
Style Guide for

2014 CONSTRUCTION AND MAINTENANCE SPECIFICATIONS

Effective Date: October 2013



1. OVERVIEW

- 1.1. This document provides style guidelines for writing TxDOT's 2014 *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*.
- 1.2. For questions not addressed here, refer to *The Chicago Manual of Style* or to a standard English dictionary.

2. DOCUMENT ORGANIZATION

- 2.1. **Numbering.** Specifications will adhere to the Modified Decimal Numbering System to show subordinate relationships and to simplify extensive cross-referencing.

All specifications consist of several primary articles. The basic articles required for a specification are:

- Description,
- Materials,
- Equipment,
- Construction or Work Methods,
- Measurement, and
- Payment.

- 2.2. **Hierarchy of Organizational Elements.** Assign primary articles of standards in sequential order beginning with the Arabic numeral "1."

Sections are numbered from general to specific, i.e., 5.1., 5.1.1., 5.1.1.1., and so on. Number secondary sections with a two-part number consisting of the number used for a primary article followed by a decimal point and then another consecutive serial number (e.g., 1.1., 2.1., 2.2., 2.3. ... 5.5., 5.6.)

Ternary and quaternary sections continue with this same process. Number ternary sections as 1.1.1., 1.1.2., 2.1.1., 2.2.2. ... 3.1.1., etc., and quaternary sections as 1.1.1.1., 1.1.2.1., 1.1.2.2., 2.1.1.1., 2.2.2.1. ... 3.1.1.1., 3.1.1.2., etc.

Supplementary Requirements follow a pattern of S1, S1.1, S1.1.1, etc., while Annexes and Appendixes follow a pattern of A1., A2., A2.1., A3., A3.1., A3.2., A3.2.1., B1., C1., C2., C2.1., etc.

- 2.3. **Typographic Progression.** Combine typographic progression with the Modified Decimal Numbering System as a secondary formatting feature to indicate subordination. Article titles (first-level headings) are set in all capital letters and boldface type. Subsequent headings are set in title case and boldface type.

- 2.4. **Bullets.** Use bullets for items in a vertical list that do not need to be referred to by number. A bulleted list must have at least two items; otherwise, it is not a list and should be treated as a normal sentence. See Section 6.10. for punctuation of bulleted lists.

EXAMPLE: Unless otherwise shown on the plans, provide a self-contained, single unit vehicle with:

- a high-pressure water pump capable of pumping at least 60 gpm at 2,000 psi with at least 500 ft. of hose,
- a debris storage bin of at least 14-cu. yd. capacity,
- a water storage tank of at least 1,300-gal. capacity, and
- an air-conveying vacuum system capable of vacuuming pump station wells to depths of up to 55 ft. deep.

3. FORMATTING ISSUES

3.1. **Styles.** Use the appropriate paragraph styles provided by the Spec Template.

3.2. **Use of Non-Breaking Space.** Use the non-breaking space to prevent a line break from separating two words when they fall at the end of a line. To insert a non-breaking space, hold down both the **Ctrl+Shift** keys and press the **Space Bar** or choose Insert, Symbol, Character code: 00A0 from Unicode (hex).

Use the non-breaking space:

- between numerals and units (e.g., 5 oz.);
- between the parts of a two-word unit abbreviation (e.g., cu. yd.);
- between the words "Section," "Item," and "Article" and accompanying number (e.g., Item 222);
- between the letter and the number of ASTM and AASHTO specs; (e.g., ASTM D 1560); and
- wherever else needed to keep a numeral with an accompanying word (e.g., July 4).

3.3. **Non-Breaking Hyphen.** Use the non-breaking hyphen to prevent a line break from separating hyphenated parts of DMS or test procedure designations when they fall at the end of a line. To insert a nonbreaking hyphen, hold down both the **Ctrl+Shift** keys and press the **hyphen** key.

