bituminous surface treatment (BST) projects and the shoulders of paving projects that place only HMA in the traffic lanes, and it is required on all open-graded HMA projects as well.

700.05(2) Soil Residual Herbicide

The item "Soil Residual Herbicide" should be used in conjunction with HMA, asphalt concrete sidewalks and paths, or parking lots only when very aggressive weeds that are capable of breaking through pavement are in the vicinity. Those weeds include equisetum and knotweeds. The designer is to check with the Maintenance -Superintendent responsible for the area for a recommendation on whether soil residual herbicide is required.

700.05(3) Commercial HMA

If approved by the Region Materials Engineer, any quantity (tons) of Commercial HMA may be used for the following applications:

- Prelevel
- Sidewalks
- Ditches
- Paths
- Gores
- Digouts
- Road Approaches
- Slopes
- Trails
- Other nonstructural applications approved by the Project Engineer.

700.05(4) HMA for Preleveling

The bid item for “HMA for Preleveling Cl. ____ PG ____” is to be provided when a project requires preleveling of the existing roadway surface.

The quantity of preleveling is to be based on a survey of field conditions. In some regions, this survey may be made by the Materials Laboratory and it may provide the prelevel rate or quantity.

The roadway sections should show in the typical sections where and what type of prelevel is to be completed (wheel rutting or on a lane to correct a super rate issue) so that the contractor knows how to bid and what equipment is expected to be used.

700.05(5) HMA for Approach

The item “HMA for Approach Cl. ____ PG ____” is to be used when there are road approaches to be paved on the project. This is not to be confused with county roads and city street intersections. County road and city street intersections shall be included in main line paving quantities.

Road approaches will be identified by approach sections on the roadway section sheets, and on the Paving Plans, if they are present, so the contractor is aware of the number, locations, and paving requirements. Place HMA quantities for each approach either in a table or in the Quantity Tabulation sheets.

700.05(6) HMA Price Adjustment

An HMA Price Adjustment is required for all projects containing Hot Mix Asphalt. Verify the correct HMA Price Adjustment with the HQ Construction Office. Cost Adjustment Spreadsheets can be found with the following link:

<http://www.wsdot.wa.gov/Business/Construction/EscalationClauses.htm>.

700.05(7) Other Price Adjustments

Check with the HQ Construction Office to verify whether or not any other price adjustments are required for the project. Cost Adjustment Spreadsheets can be found with the following link:

<http://www.wsdot.wa.gov/Business/Construction/EscalationClauses.htm>.

700.05(8) HMA Quality Assurance

As an incentive for contractors to provide superior quality HMA, the Washington State Department of Transportation (WSDOT) will pay a bonus of up to 8% of the unit bid price of the HMA. The bonus is comprised of 3% for the mixture and 5% for compaction. When a project calls for paving with HMA, the item “Job Mix Compliance Price Adjustment” (JMCPA) will be required, with the exception of HMA accepted by Visual Evaluation. For HMA accepted by Visual Evaluation, this item is only used when there is nonconforming mix resulting in a credit. For HMA accepted by Visual Evaluation, the JMCPA will be -\$1 for the estimate. For HMA accepted by statistical evaluation, the JMCPA will be calculated using the following formula:

$$\text{JMCPA} = (0.03) (\text{TEC})$$

Where:

TEC = Summation of the Total Estimated Cost of HMA accepted by statistical evaluation.

Example:**Description Quantity Unit Price Est. Cost**

HMA Cl. ½ IN. PG_ (2,600 tons) (\$70.00) = \$182,000

Summation of Total Est. Costs (TEC) = \$182,000

JMCPA = (0.03)(\$182,000)

JMCPA = \$5,460

Use \$5,500 for “Job Mix Compliance Price Adjustment”

When a project calls for paving with HMA, the item “Compaction Price Adjustment” (CPA) will be required, regardless of the tonnage, if the total compacted depth for a class of HMA placed in the traffic lanes is greater than 0.10 foot.

The price adjustment will be calculated using the following formula:

$$CPA = (0.05) (TWTEC)$$

Where:

TWTEC = Travel Way Total Estimated Cost of HMA with a total depth greater than 0.10 foot.

Note: If the same compaction effort is required on the shoulders, the shoulders will be included in the calculations for “Compaction Price Adjustment” (for example, where the shoulders are currently being constructed full depth because they will become a driving lane in the future or where shoulder driving is going to be allowed). If this is the case, see [GSP 5-04.3\(10\)opt1.gr5](#).

Example:

HMA CL ½ IN. PG_:

Length: 500'

Width: 2 lanes @ 12' and 2 shoulders @ 10.0'

Depth: 1 lift @ 0.20' depth

Unit Price: \$100/ton

Conversion factor: 2.05 t/cy

$$TWTEC = (500')(24')(0.20')(2.05 \text{ t/cy})(\$100/\text{ton})(1 \text{ cy}/27 \text{ ft}^3)$$

$$TWTEC = \$18,222.22$$

HMA CL ½ IN. PG_:

Length: 300'

Width: 2 lanes @ 12' and 2 shoulders @ 4'

Depth: 1 lift @ 0.15' depth

Unit Price: \$145/ton

$$TWTEC = (300')(24')(0.15')(2.05 \text{ t/cy})(\$145/\text{ton})(1 \text{ cy}/27 \text{ ft}^3)$$

$$TWTEC = \$11,890.00$$

Travel Way Total Est. Cost

$$(TWTEC) = \$18,222.22 + \$11,890.00 = \$30,112.22$$

$$CPA = (0.05)(\$30,112.22) = \$1,505.61$$

Use \$1,510 for "Compaction Price Adjustment"

700.06 Structures

700.06(1) Structural Reference Information

The region will be responsible to provide prospective bidders with reference information needed for evaluating all bridges, within the project limits, as to their potential ability to carry loads or materials that exceed the load limits specified in the Standard Specifications 1-07.7. Bidders will then be able to make adjustment to bid costs associated with any engineering requirements if they anticipate using loads exceeding the allowable limits during construction.

The following items should be included as Structural Reference Information:

- The most recent Inspection Report for all existing bridges and buried structures located within the Project limits.
- As-built plans and shop drawings for all existing bridges and buried structures which are being modified as part of the project scope including but not limited to widening, repair, retrofit (rail, seismic, substructure, etc.), painting, overlay and paving.

Reference information for most structures is available on Bridge Engineering Information System (beist.wsdot.loc/InventoryAndRepair/Inventory/BRIDGE) and Enterprise Content Management (wsdotecm/portal). For information not available at these sources, contract HQ Bridge and Structures Office.

For HQ ad and award projects, the project office should send the collected reference information to the HQ Contract Ad and Award (CAA) Office. The HQ CAA Office will issue a notice to prospective bidders, once the project is advertised, indicating the availability of the structural reference information.

