# CHAPTER 3

# SUBMITTAL REQUIREMENTS FOR CONSTRUCTION PLANS

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# CHAPTER 3-SUBMITTAL REQUIREMENTS FOR CONSTRUCTION PLANS

The following documentation is required in conjunction with the submittal of construction plans for any roadway or storm drainage improvement, which will ultimately be maintained by the Town of Bennett Public Works Department.

## 3.1 GENERAL

3.1.1 All construction plans and drainage reports, soils reports and pavement designs shall be prepared by, or under the direction of, a Professional Engineer registered in the State of Colorado, and shall be reviewed for the minimum requirements set forth herein. The Engineer should be aware that whenever unusual or serious problems are anticipated in conjunction with a proposed construction, additional information and analysis beyond the minimum requirements of those specification and criteria will be required.

3.1.2 Certification

3.1.2.1 Construction plans submitted for review and comment shall be prepared by a Professional Engineer registered in the State of Colorado. The plans must include a statement on the cover sheet:

"These construction plans for (name of subdivision, development, or project) were prepared by me (or under my direct supervision) in accordance with the requirements of the Roadway Design and Construction Standards and the Storm Drainage Design and Technical Criteria Manual of the Town of Bennett."

Name of Engineer
Name of Firm

The statement shall be signed and stamped by the Registered Professional Engineer who prepared or directed preparation of the construction plans.

3.1.2.2 Unless otherwise identified or noted, all construction plan submittals are assumed to comply with the provisions of these Roadway Standards and the Drainage Criteria. Variances or waivers should be requested as set forth in Section 3.2.1. Failure to follow prescribed procedures may result in review delays, additional fees, or both.

3.1.3 The Town of Bennett is not responsible for the accuracy and adequacy of the design or dimensions and elevations of the plans. The Town of Bennett through the acceptance of the construction plan or drainage report, assumes no responsibility for the completeness and/or accuracy of the construction plan or drainage report.

## 3.2 VARIANCES AND APPEALS

### 3.2.1 General

If the Special District, Developer, Contractor or Utility responsible to the Town for public improvements desires to design and construct such improvements in variance to criteria in these Standards, such variance(s) should be identified in the initial submittal of construction plans. The variance request(s) shall consist of:

3.2.1.1 Identification of the criteria provision to be waived or varied.

3.2.1.2 Identification of the alternative design or construction criteria to be adhered to.

3.2.1.3 A thorough justification of the variance request including impact on capital and maintenance requirements and cost.

### 3.2.2 Appeal of Variance Decisions

3.2.2.1 **Levels of Appeal**

If, upon review and denial of the report, and/or plans by the Engineering Division staff, the Developer chooses to appeal the

decision, he shall make his final appeal to the Town Board of Trustees (TBTTB). The Developer shall give the Engineering Division at least 5 working days notification prior to date of appeal to the TBTTB.

The Developer shall make appeal to the TBTTB within 60 days from receipt of denial from the Engineering Division.

3.3 VICINITY MAP

3.3.1 Minimum scale is 1"-2000' showing the location and name of all arterial roadways within one mile of the proposed construction, and all other roadways in the vicinity of the proposed construction. The project area shall be indicated by shading. The map is required on the cover sheet of all submittals. All submittals must have a title sheet as per Exhibit "A" and "B" within the back of this Chapter.

3.3.2 Minimum size of vicinity map shall be 3"x3".

3.4 KEY MAP

3.4.1 Minimum scale is 1"-500' showing the location and name of all roadways within and adjacent to the proposed construction and all future roadways. Scale should be indicated. Key map should be oriented consistent with detail in the sheet, i.e. same north.

3.4.2 The Key Map is to appear on every sheet showing proposed roadway, storm drainage or grading improvements. The roadway or area that the design pertains to will be shaded as shown on the example Key Map on Figure 3.1 of these Standards.