EXAMPLES: DMS-11000, Tex-318-D

3.4. **Em Dashes.** An em dash (—) looks like a hyphen (-) but is much longer—as wide as the letter M. To avoid confusion, use no more than two in a sentence. An em dash can replace a comma, if necessary. Use when defining terms and after "Note." To insert an em dash, hold down both the **Ctrl+Alt** keys and press the **minus sign** key (10 key) or choose Insert, Symbol, More Symbols, Character code: 2014 from Unicode (hex).

EXAMPLE:

Correct:	Incorrect:
Note—xxxx	Note - xxxx

3.5. **En Dashes.** An en dash (–) looks like a hyphen (-) but is slightly longer—as wide as the letter N. Use en dashes to show inclusive numbers or time periods. To insert an en dash, hold down both the **Ctrl** key and press the **minus sign** key (10 key) or choose Insert, Symbol, More Symbols, Character code 2013 from Unicode (hex).

EXAMPLES:

Correct:	Incorrect:
pages 45–50	pages 45-50
Aug.–Sept. 2012	Aug.-Sept. 2012

4. ABBREVIATIONS AND SYMBOLS

- 4.1. **Acceptable Abbreviations.** Always check Item 1, "Definition of Terms," for acceptable abbreviations. If an abbreviation is not defined in Item 1, spell it out first, followed by the abbreviation in parentheses; abbreviations are acceptable thereafter.
- 4.2. **Unit Abbreviations and Symbols.** Use abbreviations for names of units only after numerical values, e.g., 25 ft., 12 in., or 300 cu. yd. Always leave a space between the number and abbreviated unit.

Write out names of units when shown without numeric values. Linear measurements do not require the use of the word "linear"; refer simply to inches, feet, or yards.

Table 1 lists acceptable abbreviations for units of measurement and other common terms. Note that some abbreviations include periods and others do not.

Table 1—Abbreviations

Units	When used in...	
	Text	Figures & Tables
Celsius (see Section 4.3.)	°C	°C
cubic foot	cu. ft.	cu. ft.
cubic inch	cu. in.	cu. in.
cubic meter	cu. m	cu. m
cubic yard	cu. yd.	cu. yd.
degree (Character Code - 00B0)	°	°
Fahrenheit (see Section 4.3.)	°F	°F
foot ¹ (Character Code 0027)	ft.	ft. <i>or</i> '
gallon per minute	gpm	gpm
gallon	gal.	gal.
gram	g	g
greater than (Character Code - 003E)	greater than	>
greater than or equal to (Character Code - 2265)	greater than or equal to	≥
hertz	Hz	Hz
hour(s)	hr.	hr.
inch ¹ (Character Code 0022)	in.	in. <i>or</i> "
kilogram	kg	kg
kilometer	km	km

Units	When used in...	
	Text	Figures & Tables
kilopound per square inch	ksi	ksi
kilowatt	kw	kw
liter	L	L
less than (Character Code - 003C)	less than	<
less than or equal to (Character Code - 2264)	less than or equal to	≤
maximum	maximum	Max
meter	m	m
mile	mi.	mi.
mile per hour	mph	mph
milligram	mg	mg
milliliter	mL	mL
millimeter (<i>NOTE: no centimeters</i>)	mm	mm
minimum	minimum	Min
minus (Character Code - 002D)	minus	-
minute	min.	min.
month	mo.	mo.
multiplication (Character Code - 00D7)	×	×
number	No.	# or No.
ounce	oz.	oz.
per	per	/
percent (see Section 4.4.)	%	%
plus (Character Code - 002B)	plus	+
plus or minus (Character Code - 00B1)	±	±
pound(s)	lb.	lb.
pound per cubic foot	pcf	pcf
pound per square foot	psf	psf
pound per square inch	psi	psi
second	sec.	sec.
square foot	sq. ft.	sq. ft.
square inch	sq. in.	sq. in.
square meter	m ²	m ²
square yard	sq. yd.	sq. yd.
ton	ton	ton
volt	V	V

Units	When used in...	
	Text	Figures & Tables
voltage	v	v
watt	W	W
weight	wt.	wt.
yard	yd.	yd.
year	yr.	yr.