700.06(2) Retaining Walls

When a project contains standard retaining walls, as detailed in *the Standard Plans for Road, Bridge, and Municipal Construction (Standard Plans)*, the Contract Plans shall include:

- A plan and profile of the wall, with original and proposed ground profiles at the front and back faces of the wall.
- All existing utilities in the vicinity of the wall.
- Wall geometry.
- Right of way limits.
- Construction sequence and stage construction sequence requirements.
- Highest permissible elevation for foundation construction.
- Location, depth, and extent of unsuitable material.
- Quantities for the wall and backfill materials.
- Details of wall appurtenances such as traffic barriers; coping; wall face treatment and limits of treatment; drain outlets; and location of signs and lighting, including conduit locations.

In general, a site that will support a standard cantilever retaining wall will also support a proprietary retaining wall. If the region decides to provide preapproved proprietary retaining wall systems as an alternate, the HQ Materials Laboratory Foundation Engineer and the HQ Bridge and Structures Office Bridge Project Engineer need to be consulted on the selection of suitable wall systems for the conditions. In order to evaluate aesthetic considerations, a rough site plan shall be submitted to the HQ Bridge Project Engineer for review.

The region will be required to contact the suppliers of the selected retaining wall systems to confirm the adequacy of the systems for the given situation. The HQ Materials Laboratory Foundation Engineer is to be contacted to provide assistance in evaluating the systems for overall stability and to provide soil criteria for design.

The HQ Bridge and Structures Office will prepare the Special Provisions for preapproved proprietary retaining walls, including design criteria. The HQ Foundation Engineer will be consulted for establishing the criteria for design. The Special Provisions will require the proprietary wall manufacturer selected by the contractor to submit shop plans, design criteria, and calculations to the HQ Foundation Engineer for approval. The HQ Bridge and Structures Office will then review the design submitted by the preapproved proprietary wall manufacturer.

In addition, keep in mind that these retaining wall alternates may be selected by the contractor and that all of these alternates are proprietary. On all federal-aid projects, two alternates must be selected, or reasons for using fewer alternates must be submitted for approval to the Assistant State Design Engineer assigned to the region. Proprietary retaining wall systems are preapproved for certain heights. Walls that exceed the preapproved height will be considered special designs and each must be submitted to the HQ Bridge and Structures Office for review and approval.

700.06(3) Contractor Supplied Designs for Buried Structures

When a project includes a contractor supplied design for a buried structure, the Contract Documents shall include:

- Location of the buried structure, headwall and wingwalls and their geometry, including alignment, length, profile and elevations
- The location of the Structure Free Zone and the 500 year scour surface
- The streambed section including buried structure bedding material
- Barrier and fall protection locations and configuration
- Approach slab locations when they are anticipated (when the top surface of the structure will be the driving surface)
- Any restrictions on the type of buried structure
- Any restrictions on headwall, wingwall, barriers and fall protection types
- Buried structure staging requirements
- The project geotechnical report referenced in the design
- Whether the site is Marine, Non-Marine: Corrosive or Non-Marine: Non-Corrosive as defined in the WSDOT Bridge Design Manual Section 6.7, and the specific pH, resistivity, chloride and sulfate measurements of existing soil and water.
- Environmental requirements of the structure

- Aesthetic requirements of the structure
- A schedule for construction that can accommodate placement, backfill, structural connections/deck placement, approach slab construction, etc.
- A lump sum bid item called “Contractor Designed Buried Structure No. _____” together with a list of components to be included in the lump sum bid item
- A bid item called “Shoring or Extra Excavation Cl. A _____”
- A method of measurement and payment for earthwork and all other items related to the buried structure construction

700.07 Drainage Structures, Storm Sewers, Sanitary Sewers, Water Mains, and Conduits

Vacant

700.08 Miscellaneous Construction

700.08(1) Temporary Erosion and Sediment Control Plans

The Temporary Erosion and Sediment Control Manual (TESCM) provides detailed information on Temporary Erosion and Sediment Control (TESC) planning. The goal of TESC planning is to prevent erosion damage and sediment-laden runoff during construction that can harm the environment and waters of the state. A TESC Plan (includes a narrative section and plan sheets) shall describe the site-specific erosion risks associated with the project and list the best management practices (BMPs) selected to reduce or eliminate the identified risks. Refer to the TESC Manual when designing the TESC Plan.

Multiple resources for TESC Plan design exist, including the TESCM, Design Manual, Highway Runoff Manual, Roadside Manual, Hydraulics Manual, Standard Specifications (Division 8-01), and Standard Plans. Other resources include Region Environmental or Hydraulics staff and Environmental Services Office Stormwater and Watersheds Program staff.

700.08(2) Roadside Restoration and Considerations

The roadside blends the highway facility into the natural and built environment and provides operational, visual, and environmental functions. For all projects requiring work outside the shoulders, restoration of the roadside asset is required. Contact the Region Landscape Architect (LA) or HQ Landscape Architect (for regions without one) early in the project to assist in meeting the functional needs and to determine ways to avoid, minimize and mitigate impacts to the roadside.

The roadside work will require coordination with Maintenance to identify problem areas that can be addressed with project work, such as areas where long-term weed control issues exist, areas where future restoration is desirable, and areas with deficiencies. The project can ensure these concerns are addressed when performing restoration. This avoidance and minimization work may require consultation on and edits to plan sheets outside of the planting plans.

If areas of noxious weeds exist within the project limits, the designer may arrange to have WSDOT maintenance forces treat them prior to earth-moving activities using construction funding, or the project can include weed control prior to this work, when project timing is not

adversely affected. Including treatment prior to earthwork can avoid spreading noxious and invasive species of weeds, if they exist in the project vicinity. For projects that last through multiple seasons, weed control throughout the duration of the project should be specified for all areas within the right of way and all maintenance activities need to be planned for within the project limits. If the project needs weed control (outside of planting areas), the separate weed control standard bid item must be included.

Sometimes, minor modifications to grading or adjustments to equipment location can help to reduce vegetation or environmental impacts, areas that are not usually considered in the first-pass of putting together project plans. It is important to preserve existing desirable vegetation and to minimize disturbance and compaction of existing soils as much as possible. This will minimize water runoff, reduce erosion during the project, and reduce impacts that require restoration and mitigation.

Site preparation is more effective if it is noted on the major project site preparation plans, as the prime contractor is most likely to see that information prior to any required activity. Additionally, the LA may add site preparation plans to cover the roadside work when the site is more complicated than a single preparation strategy such as simply clearing and grubbing.

The *Roadside Policy Manual* outlines requirements for vegetation preservation and revegetation. The Landscape Architect can assist the designer in fulfilling these requirements. The Roadside Restoration Worksheet or coordination with the Region Landscape Architect, should be referenced to determine the impacts and restoration needs that were determined for the project during the scoping process. The Roadside Restoration Worksheet is a vehicle for planning the necessary budget to cover costs of restoration, but cannot fully predict the costs generated by unanticipated clearing, to accommodate such issues as site access. It is not necessary to complete the Worksheet when projects only require small items such as seeding; however it is important that the scoper, or designer, consult with the LA office to ensure that the budget will be adequate for the project.