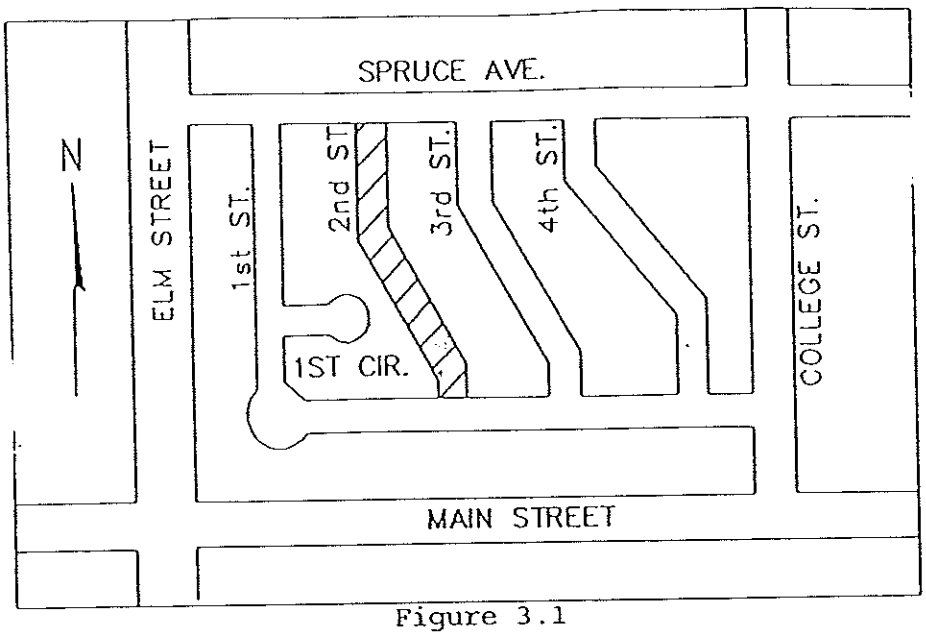


Figure 3.1

3.5 CONSTRUCTION PLANS AND DETAIL SHEETS

All construction plans and detail sheets shall conform to the following criteria and show the following information. Additional specific requirements are discussed in other parts of these Standards.

3.6 TITLE BLOCK

3.6.1 A title block is required on every sheet other than the cover sheet, submitted for review and acceptance. The subdivision name and filing number; Planned Development name (if applicable); the type of improvement; name, address, including zip code, and telephone number of the Consulting Engineer; name address, including zip code, telephone number and name of the contact person at the Developer; and sheet number (consecutive, beginning with the cover sheet) shall all be included in the title block.

## 3.7 ACCEPTANCE BLOCK

3.7.1 All roadway construction plans, storm sewer or other drainage improvement construction plans, and privately or publicly maintained stormwater detention or retention facility construction plans must show the acceptance signature of the Town Engineer as a condition for having construction permits issued.

3.7.1.1 Plans for traffic control during construction must be accepted prior to issuing construction permits.

3.7.1.2 Signing/Striping plans require acceptance prior to issuing construction permits.

3.7.2 In addition to the main cover sheet acceptance block (as per Exhibit "A" and "B" within the back of this Chapter), an additional acceptance block shall be located in the lower right hand quadrant of each subsequent sheet.

3.7.3 An example of these additional acceptance blocks is shown in Figure 3.3.

4.5"

| |
|---|
| Town Engineer |
| Date |
| These Construction Plans have been reviewed by Bennett for street and drainage improvement only.<br><br>Engineering Division Acceptance Block |

5.5"

ACCEPTANCE BLOCK
Figure 3.3

3.8 REQUIRED NOTES

These notes shall also appear on the cover sheet.

(1) The Bennett Town Engineer's signature affixed to this document indicates, the Engineering Division has reviewed the document and found it in general conformance with the Bennett Regulations or approved variances to those Regulations. The Bennett Town Engineer, through acceptance of this document assumes no responsibility, other than stated above, for the completeness and/or accuracy of these documents. The Owner and Engineer understand that it is the responsibility for the engineering adequacy of the facilities depicted in this document lies solely with the Registered Professional Engineer whose stamp and signature is affixed to this document.

(2) All roadway construction shall conform to the Town of Bennett's Roadway Design and Construction Standards.

(3) All materials and workmanship shall be subject to inspection by the Town's Engineering Division. The Town reserves the right to accept or reject any such materials and workmanship that does not conform to its Standards and Specifications.

(4) The Contractor shall notify the Engineering Division or the Department of Public Works a minimum of 48 hours and a maximum of 96 hours prior to starting construction.

(5) Location of existing utilities shall be verified by the Contractor, prior to actual construction.

(6) The Contractor shall have one (1) signed copy of the plans (accepted by the Town Engineer) and one (1) copy of the Roadway Design and Construction Standards at the job site at all times.