1. Use tick marks to show feet and inches on graphics only.

Note: Only use unit abbreviations in text when preceded by a numeral (not by "per"). Use the same abbreviation for singular and plural.

- 4.3. **Temperature.** When describing temperature, do not include a space between the number and degree symbol or between the degree symbol and the abbreviation. Do not use a superscript "o" in place of the degree symbol.

EXAMPLES:

Correct:	Incorrect:
heat to 30°F	heat to 30 °F
	heat to 30° F

- 4.4. **Percent Symbol with Number.** Do not include a space between the number and the percent symbol.

EXAMPLES:

Correct:	Incorrect:
30% by weight	30 % by weight

- 4.5. **Abbreviation at End of Sentence.** When an abbreviation ends a sentence, use only one period.

EXAMPLE:

Correct:	Incorrect:
... trench exceeds 5 ft.	... trench exceeds 5 ft..

5. NUMERALS

- 5.1. **General.** Use numerals for all numbers, except for the following:
 - Spell out numbers at the beginning of sentences.
 - When numbers are used to define both quantity and size, use the written word for the quantity (e.g., three 1/2-in. holes).
 - Use the word "one" if "single" or "each" could just as easily be used ("in one operation" vs. "in a single operation"). As a general rule, spell out the word "one" unless it is followed by a unit of measurement (e.g., "within 1 hr." or "provide 1 bolt for each hole.")

5.2. **Decimals.** Express decimals in numerals (e.g., 6.235). For quantities less than 1, use a 0 before the decimal point (e.g., 0.235).

5.3. **Time and Date.** Express clock times and dates in numerals (e.g., 2:10 P.M.) Exceptions to this are the use of the words "noon" and "midnight." For example, use "noon" rather than "12 noon," "12:00," or "12:00 P.M."

Omit ordinal designators (e.g., "th") from dates.

EXAMPLE:

Correct:	Incorrect:
June 15, 1992	June 15th, 1992

5.4. **Unneeded Zeros.** Omit unneeded zeros in time and money references.

EXAMPLES:

Correct:	Incorrect:
\$200	\$200.00
9 P.M.	9:00 P.M.

5.5. **Fractions.** Determine whether it is technically correct to use fractions or decimals.

Create fractions using a slash mark, not with the word processor's fraction symbol.

EXAMPLE:

Correct:	Incorrect:
1/2	$\frac{1}{2}$

When expressing a number composed of a whole number and a fraction, include a non-breaking hyphen between the whole number and the fraction (e.g., 1-1/2). To insert a non-breaking hyphen, hold down both the **Ctrl+Shift** keys and press the **hyphen** key.

5.6. **Commas with Numbers.** In most numbers of 1,000 or greater, use commas between groups of three digits, counting from the right. This includes numbers less than 10,000.

EXAMPLE:

Correct:	Incorrect:
1,300 psi	1300 psi

For metric, use commas to separate digits into groups of three, when there are more than four digits.

EXAMPLE:

Correct:	Incorrect:
1200 g	1,200 g
12,460 kg	2,460 kg

Note 1—Exceptions to this rule are page numbers, addresses, years, and decimal fractions less than 1.

6. PUNCTUATION AND GRAMMAR

- 6.1. **Series Commas.** When a conjunction (e.g., “and,” “or”) joins the last two elements in a series of three or more, always use a comma before the conjunction.

EXAMPLES (underlining added to relevant conjunctions):

- Protect trees, shrubs, and other landscape features specifically designated by the Engineer for preservation from abuse, marring, or damage during construction operations.
- Plug all abandoned storm sewers, culverts, sanitary sewers, conduits, and water or gas pipes over 3 in. in diameter.