Consider the various elements of the project that are viewed by the highway user and from adjacent areas. Elements such as lighting standards, sign bridge types, traffic barriers, rockfall protection, bridge and wall design, textures and colors, contour grading, stormwater treatment and storage facilities, and vegetation blend the project into the context of the environment and provide a unified visual experience through the corridor. Consult with the region LA or the Headquarters Roadside and Site Development office, where the region does not have its own LA, to provide guidance. The LA works with the HQ Bridge and Structures Architect to ensure continuity with architectural features.

Permanent vegetation provides erosion control, slope stabilization, weed minimization, stormwater treatment and storage, and can reduce traffic-related pollutants and protect the public from air pollution. Consider Context Sensitive design solutions (see Design Manual Section 305.7). The Landscape Architect can provide expertise to identify and blend visual elements.

You must comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) for all site components that are made available to the public.

700.08(3) Earthwork for Roadside Installations

Estimate and include in the contract earthwork quantities associated with features installed outside the typical shoulder break point. These installations include, but are not limited to, guardrail terminals, luminaires, and ITS equipment. Refer to the layout and dimensions shown in

the standard plans or project details when calculating quantities, and provide a separate tabulation for each location. Alternatively, quantities may be made incidental to the item being installed, if that approach provides an advantage in project contracting or construction inspection.

Note that earthwork for widening is not normally included in the roadway earthwork calculations, and therefore needs to be tracked and documented separately.

700.09 Other Contract Considerations

700.09(1) Combining Bid Items

In an effort to streamline projects to make them easier for WSDOT to manage, as well as easier for the contractors to bid, some thought should be given on each project to doing similar, or associated, work under a single bid item instead of having two or more items under which to work.

The lump sum item “Removal of Structure and Obstruction” has always been made up of a combination of various removal items, and this will not change. This item is not governed by an estimated cost limit for work that can be included. As long as each different removal item is precisely described as to the actual work to be performed, the locations of the work, and the estimated quantity of work, there are no limits to the removal work that can be combined in the single “Removal of Structure and Obstruction” item. (See 700.09(4) for additional discussion on lump sum items.)

Work that is measurable—estimated cost of \$5,000 or greater—will be a separate bid item. However, if the work is minor—estimated cost of less than \$5,000— and there is a logical item of work with which to associate the minor work, the items may be combined and the cost of the minor work included in the cost of the associated work. A nonstandard bid item is created to capture all of the work involved when combining bid items.

The designer must remember that if items of work are combined, additional information will be required to describe the work involved, to clearly identify what items are being combined, and that the quantities provided for the combined items need be more accurately calculated.

For example, do not combine the cost of structure excavation with the cost of the pipe without giving a reasonably accurate estimated quantity for the structure excavation required for each pipe. Giving the total estimated quantity for the structure excavation does not provide the contractor a clear enough picture of the work required to make a responsible bid.

Accuracy of estimating quantities is also important because it can be difficult to address overruns, underruns, or added work when only one portion of the item combination is involved in the overrun or underrun, or work is added to only one of the items of work.

Care must be taken to ensure that by combining the items of work, additional problems will not be encountered during construction because of changes in conditions or work methods.

Items being combined shall relate to each other well and the quantities shall be dependent on each other, so if one changes in the field, the associated quantities would be affected uniformly.

700.09(1)(a) Example of a Good Combination

If the project had a few locations where stormwater pipes were to be installed, and depth of trenches were approximately the same, it would be acceptable to include the cost of structure excavation with the per-foot price for the size and type of stormwater pipes. This could be a

good combination because the items are closely associated and the quantities may be dependent on one another. The quantity for structure excavation is dependent on the amount of pipe installed and will increase or decrease as the length of pipe actually installed increases or decreases.

- Even though this combination of items is logical, it is imperative that the quantities for the structure excavation be calculated to a higher degree of accuracy than if the two items were separate.
- This higher accuracy of the structure excavation quantity is necessary because once the quantity is calculated for the planned length of pipe, that relationship of cubic foot of structure excavation per foot of pipe never changes. If the calculated structure excavation quantity is too high, the contracting agency is overpaying for the work actually performed. If the calculated structure excavation quantity is too low, the contractor is not being fairly compensated for the work performed. In either case, there is no way to make adjustments to the structure excavation.
- If there was a separate pay item for the structure excavation, and the quantity for the item was miscalculated, the contractor will be paid for the actual work performed, so the estimated quantity is a basis for the contractor's bid only.
- The structure excavation quantity will appear on the Structure Note sheet as "informational only" for each associated structure code.

700.09(1)(b) Example of a Bad Combination

Do not combine clearing and grubbing with embankment compaction, even though the plan is to clear and grub only where the embankments are to be constructed. This is a bad combination of items, because the two items are not closely associated with each other. The quantity for either of these items could be increased or decreased without impacting the quantity of the other item.

- If the items above are combined under a cubic yard pay item, and during construction it is determined that additional slope flattening is necessary within the original clearing and grubbing limits, it would be difficult to determine and justify an increase. The difficulty lies in the fact that clearing and grubbing is generally around \$6,000 per acre, whereas embankment compaction is around \$2.00 per cubic yard. In this case, the contractor would be receiving a premium price for the additional embankment.
- If the items above are combined under a per acre pay item, and during construction it is determined that additional clearing, grubbing, and embankment compaction is necessary, again, it would be difficult to determine and justify an increase. The problem is, how is a square acre converted to a cubic measurement?

700.09(1)(c) Incorporating Combined Items

To maintain consistency in the combining of items statewide, the HQ Plans Liaison Engineer for the region is to be consulted in advance of incorporating combined items into projects. In addition to consistency, this will provide a single office to monitor which items are routinely being combined and which item combinations work and which do not, allowing for responsible decisions in the future.

Note: Two items that cannot, by law, be combined with any other item of work are "Shoring or Extra Excavation Class A" and "Shoring or Extra Excavation Class B."

700.09(2) Equipment Acquisition Through Construction Contracts

The practice of WSDOT acquiring, through a construction contract, items that would normally be acquired or purchased through the equipment fund or IT contracts is only allowed with written approval from CPDM through the Assistant State Design Engineer.

Specific examples of these items are: survey equipment, computers and other IT equipment, vehicles, maintenance equipment, radios, workboats, and truck-mounted impact attenuators.

700.09(3) Geotechnical Project Documentation

- (a) The Region Project Development Office or Terminal Engineering Department for WSF is responsible for notifying the HQ Geotechnical Division at least 12 to 14 weeks in advance of the Ad or Shelf Date, when the final project geotechnical documentation is due for each pertinent project.
- (b) When a PS&E document is near completion, all of the geotechnical design memoranda and materials source reports are compiled to form the Final Geotechnical Project Documentation, to be published for the use of prospective bidders.
- (c) The Region Project Development Office or Terminal Engineering Department for the Washington State Ferries (WSF) will identify who has been designated to receive, handle, and continue the publication process of the report.
- (d) It is desirable that the final geotechnical documentation be available for printing 10 weeks prior to the Ad or Shelf Date; however, it absolutely must be available no later than two Fridays prior to the Ad or Shelf Date.
- (e) When transmitting the final project geotechnical documentation, the HQ Geotechnical Division will explicitly identify the geotechnical documentation as **final** and camera-ready. Likewise, the region materials section will concurrently send a camera-ready **final** copy of region-generated reports, to be included as part of the geotechnical documentation for the project.
- (f) For Headquarters Ad and Award projects, when the region has received the report, the Region Project Development Office sends the complete package to the HQ Printing Services Office for final publication and to be made available to prospective bidders for purchasing. For WSF projects, the WSF Contracts/Legal Services Office is responsible for copying and making the report available to prospective bidders.
- (g) The HQ Contract Ad and Award Office will issue a notice indicating the availability of the geotechnical documentation to bidders.
- (h) In addition, some geotechnical information shall be included as part of the contract. It will generally consist of the final project boring logs and/or a Summary of Geotechnical Conditions when applicable. Both of these items are provided by the HQ Geotechnical Division.