- 6.2. **Semicolons.** Use semicolons if items in a series contain commas. Note that in such a series, the semicolons function as “super commas” separating the major groupings. Also note that a conjunction (in this case “and”) is needed after the final semicolon, just as it is in a series set off by commas

EXAMPLE: This price is full compensation for excavating and backfilling; constructing, furnishing, and installing the ground boxes and concrete aprons when required; and labor, equipment, materials, tools, and incidentals.

- 6.3. **Punctuation with Closing Quotation Marks.** Always place periods and commas inside closing quotation marks, regardless of whether or not the period or comma is part of the quoted matter. Place other punctuation (such as exclamation marks, question marks, and dashes) inside closing quotation marks when it is part of the quoted matter; otherwise, place it outside. Place colons and semicolons outside quotation marks. When quoting matter ending with a colon or semicolon, drop the colon or semicolon.

EXAMPLES (underlining added to example punctuation):

- The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Disposal of Water Well,” “Disposal of Petroleum Well,” or “Disposal of Sulfur Well.”
- Perform work in accordance with Section 123.4.1., “General”; Article 234.3., “Construction”; and federal, local, and state requirements.

- 6.4. **Quotation Mark Style.** Use “curly” quotation marks (also called “smart quotes” in Word).

EXAMPLE:

Correct:	Incorrect:
“Measurement”	“Measurement”

Note 2—This does not apply to ditto marks or to tick marks used for inches and feet in graphics.

- 6.5. **Spacing after Punctuation.** Use only one space after all punctuation marks, including semicolons and periods at the ends of sentences.

- 6.6. **And/Or and Other Word Pairs Connected by a Slash.** Do not connect words with a slash mark. Use a conjunction or, where appropriate, a hyphen.

Do not use “and/or.” Instead use the applicable conjunction (“and” or “or”). Use “and” when all requirements apply. Use “or” when there is an option. However, the use of “or” without “and” does not always exclude the combining of the items to which the conjunction applies.

EXAMPLE WHERE “OR” IS SUFFICIENT: Do not park *and/or* service equipment under the branches of trees marked for preservation.

In the preceding example, the use of “and/or” is unnecessary to convey the requirement that both activities (whether done together or separately) are prohibited. The word “or” is sufficient in place of “and/or” in this instance.

EXAMPLE WHERE “AND” IS SUFFICIENT: Conformance to the plans *and/or* other approved drawings does not relieve the Contractor of the responsibility for providing proper fit of components.

In the preceding example, no one would argue that the Contractor would be relieved of the responsibility for providing proper fit if he only conformed to the plans and not to “other approved drawings.” The word “and” is sufficient in place of “and/or” in this instance.

When it is necessary to state explicitly that two or more options together or separate meet the criterion, then wording such as “this, that, or both” may be appropriate.

EXAMPLE: Mark each length with the manufacturer’s name, trademark, or both.

- 6.7. **Indicating Both Singular and Plural.** Do not use an “s” or other letters in parentheses at the end of a word to indicate both singular and plural forms. In most cases, the plural form alone will suffice.

EXAMPLES:

Correct:

Pick up materials at the locations and times set out in the General Notes and Specification Data Sheets.

Coat threads of anchor bolts with pipe joint compound before installation of the nuts.

Incorrect:

Pick up materials at the location(s) and time(s) set out in the General Notes and Specification Data Sheet(s).

Coat threads of anchor bolts with pipe joint compound before installation of the nut(s).

Note 3—In the second example, since “bolts” is plural, the singular “nut” would not be applicable.

If necessary for clarity, indicate both the singular and plural.

EXAMPLES:

Correct:

The sign assembly consists of the sign or signs, sign supports, foundations, and associated mounting hardware.

One or more test panels will be required before approval of the mix design.

Incorrect:

The sign assembly consists of the sign(s), sign support(s), foundation(s), and associated mounting hardware.

Test panel(s) will be required before approval of the mix design.

- 6.8. **Hyphenation of Number or Letter Modifiers.** Always use a non-breaking hyphen as part of a letter or number modifier (*e.g.*, “9-in. nail” or “A-frame structure.”)

If a number modifier precedes a two-word unit abbreviation, such as “sq. ft.,” then use a hyphen only after the number.

EXAMPLE:

Correct:

100-sq. ft. area

Incorrect:

100-sq.-ft. area

- 6.9. **Parallel Structure.** Always use parallel structure. Parallel structure is the use of the same pattern of words to show that two or more ideas have the same level of importance. This applies at the word, phrase, clause, and list levels. Parallel structures are usually joined with the coordinating conjunctions “and” or “or.”

EXAMPLE:

Correct (Parallel):

Provide a finished asphalt cement-latex additive blend that is smooth, homogeneous, and in compliance with the requirements in Table 2.

Incorrect (Not Parallel):

Provide a finished asphalt cement-latex additive blend that is smooth, homogeneous, and complies with the requirements in Table 2.

- 6.10. **Punctuation of Bulleted Lists.** A bulleted list should be introduced by a “lead.” The lead may be either a complete sentence or sentence fragment. The lead normally ends with a colon.

If the lead is a sentence fragment completed by the list or if the lead is a complete sentence but the bulleted items are only phrases or clauses, then:

- begin each list item with a lower case letter (unless the word is always capitalized),
- use commas or semicolons (as appropriate) after each list item except the last,
- use a conjunction (“and” or “or”) after the next-to-last list item, and
- use a period after the last list item.

If punctuating the bulleted items as separate sentences, then the lead should always be a complete sentence.

Ensure that all list elements conform to the principle of parallel structure. (See Section 6.9.) If the list includes both phrases and sentences, rewrite the phrases to make them complete sentences.

- 6.11. **Mixed Units.** Mixed-unit measurements are represented as follows:

Type of Mix:	Example:
abbreviated units	2 ft. 5 in.
tick marks or other symbols	2' 5"

Separate inches and feet with nonbreaking spaces.

7. CAPITALIZATION

- 7.1. **General.** Be consistent with capitalization within specifications. Use capitals when referring to Item titles. Use capitals for proper nouns.

Capitalize any title defined in Item 1.

7.2. **Specifics.** Capitalize the following words and terms:

Word or Term	Notes
Area Engineer	
Commission	when referring to the Texas Transportation Commission
Contract	
Contractor	
Department	when referring to TxDOT
District	when referring to the Districts of TxDOT
District Engineer	
Division	when referring to the Divisions of TxDOT
Engineer	
General Notes	
Inspector	
Item	When referring to a numbered Item of the TxDOT Specifications
Specification	When referring to TxDOT Specifications or when part of a specific document name
State of Texas	

7.3. **Hyphenated Words in Titles.** Capitalize all hyphenated words in titles.

8. TABLES AND FIGURES

8.1. **Tables.** Number all tables. Table numbers and titles are centered above the table title and set in bold type. The table numbering sequence begins with each new specification.

Table titles are centered below the table number, above the table itself, and set in bold type.

For table footnotes, create another row at the bottom of the table with no borders, and merge the whole row into one cell. When adding footnotes to this cell, the footnote margins will always coincide with table margins. Use superscript numerals rather than symbols (such as asterisks) as footnote references. Number the footnotes in the order in which they are referenced in the table, from left to right across rows. Use a full-size numeral and a period for numbering footnotes. Use the "TBL-Text" style, modified as necessary, for footnotes.

EXAMPLE:

Table 4
Rapid Curing Cutback Asphalt

Title		
Text ¹		Text ²
	Text ³	

1. Footnote 1.
2. Footnote 2.
3. Footnote 3.

Tables may be created with or without lines. Use tables for all tabular material; never use tabs to set up columns of text or figures.