700.09(4) Items a Designer "Might" Need

The designer is advised to avoid including items in the project they think "might" be needed. This is particularly important for items such as borrow or excavation below grade, because the contractor bids, at a high price, the small quantity shown, and then finds a way to use a considerable quantity of the item on the project.

If it is unknown whether or not the item is required, it is best to leave it out of the project and

let the Construction Office add the item by change order if necessary. History shows that this is the easiest, most cost-effective way of handling these items.

There may be times when it will be appropriate to include an item that might be needed. In these rare cases, it should be included as a force account item so the Engineer has complete control of the work.

700.09(5) Managed Access Highways and Construction Rights

For work on managed access highways outside of incorporated areas, refer to [Design Manual 540.08\(2\)\(b\)](#), "Department Construction Projects," for additional guidance.

700.09(6) Paths and Trails

WSDOT tracks expenditures for pedestrian and bicycle facility improvements so this information can be reported to the Legislature and the public, per chapter 47.30 RCW. The information is also used to measure the performance of WSDOT's transportation system.

For WSDOT Design-Bid-Build projects: The paths and trails percentage needs to be included in your 100% PS&E turn-in cover memo when submitted to the Region Plans Office. Also, send the percentage, and documentation for how the percentage was calculated, to region program management. Region program management will convey this information to CPDM for tracking. For projects with no paths & trails calculation, use 0%. Communicating 0% ensures the review of the paths and trails percentage occurred.

For WSDOT Design-Build projects: The paths and trails percentage shall be calculated by the Design-Builder and submitted with the Released for Construction (RFC) plans. This percentage will be provided to the WSDOT Engineer for submittal to CPDM. For projects with no paths and trails calculation, use 0%. Communicating 0% ensures the review of the paths and trails percentage occurred.

Please contact CPDM for guidance on reporting related to Paths and Trails when there is a WSDOT contribution on a project but is not the lead agency.

Paths and Trails Calculations

$$\left(\frac{X}{Y}\right) \times 100 = P\&T\%$$

Where:

X = The summation of paths and trails-related items* (including mobilization, sales tax, engineering, and contingencies).

Y = The grand total of the project cost.

*Includes (but is not limited to) the items listed below.

Features that are specifically for pedestrian and/or bicycle facilities need to be included in the paths and trails calculations. Overlaying an existing shoulder with HMA or bituminous surface treatment (BST) does not constitute the need for paths and trails calculations. Widening of a shoulder(s) that is part of a larger roadway-widening project is not to be included in the paths and trails calculations, except as noted below.

The following are example types of work that are to be included in the paths and trails calculations. (See the [Design Manual](#) for definitions of terminology and additional information.)

- Shared-use path
- Structures (specifically for nonmotorized use)
- Sidewalk
- Bike lane
- New curb ramp (or replacement of curb ramps)
- Retrofitting curb or altering a curb ramp (simply replacing truncated domes would not be included)
- Curb extension
- Pedestrian refuge island
- Buffer strip (only a planter strip that is a minimum of 3 feet wide between the sidewalk and curb can be included)

Following MUTCD guidelines, signing and pavement markings associated with pedestrian and bicycle facilities may include:

- Crosswalks
- School crossings
- In-pavement flashing warning devices
- Preferential lane symbols and signing
- Pedestrian signals/detectors
- Bicycle-specific signals/detectors
- Pedestrian-scale lighting
- Bicycle facilities lighting

For these types of features, the paths and trails calculations shall include the entire cost to complete the work of each feature.

Constructing a dedicated bicycle or pedestrian facility is always preferable to widening shoulders, especially in urban or urbanizing areas. However, paths and trails calculations for bicycle and pedestrian facility improvements shall be calculated for roadway shoulders when all of the following conditions are met:

- The route is identified in a local, regional, or state plan as a bicycle connection.
- The existing shoulder is widened to at least the minimum widths outlined in the [Design Manual](#) for accommodating bicyclists and pedestrians.
- The paths and trails calculations for this shoulder-widening work shall be 50% of all the costs included to complete the shoulder widening.

700.09(7) Salvaged Materials

Salvaged materials are items that do not become the contractor's property when removed as part of the contract. This material is to be used in future projects. For federal-aid projects, salvaged credits are governed by state procedures; however, they are subject to the requirements set forth by Buy America (see [Section 700.01\(7\)](#)). In accordance with FHWA Contract Administration Core Curriculum guidance, WSDOT has established the following procedure on salvaged material.

WSDOT procedure does not require a salvage credit on state-funded projects. Therefore, a salvage credit on a federal-aid-funded project is also not required.