- 8.2. **Table Adjustments.** Adjust column widths as necessary. Merge and split cells as necessary.

Standard table font size is 9 points. Reduce font size if necessary. Seven points is about the minimum for readability.

- 8.3. **Figures.** Number all figures. Figure numbers are centered below the figure itself and above the caption. The figure number is set in bold type. The figure numbering sequence begins with each new specification.

Figure captions are centered below the figure number and are set in bold type.

EXAMPLE:

Figure 1
**Roadway Cross-Sections Showing Payment for
Excavation and Embankment**

- 8.4. **Referencing Tables and Figures.** Every numbered table and figure must be referenced in the accompanying text. Tables and figures should appear in the order they are referred to, no matter how fleeting the reference.

EXAMPLE: ...in accordance with Figure 1.

9. WORDING OF ARTICLES

- 9.1. **Active Voice and Imperative Mood.** Use the active voice instead of the passive whenever possible, except where noted below.

Use the imperative mood for instructions directed to the Contractor.

EXAMPLES:

- Furnish and install high strength fasteners for structural connections...
- Meet the requirements of Item 264, "Lime and Lime Slurry."
- Furnish two copies of the completed material identification form to the Engineer...
- Consult with the appropriate utility company before beginning work.
- When using mineral filler, provide an additional bin.
- Heat the sealants in a double-jacketed heater using heat transfer oil so that...

Use the indicative mood for conveying information.

EXAMPLES:

- Salvaged materials remain the property of the State.
- Wood forms may be used for curves and transitions.
- A day's paving is defined as...
- A Daily Average Profile Index is a roughness value obtained by averaging...
- Computer printouts for design calculations will not be acceptable unless accompanied by...
- Radial cracks from the grout injection holes will be considered the result of improper injection techniques.

- This Item will be measured by the square yard...
- This price is full compensation for...

9.2. **Description Articles.** For Description Articles, use active voice and imperative mood.

EXAMPLE: Excavate, remove, use, or dispose of material.

9.3. **Material Articles.** For Material Articles, use active voice and imperative mood.

EXAMPLE: Furnish materials in accordance with the following:

- Item 100, "Excavation"
- Item 132, "Embankment"
- Item 400, "Excavation and Backfill for Structures."

Note 4—The reference list is not required and is shown for example only.

9.4. **Equipment Articles.** For Equipment Articles, use active voice and imperative mood.

EXAMPLE: Provide equipment able to efficiently produce the desired results.

9.5. **Construction Articles.** For Construction Articles, use active voice and imperative mood.

EXAMPLE: Apply water at a uniform rate and in the required quantity.

9.6. **Measurement Articles.** For Measurement Articles, use the passive voice to describe how measurement will be made.

EXAMPLE: This Item will be measured by each word, symbol, or shape eliminated; by the foot of marking eliminated; or by any other unit shown on the plans.

Note 5—Do not use the term "complete in place" in the Measurement Article.

For plans quantity measurement, use the wording shown in the following example at the end of the Measurement Article.

EXAMPLE: This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2, "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

9.7. **Payment Articles.** For Payment Articles, use the passive voice to describe how payment will be made.

EXAMPLE: The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Blading." This price is full compensation for furnishing and operating equipment and for labor, fuel, materials, tools, and incidentals.

Note 6—The above example is not standard language for use in every case. Additional details may be needed to clarify specific materials or work. An example is in Article 106.4 of the 1993 Specifications, which includes "removal of structures." It was the intent of the writers to make it clear that removal of abandoned structures will be paid for under Item 106. However, "manipulation" and similar terms for work or materials are generally not needed.

9.8. **Combined Measurement and Payment Articles.** When measurement and payment are subsidiary, they may be combined into a single Article. Use passive voice, as shown in the following example.

EXAMPLE: The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly, but will be subsidiary to pertinent Items.

10. OTHER WORDING

10.1. **Use of "Department."** Always use "Department" when referring to TxDOT.

10.2. **Use of "Shall."** Replace every "shall" with "should," "will," or "must."

Use "will" when the statement is directed to the Engineer—"the Engineer will"—or when it is understood that the responsibility is the Department's.

EXAMPLE: High strength bolts, nuts, and washers will be sampled for tests in accordance with Tex-719-I.

Use "must" when the action is mandatory.

10.3. **Quantity vs. Amount.** Use quantity when referring to materials. Use amount when referring to dollars.

10.4. **Use of "Incidentals."** Use "incidentals" in the "Payment" Article only as shown in the following examples:

EXAMPLES:

- The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Backfill" of the type specified. This price is full compensation for furnishing the emulsified asphalt, water, fertilizer, mulch sod and backfill material, equipment, labor, materials, tools, and incidentals.
- The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly but will be subsidiary to pertinent Items.

10.5. **Use of "Conformance" and "Conform."** Use "conformance" and "conform" for adapting to prevailing standards or customs. Use "Conformance" for more generic reference statements as shown in the examples below. Use "in accordance with" when referring to specific Items, Articles, test procedures, and reference materials, as explained under Section 10.13., "Cross References."

EXAMPLES:

- Conformance to the plans and other approved drawings does not relieve the Contractor of the responsibility for providing proper fit of components.
- Apply sheeting to sign blanks in conformance with the recommended procedures of the manufacturer of the sheeting.

10.6. **Use of "Pertinent."** Use "pertinent" for stating or attaching relevant information.

EXAMPLES:

- When excavated materials, including topsoil, are used in constructing the required roadway sections, payment for placement is made under the pertinent placement specification.
- No direct compensation will be made for the installation of bolts or fasteners. Payment is subsidiary to the pertinent Items requiring the use of high-strength bolts.

10.7. **Use of "Subsidiary."** Use "subsidiary" for stating when work will not have a bid code but is considered part of the Item or other Items. The word "subsidiary" should only be used in the Payment Article.

EXAMPLES:

- When "Ordinary Compaction" is shown on the plans, all sprinkling and rolling, except proof rolling, will not be paid for directly but will be subsidiary to this Item, unless otherwise shown on the plans.

- Unless otherwise specified on the plans, the work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly but will be subsidiary to pertinent items.

10.8. **Use of “Shown on the Plans.”** The phrase “as shown on the plans” and variations of it are needed when an item *may* be directed or detailed in the field during construction or when essential information is needed to clarify for bidding purposes. When the phrase is used because direction may be given in the field, add “...or as directed.” (The phrase “by the Engineer” is not needed.)

EXAMPLES:

- In Item 150, “Blading,” where the Engineer usually directs blading in the field use: “...as shown on the plans or as directed.”
- In Item 677, “Eliminating Existing Pavement Markings and Markers,” for surface treatment material applications use: “...at rates shown on the plans or as directed.”

OTHER EXAMPLES:

- ...at locations shown on the plans or as directed.
- ...in conformity with the required lines, grades, and typical cross-sections shown on the plans or as directed.

Note 7—This example wording does not include discussion of the phrase “unless otherwise shown on the plans.” (See Section 10.9.)

10.9. **Use of “Unless Otherwise Shown on the Plans.”** Use the phrase “unless otherwise shown on the plans” when necessary for flexibility.

10.10. **Use of “As Approved by the Engineer.”** It is understood that the Engineer has authority to approve work and equipment in accordance with the current Item 5, “Control of Work.” There is a concern that Contractors and Engineers may interpret the phrase “as approved by the Engineer” to mean that TxDOT only has latitude when the phrase is included. This is not the case. The Engineer has the authority regardless of the inclusion of the statement. Therefore, the phrase “as approved by the Engineer” should be avoided.

In cases where the Engineer’s judgment is specifically required, it is still unnecessary to include the phrase “by the Engineer.”

EXAMPLE: Unless otherwise approved, use a street sweeper that can remove cuttings and debris from the planed or textured pavement.