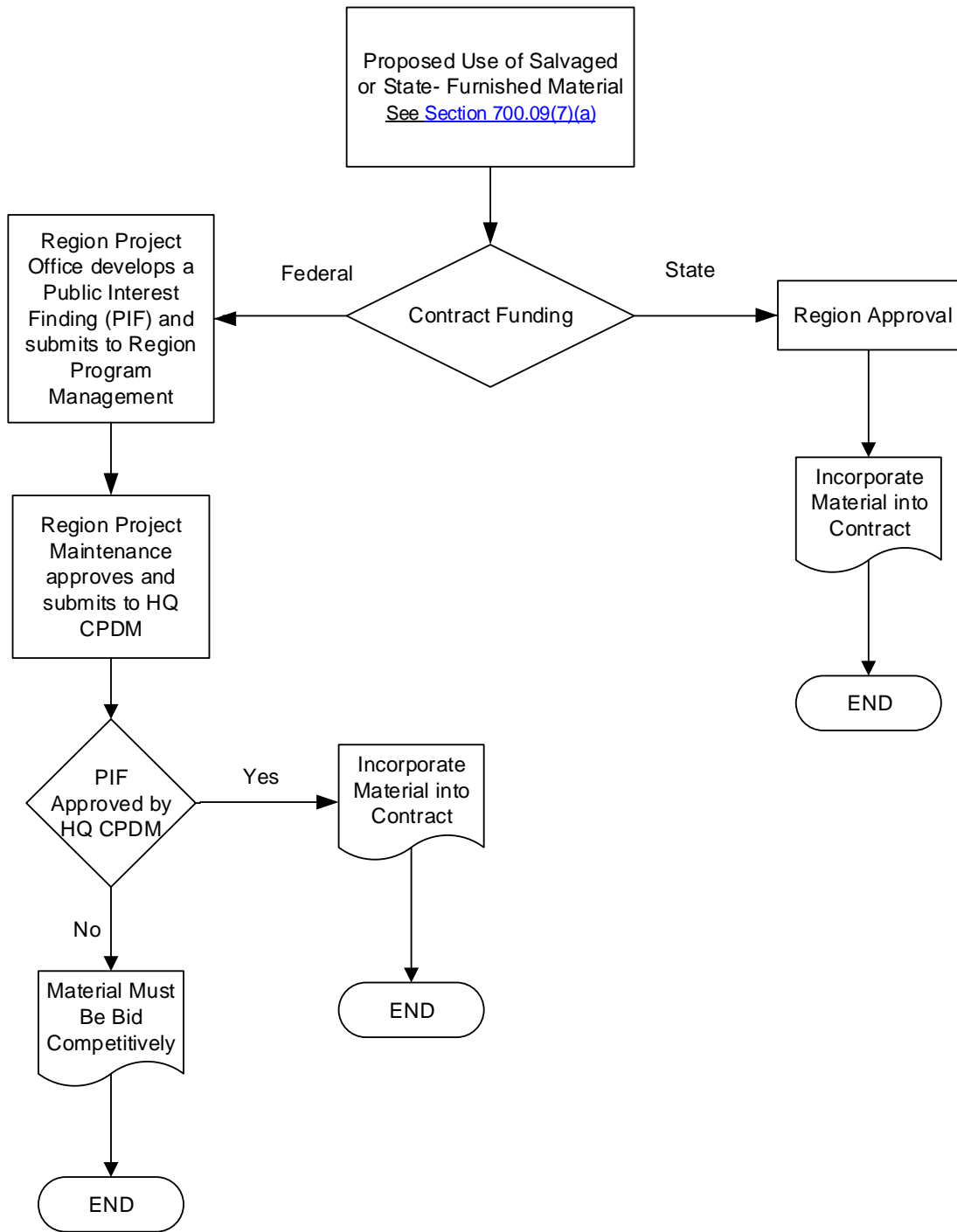
700.09(7)(a) Use of Salvaged or State-Furnished Material

The Use of Salvaged or State-Furnished Material flow chart ([Figure 700-1](#)) details the procedures to follow when these types of materials are proposed to be incorporated in a contract.

The use of material acquired in other than competitive bidding may be waived under specific conditions if it is found to be in the public's interest. On federally funded projects, a Public Interest Finding (PIF) is required to be approved by HQ CDPM. The PIF will consist of a written document outlining the basis for the request and supporting documentation such as cost/benefit analysis, discussion of compatibility, logistical concerns, etc. For details on what is required for a PIF, refer to [23 USC 112](#) and [23 CFR 635](#), and Appendix 8B of the *Program Management Manual M 3005-01*.

<http://wwwi.wsdot.wa.gov/publications/manuals/fulltext/M3005/PMM.pdf>

For state-funded projects, the use of salvaged or state-furnished materials must be approved by the Region Administrator or to the delegated regional authority.



Notes:

Refer to:

- [23 CFR 635.407](#), Use of Materials Made Available by Public Agency
- Appendix 8B, *Program Management Manual*, M 3005.01

**Use of Salvaged or State-Furnished Material
Figure 700-1**

700.09(8) Specializing Out Right of Way Parcels

It may be necessary to identify right of way parcels that are unavailable to the contractor for construction at the time the contract is awarded.

The Special Provisions shall be specific regarding the location of these parcels and the estimated dates of availability to the contractor. Region Real Estate Services can provide a reasonable availability date to go in the Special Provisions. There is no problem if the property becomes available early, but there can be major problems if the property is not available by the date promised.

Right of way parcels that are “specialized out” must also be indicated on the Right of Way or Alignment/Right of Way Plans by drawing in the appropriate property lines and by cross-hachuring the parcels. The plans shall indicate that the cross-hachured parcels are unavailable and there will be a note referencing the Special Provisions.

When right of way is being specialized out, the order of work has to be examined to ensure the project sequencing is not adversely affected because portions of the right of way are not available for immediate use.

700.09(9) Standard Items

When a standard item exists, it should be used. The Standard Bid Item Table is not a complete listing of standard items. It is a list of the bid items being tracked in the Unit Bid Analysis (UBA) system. Code numbers, which are referred to as Standard Item Numbers, track them.

Standard items are those items that appear in the payment statements in the [Standard Specifications](#). Many of these payment statements, like the following, are written with blanks:

- “HMA for Preleveling Cl. ____ PG ____,” per ton.
- “Catch Basin Type ____,” per each.
- “Manhole Additional Height ____ In. Diam. Type ____,” per foot.

If the blanks are filled in with the expected information and the information in the [Standard Specifications](#) applies, they are standard items even though they may be a size, type, or class not shown in the Standard Bid Item Table.

Minor revisions that have little or no impact on the cost can be made to the material or construction requirements in the [Standard Specifications](#), and they can remain standard items. Care must be taken, however, not to mislead the contractor by making major revisions that could substantially affect the cost of the item and calling it the standard item. In these cases, it is best to develop a nonstandard item.

700.09(10) State Force Work or State-Furnished Materials

The State Force Work referenced is any and all state force labor, state-furnished materials, and/or state-furnished equipment to be paid utilizing construction dollars, unless specifically excluded as mentioned below (see [Figure 700-2](#)).

The designer shall provide written justification for all state-furnished materials and all State Force Work to be performed on all projects, in accordance with [RCW 47.28.030](#) and [RCW 47.28.035](#).

700.09(10)(a) RCW 47.28.030

As of 2015, the complete RCW reads as follows:

RCW 47.28.030 Contracts—State forces—Monetary limits—Small businesses, veteran, minority, and women contractors—Rules—Work on ferry vessels and terminals, ferry vessel program.

(1)(a) A state highway shall be constructed, altered, repaired, or improved, and improvements located on property acquired for right-of-way purposes may be repaired or renovated pending the use of such right-of-way for highway purposes, by contract or state forces. The work or portions thereof may be done by state forces when the estimated costs thereof are less than fifty thousand dollars and effective July 1, 2005, sixty thousand dollars.

(b) When delay of performance of such work would jeopardize a state highway or constitute a danger to the traveling public, the work may be done by state forces when the estimated cost thereof is less than eighty thousand dollars and effective July 1, 2005, one hundred thousand dollars.

(c) When the department of transportation determines to do the work by state forces, it shall enter a statement upon its records to that effect, stating the reasons therefor.

(d) To enable a larger number of small businesses and veteran, minority, and women contractors to effectively compete for department of transportation contracts, the department may adopt rules providing for bids and award of contracts for the performance of work, or furnishing equipment, materials, supplies, or operating services whenever any work is to be performed and the engineer's estimate indicates the cost of the work would not exceed eighty thousand dollars and effective July 1, 2005, one hundred thousand dollars.

(2) The rules adopted under this section:

(a) Shall provide for competitive bids to the extent that competitive sources are available except when delay of performance would jeopardize life or property or inconvenience the traveling public; and

(b) Need not require the furnishing of a bid deposit nor a performance bond, but if a performance bond is not required then progress payments to the contractor may be required to be made based on submittal of paid invoices to substantiate proof that disbursements have been made to laborers, material suppliers, mechanics, and subcontractors from the previous partial payment; and

(c) May establish prequalification standards and procedures as an alternative to those set forth in RCW 47.28.070, but the prequalification standards and procedures under RCW 47.28.070 shall always be sufficient.

(3) The department of transportation shall comply with such goals and rules as may be adopted by the office of minority and women's business enterprises to implement chapter 39.19 RCW with respect to contracts entered into under this chapter. The department may adopt such rules as may be necessary to comply with the rules adopted by the office of minority and women's business enterprises under chapter 39.19 RCW.

(4)(a) Work for less than one hundred thousand dollars may be performed on ferry vessels and terminals by state forces.

(b) When the estimated cost of work to be performed on ferry vessels and terminals is between

one hundred thousand dollars and two hundred thousand dollars, the department shall contact, by mail or electronic mail, contractors that appear on the department's small works roster as created pursuant to procedures in chapter 39.04 RCW to do specific work the contractors are qualified to do to determine if any contractor is interested and capable of doing the work. If there is a response of interest within seventy-two hours, the small works roster procedures commence. If no qualified contractors respond with interest and availability to do the work, the department may use its regular contracting procedures. If the secretary determines that the work to be completed is an emergency, procedures governing emergencies apply.

(c) The department shall hire a disinterested, third party to conduct an independent analysis to identify methods of reducing out-of-service times for vessel maintenance, preservation, and improvement projects. The analysis must include options that consider consolidating work while vessels are at shipyards by having state forces perform services traditionally performed at Eagle Harbor at the shipyard and decreasing the allowable time at shipyards. The analysis must also compare the out-of-service vessel times of performing services by state forces versus contracting out those services which in turn must be used to form a recommendation as to what the threshold of work performed on ferry vessels and terminals by state forces should be. This analysis must be presented to the transportation committees of the senate and house of representatives by December 1, 2010.

(d) The department shall develop a proposed ferry vessel maintenance, preservation, and improvement program and present it to the transportation committees of the senate and house of representatives by December 1, 2010. The proposed program must:

(i) Improve the basis for budgeting vessel maintenance, preservation, and improvement costs and for projecting those costs into a sixteen-year financial plan;

(ii) Limit the amount of planned out-of-service time to the greatest extent possible, including options associated with department staff as well as commercial shipyards; and

(iii) Be based on the service plan in the capital plan, recognizing that vessel preservation and improvement needs may vary by route.

(e) In developing the proposed ferry vessel maintenance, preservation, and improvement program, the department shall consider the following, related to reducing vessel out-of-service time:

(i) The costs compared to benefits of Eagle Harbor repair and maintenance facility operations options to include staffing costs and benefits in terms of reduced out-of-service time;

(ii) The maintenance requirements for on-vessel staff, including the benefits of a systemwide standard;

(iii) The costs compared to benefits of staff performing preservation or maintenance work, or both, while the vessel is underway, tied up between sailings, or not deployed;

(iv) A review of the department's vessel maintenance, preservation, and improvement program contracting process and contractual requirements;

(v) The costs compared to benefits of allowing for increased costs associated with expedited delivery;

(vi) A method for comparing the anticipated out-of-service time of proposed projects and other projects planned during the same construction period;

(vii) Coordination with required United States coast guard dry dockings;

(viii) A method for comparing how proposed projects relate to the service requirements of the route on which the vessel normally operates; and

(ix) A method for evaluating the ongoing maintenance and preservation costs associated with proposed improvement projects.

[2015 c 282 § 1; 2014 c 222 § 701; 2011 c 367 § 710. Prior: 2010 c 283 § 9; 2010 c 5 § 11; 2007 c 218 § 90; 1999 c 15 § 1; 1984 c 194 § 1; 1983 c 120 § 15; 1977 ex.s. c 225 § 3; 1973 c 116 § 1; 1971 ex.s. c 78 § 1; 1969 ex.s. c 180 § 2; 1967 ex.s. c 145 § 40; 1961 c 233 § 1; 1961 c 13 § 47.28.030; prior: 1953 c 29 § 1; 1949 c 70 § 1, part; 1943 c 132 § 1, part; 1937 c 53 § 41, part; Rem. Supp. 1949 § 6400-41, part.]

NOTES:

Effective date—2015 c 282: "This act is necessary for the immediate preservation of the public peace, health, or safety, or support of the state government and its existing public institutions, and takes effect July 1, 2015." [2015 c 282 § 2.]

Contingent effective date—2014 c 222 § 701: "Section 701 of this act takes effect if *chapter . . . (Engrossed House Bill No. 2684), Laws of 2014 (ferry vessel and terminal work) is not enacted by April 15, 2014." [2014 c 222 § 802.]

***Reviser's note:** Engrossed House Bill No. 2684 was not enacted by April 15, 2014.

Effective date—2014 c 222: "This act is necessary for the immediate preservation of the public peace, health, or safety, or support of the state government and its existing public institutions, and takes effect immediately [April 4, 2014]." [2014 c 222 § 804.]

Effective date—2011 c 367: See note following RCW 47.29.170.

Findings—Intent—Effective date—2010 c 283: See notes following RCW 47.60.355.

Purpose—Construction—2010 c 5: See notes following RCW 43.60A.010.

Intent—Finding—2007 c 218: See note following RCW 1.08.130.

Effective date—Applicability—Severability—Conflict with federal requirements—1983 c 120: See RCW 39.19.910 and 39.19.920.

Office of minority and women's business enterprises: Chapter 39.19 RCW.

700.09(10)(b) RCW 47.28.035

The complete RCW reads as follows:

Cost of project, defined.

The cost of any project for the purposes of RCW 47.28.030 shall be the aggregate of all amounts to be paid for labor, material, and equipment on one continuous or interrelated project where work is to be performed simultaneously. The department shall not permit the construction of any project by state forces by dividing a project into units of work or classes of work to give the appearance of compliance with RCW 47.28.030.

[1984 c 194 § 2.]

700.09(10)(c) Justifications

If the project is new/reconstruction on the Interstate, the justification for state-furnished materials and for State Force Work requires FHWA approval.

[RCW 47.28.030](#) requires that WSDOT have documentation on file for all State Force Work/Furnished Materials. The justification and estimate for work to be done by state forces and state-furnished materials is to be processed per region policy in sufficient time to allow for review and approval prior to advertising of the project. When FHWA approval is required, the justification must also include a request for federal funding participation. Also, it must be reported to the Headquarters Office of Capital Program Development and Management when State Force Work is performed on federal-aid projects.

The justification for both state-furnished materials and State Force Work must show that it is economically cost-effective to provide the materials or to perform the work with state forces. It does not matter how or when the state-furnished material was purchased or whether it was purchased through competitive bidding or not, the cost of the state-furnished material is to be incorporated into the State Force Work/Furnished Materials total costs, and the limitations per [RCW 47.28.030](#) apply. Once an item is purchased and furnished to another contract, that item becomes state-furnished material. Refer to [Figure 700-2](#) and the [EBASE Users Guide](#) for guidelines when engineering and contingencies are used (when other state agencies do the State Force Work) or when engineering and contingencies are not used (when WSDOT state forces do the work) in regard to State Force Work and for state-furnished materials.