10.11. **Needless Words and Jargon.** Omit needless words that do not add substantive meaning. Whenever possible, choose a single word instead of a phrase. Avoid jargon.

The following examples provide alternatives to common verbose phrases.

Instead of...	Use...
absolutely essential	essential
as may be necessary	as necessary
at a later date	later
enclosed herewith	enclosed
having	with
in lieu of	instead of
in order to	to

Instead of...	Use...
in the event that	if
linear feet	feet
no less than	at least
prior to	before
sufficient	enough
through the use of	by
until such time as	until
utilize	use

- 10.12. **Hyphenation, Word Separation, and Standard Terminology.** The following examples show some specific word hyphenations, word separations, and standard terminology to be used uniformly in the specs.

Instead of...	Use...
as directed by the Engineer	as directed
center line	centerline
cross section	cross-section
edge line	edgeline
in the plans	on the plans
job site	jobsite
Registered Professional Engineer	licensed professional engineer
right-of-way	right of way
straight edge	straightedge (the tool)
work site	worksite

- 10.13. **Cross-References.** Identify the location as specifically as possible, down to the Section and paragraph, when applicable. Articles are "Description," "Materials," "Equipment," "Construction," "Work Methods," "Measurement," and "Payment." Sections are anything below these.

In cross-references to an article, the word "article" is capitalized but never abbreviated, as in "Article 2." In cross-references to a section, the word "section" is capitalized but never abbreviated, as in "Section 7.5.1."

Cross-references within the text to other sections should be written as "(see Article 3, 'Equipment')" if the reference is within a sentence or as "(See Sections 2.1., 'Aggregate,' and 2.2., 'Asphalt.')" if the reference is a separate sentence.

When referring to Articles or Sections, use the wording shown in the following examples. If the referenced Section has a title, include it in the reference.

EXAMPLES:

- ...in accordance with Article 262.2., "Construction."
- (See Section 2.1., "Aggregate.")

References to more than one Item may be grouped into a list. Do what is best for the specification and be specific when you can.

EXAMPLE: ...to the pertinent requirements of the following Items:

- Item 100, "Excavation"
- Item 132, "Embankment"
- Item 400, "Excavation and Backfill for Structures"
- Item 424, "Precast Concrete Structures (Fabrication)."

When referring to another specification, standard, or publication, use the wording shown in the following examples.

- For specifications, list the designation and the title, in quotations, for the first reference. List only the designation for additional references within the same specification.

Examples:

Furnish rebar that meets Item 440, "Reinforcing Steel." (*REFERENCE SUBORDINATE TO A NOUN*)

Weld in accordance with Item 440. (*REFERENCE SUBORDINATE TO A VERB*)

- For DMSs, list the designation and the title, in quotations, for the first reference. List only the designation for additional references within the same specification.

Example:

Furnish only couplers produced by a manufacturer prequalified in accordance with DMS-4510, "Mechanical Couplers." Couplers for use on individual projects must be sampled and tested in accordance with DMS-4510.

- For test procedures, list only the designation.

Examples:

... will sample in accordance with Tex-726-1

... when tested in accordance with ASTM D 4752 (no year, since the most current standard is used)

... when tested in accordance with AASHTO M 92 (no year, since the current standard is used)

... in accordance with ACI 211.1 (no year, since the most current standard is used)

- For Material Producer Lists, manuals, and other stand-alone documents, list the title, in italics, and the acronym, when applicable.

Examples:

Bituminous Rated Source Quality Catalog (BRSQC)

Texas Manual on Uniform Traffic Control Devices (TMUTCD)

- 10.14. **Division Names and Addresses.** When referring to where samples or drawings will be sent, list "Construction Division, Materials and Pavements Section" or "Construction Division."

For submittals to Department offices, do not include the mailing address in the specification. Addresses will be handled in Items 1–9, in the proposal, or in the plans.