As of July 1, 2005, the maximum total dollar value of work done by state forces per construction project, including labor, materials, and equipment, is \$60,000 or up to \$100,000 if it is an emergency, as stated in [RCW 47.28.030](#). An increase in the dollar amounts in the RCW must go before the Legislature; currently, there are no additional increases built into the law.

700.09(10)(d) Blanket Approval Items

There are a few items of work that have received a blanket approval to be performed by state forces and receive FHWA funding participation. They are: striping, pavement marking, second-stage fertilizing, and one-way piloted traffic control. With blanket approval items, WSDOT must still have documentation on file, and the dollar limitations also apply to this work.

700.09(10)(e) Exceptions

When the state provides materials and/or equipment and there is NO state labor performed by state forces on the project, the dollar limitation per [RCW 47.28.030](#) does not apply. For example, if WSDOT provides a \$90,000 sign bridge, as long as there is **no** state force labor, this

dollar amount can be approved. If there is **any** state force labor (even for unrelated work such as removal of silt fence) on the project that is going to be a below-the-line item, then the aggregate total of materials and labor would exceed the \$60,000 per [RCW 47.28.030](#) and therefore cannot be approved.

Work performed off the state roadway right of way **may not** be subject to [RCW 47.28.030](#); therefore, no limit on state-furnished materials or state force labor would apply. If work is done outside the WSDOT transportation corridor (state right of way, fence line to fence line), and state force thresholds in [RCW 47.28](#) do not apply (as with wetland mitigation sites, sundry sites, and other capital facilities), then [RCW 39.04](#) applies. This applies only to those areas outside of and unattached to existing state highway right of way.

Work that is **not** to be considered State Force Work includes: inspection of any type; materials testing; surveying; monitoring; public relations work; or any kind of investigation or research. If state forces do these types of work, they are to be included in the engineering and contingencies. If the cost of this work is substantial, it can be used as justification to increase the engineering and contingency percentage to offset the costs.

- Inspection is defined as work performed to ensure material or contractor installations meet the specifications outlined in the contract **after** the contract has been awarded. Inspection **does not** include work performed to correct the deficiency or failure to meet specifications.
- Surveying is part of the inspection requirements. It shall be considered as construction engineering and is not subject to state force thresholds.
- Material testing is defined as work performed prior to contract award, or prior to the material being delivered to the contractor, to ensure the material meets the specifications outlined in the contract. Material testing includes diagnostic testing and/or modifications to the material or equipment to ensure compatibility and interoperability with the existing infrastructure. For example, when electronic equipment is procured, materials testing would include assembling the equipment into a system and modifying software or hardware components as necessary to ensure the system operates as specified and is compatible with existing electronic equipment and/or software (see [Figure 700-2](#), State Force Work/Materials).

700.09(10)(f) Questions Asked by WSDOT and Answered by the Attorney General's Office (AGO)

1. **WSDOT:** If work is not related, but on the same project, does the RCW limit apply to each unrelated item of State Force Work or is all the unrelated State Force Work added together for the aggregate total for the project?
AGO: All State Force Work activities (labor, equipment, and materials), related or not, are included in the aggregate total and are subject to state force thresholds.
2. **WSDOT:** Has the Legislature looked at the excessive increase in costs and considered raising the dollar limitation in the RCW accordingly?
AGO: In 1999 the Legislature was approached about raising the limit for State Force Work to \$250,000. Under this request, the limit was raised by \$10,000 only, with a few step raises in the RCW in later years. The state Legislature would prefer work to be contracted out and the dollar limit on State Force Work kept low.
3. **WSDOT:** How does the RCW apply to contractually purchased materials used by state maintenance labor and equipment—for example, on BST projects where the aggregate is purchased through contract and stockpiled, State Force Work is requested for the labor and

equipment to place the BST, and the labor and equipment is less than the dollar limitation?

AGO: If Maintenance purchases materials (such as crushed rock), regardless of whether this material is purchase through a competitive bidding process or not, it is considered to be from a supplier and is not considered a WSDOT construction contract. Therefore, the material is included in the aggregate total of labor, equipment, and materials and is subject to state force cost thresholds.

4. **WSDOT:** What determines a contractor versus a supplier? If we have a competitively bid contract for rock chips for chip seal jobs that we can use whenever we need to in a one-year or two-year period, is this a contractor or a supplier?

AGO: A supplier.

5. **WSDOT:** If there is no state labor, does the RCW dollar limit apply?

AGO: If there is no state labor in the project and only state-furnished materials are being purchased, the dollar limitation per [RCW 47.28.030](#) does not apply. If there is any State Force Work labor on the project, whether or not it is relevant to the materials acquisition, then the [RCW 47.28.030](#) dollar limitations apply to the aggregate total.

6. **WSDOT:** If there are overruns during State Force Work on labor, material, or equipment costs that are covered under the State Force Work request and that exceed the RCW dollar limitation, is this a violation of the law? Should this be documented and, if so, how?

AGO: A good faith effort is required to justify and document the state force request during the project development phase. If, during construction, the actual costs exceed the estimated costs, this is considered an incremental increase. If this happens on a consistent basis, the original estimate will not be considered a good faith effort and the law has not been followed.

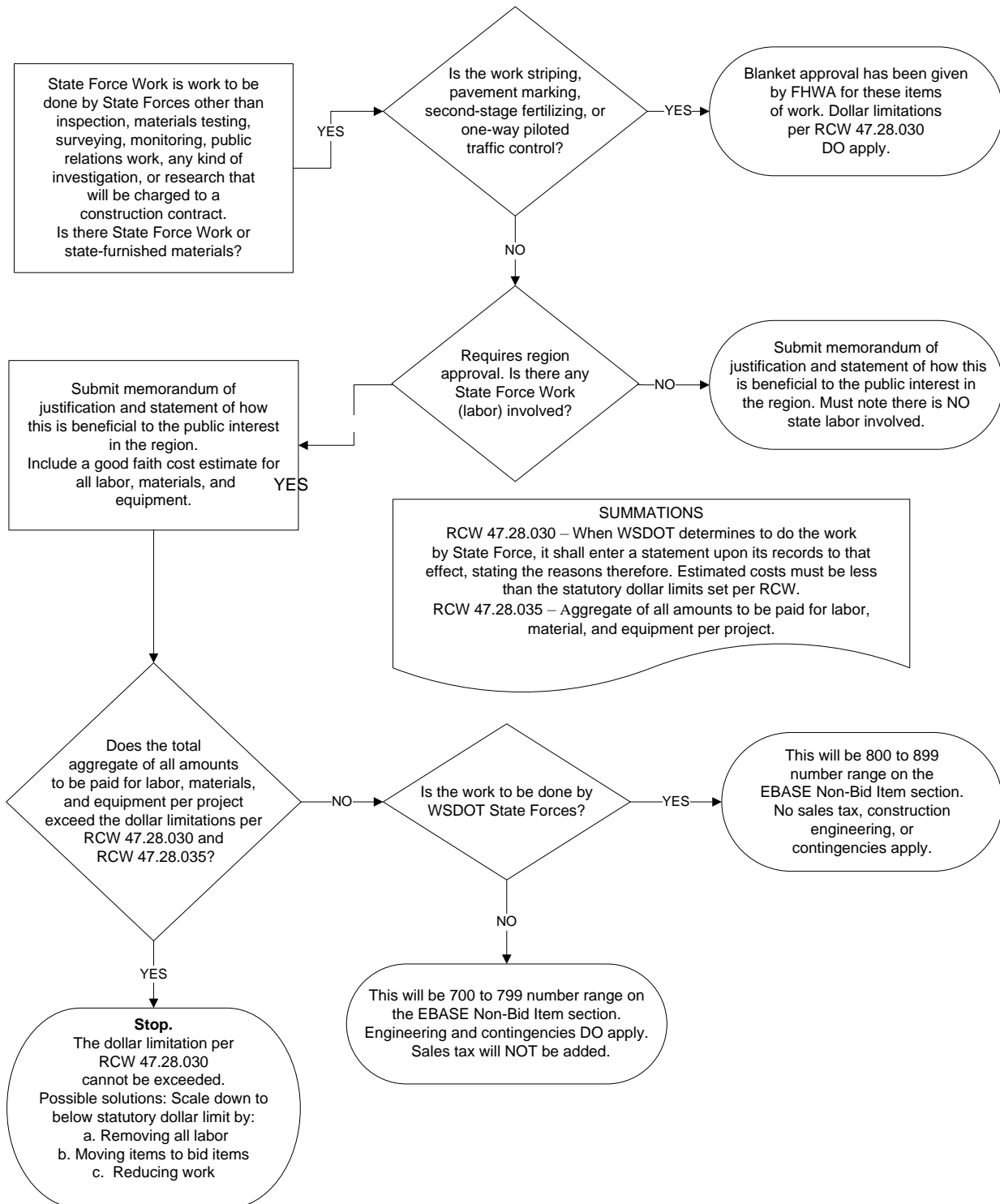
7. **WSDOT:** Who has the authority to authorize State Force Work in excess of the monetary limit set in [RCW 47.28](#)?

AGO: No one outside the Legislature has the authority to approve State Force Work in excess of the monetary limit set in [RCW 47.28.030](#). Exceeding the RCW is a violation of the law. **The law would have to be changed by the Legislature to increase the monetary limit in [RCW 47.28](#).**

8. **WSDOT:** When does State Force Work have to be documented and kept on file?

AGO: Per the law, all State Force Work must have documentation on file justifying the work. [RCW 47.28.030](#) states, "When the department of transportation determines to do the work by state forces, it shall enter a statement upon its records to that effect, stating the reasons therefore" (see [Figure 700-2](#), State Force Work/Materials).

STATE FORCE WORK/MATERIALS



State Force Work/Materials
Figure 700-2

700.09(11) Strip Maps

Strip maps may be used on projects such as overlays, fog seal, BST, stockpiling, signing, safety, and similar projects when a great deal of detail is not required.

Many times a strip map can be used for a series of plans within a set of plans, such as for the signing series, if the signing is simple destination-type signing and requires no real detail. In most cases, by simply showing the construction centerline with stationing and the required signing information, it is possible to stack the information on the sheet such that twice the information can be displayed on each sheet. Keep in mind that most of the information shown on strip maps is not really alignment-dependent; that is, a curve in the highway is not going to affect the showing of a sign at the correct station, so the centerline can appear as a straight line on the strip map.

The use of strip maps when feasible is not only an option, but is also a recommended procedure to help reduce the total number of plan sheets in the project.

The use of photographic strip maps is allowed if the work can be shown adequately and if a clear copy can be ensured.

700.09(12) Truck Measurement of Earthwork Quantities

Truck measurement can be utilized on projects with 5,000 cubic yards or less of embankment to be constructed or when the project consists of numerous small embankment areas where cross-sectioning is not practical.

700.09(13) Truck Weigh Stations

The components of a truck weigh station for which federal funds can be used are:

- Additional right of way.
- The construction of access lanes and vehicle standing and storage areas.
- The illumination of access lanes and vehicle standing and storage areas.

The construction of the scale house and its service facilities, scale pit, and scale are not eligible for federal-aid participation.

For additional information on truck weigh stations, see the [Design Manual](#).

700.09(14) Warranties and Guarantees

WSDOT may choose to include warranty clauses in federal-aid highway construction contracts as specified in Code of Federal Regulations (CFR), Title 23, Volume 1 (revised April 1, 2001), Part 635, under Subpart D – General Material Requirements Section 635.413, Guaranty and warranty clauses. An excerpt from the CFR text reads as follows:

The STD may include warranty provisions in National Highway System (NHS) construction contracts in accordance with the following:

- (a) Warranty provisions shall be for a specific construction product or feature. Items of maintenance not eligible for Federal participation shall not be covered.
- (b) All warranty requirements and subsequent revisions shall be submitted to the Division Administrator for advance approval.
- (c) No warranty requirement shall be approved which, in the judgment of the Division

Administrator, may place an undue obligation on the contractor for items over which the contractor has no control.

- (d) A STD may follow its own procedures regarding the inclusion of warranty provisions in non-NHS Federal-aid contracts.

There may be occasions when the regions have the need to include warranty and/or guarantee clauses in state-funded contracts. The region will notify the Construction Materials Engineer at the HQ Materials Laboratory and request concurrence with the specification prior to including the Special Provision in the contract documents.

The contractor is required to pass along to WSDOT all manufacturers' normal guarantees and warranties for products and equipment installed on the project.

700.09(15) Washington State Patrol Work Zone Enforcement and Assistance

If Washington State Patrol (WSP) use is warranted on a project, an estimated dollar amount shall be included in the project estimate as a below-the-line item. WSP enforcement duties will not be identified in the contract. If WSP assistance is to be used as a required element of the traffic control plans, it should be identified on the plans and provided as a resource to the contractor with a General Special Provision.

Refer to the [Traffic Manual](#), Appendix 5.A, for more information on when and how to include WSP in a project.

Appendix 1

Structure Notes, Quantity Tabulation Sheets, and Sign Specification Sheets

A1.01 Electronic Spreadsheets

Electronic spreadsheets for Structure Notes, Quantity Tabulations sheets, and Sign Specification sheets can be accessed via your personal computer. If your computer does not have these programs, contact your Computer Support Office and request the following programs:

- QTABS 2000.xla (for Quantity Tabulation sheets and Structure Notes)
- SignSpec 2000.xla (for Sign Specification sheets)¹

A1.02 Online Help

Online help is available for both the QTABS 2000 and the SignSpec 2000 applications. This help may be accessed via the (?) help button located in the menu bar of each of these applications or through the Internet at the following websites:

 <https://www.wsdot.wa.gov/Design/ProjectDev/EngineeringApplications/QTabs>

 www.wsdot.wa.gov/Design/ProjectDev/EngineeringApplications/SignSpecification.htm