(7) All proposed street cuts to existing pavements for utilities, storm sewer or for other purposes are listed and referenced below:

| | | |
|---|---|---|
| Examples: | Water tie-in | Sheet 3 |
| | Storm sewer connection | Sheet 6 |

(8) A plan for traffic control during construction shall be submitted to the Town for acceptance with the permit application. An excavation or public improvements construction permit will not be issued without an approved traffic control plan for traffic control during construction.

(9) The construction plan shall be considered valid for one (1) year from the date of Town acceptance, after which time these plans shall be void and will be subject to re-review and re-acceptance by the Town of Bennett.

3.8.1 Other Notes. Roadway construction plans and signage and striping plans will require additional notes. See Sections 3.15.3 and 3.16 of these Roadway Standards, for additional notes.

## 3.9 SCALE

Scales listed are minimum. Larger scales may be required where necessary to clearly show details.

1. Plan and profile plans; Horizontal 1"-50'; Vertical 1"-5'.
2. Master, preliminary and final drainage plans; site plans, etc.: from 1"-50' to 1"-100'.

3.10 NORTH ARROW

North shall point to the top or to the left margin of the sheet only; all other detail and drawings on the sheet shall be oriented consistently with the North arrow.

3.11 DATE OF PLAN

The original date of the plans and any subsequent revisions must be shown on the Title Block.

3.12 SEAL AND SIGNATURE

The seal and signature of the Professional Engineer, registered in the State of Colorado, under whose supervision the plans were prepared, shall be located next to the Acceptance Block on each sheet.

3.13 UNDERGROUND UTILITIES

The type, size, location and number of all underground utilities shall be shown. Field verified elevations (USGS Adjusted Datum and date) and locations may be required on the construction plans for all underground utilities which will potentially affect the design or construction. It will be the responsibility of the Contractor to verify the existence and location of all underground utilities along his route of work prior to commencing any new construction. Field located utilities not shown on accepted construction plans shall be added to the record drawings submitted as a condition of probationary acceptance of the public improvements.

3.14 PRIVATE IMPROVEMENTS

3.14.1 Private improvements such as roadways, driveways, utilities, etc., shall be clearly shown and labeled as such on each sheet of the construction plans. The note below shall appear on each sheet of the constructions plans that private improvements occur:

"The Town of Bennett shall not be responsible for the maintenance of roadway and appurtenant improvements, including storm drainage structures and pipes, for the following private streets." (List)

3.14.2 When a request is made for the Town to assume maintenance of any private improvement, it shall be the responsibility of the person(s) making the request to satisfactorily demonstrate that the private improvement is in fact constructed in accordance with the Town's Roadway Standards.

3.14.3 The Town will review these requests under normal review procedures as outlined previously in these Roadway Standards.

3.14.4 Private improvements that were not constructed in accordance with the applicable Design and Construction Standards and Specifications will not be accepted for maintenance by the Town.

## 3.15 REQUIREMENTS FOR STREET PLAN AND PROFILE DRAWINGS

In addition to the requirements set forth in Chapter 4 of these Roadway Standards, the following information shall be shown on all roadway plans submitted for review and approval;

### 3.15.1 Plan View

The plan view shall include, but not be limited to, the following:

3.15.1.1 Existing and proposed Property and/or R.O.W. lines, easement and/or tracts. Type and dimension of easement or tract is to be clearly labeled. Property lines and R.O.W. lines are to dimensioned.

3.15.1.2 Survey lines and stations, based on centerline only; other profiles may be included but shall be referenced to centerline stationing. Stationing is to be equated to and from flow-line stationing at horizontal radius curves, and other departures from normal roadway cross sections. Stationing is to be equated to flow-line stationing at cul-de-sacs.

3.15.1.3 Roadways and roadway names.

3.15.1.4 Existing utilities and structures, including, but not limited to:

- water valves
- fire hydrants
- CATV
- telephone
- gas
- guardrails, etc.
- fence lines
- sanitary sewer manholes
- storm drainage facilities
- electric
- ditches or swales
- curbs and gutters
- pavement limits
- bridges or culverts

3.15.1.5 Station and critical elevation (flow-line, invert of pipe, etc.) of all utility or drainage appurtenances, existing and proposed; including all box culverts, pre-cast or cast-in-place, in right-of-way or in drainage easements. Location of utilities shall be dimensioned horizontally and vertically from roadway centerline profile grade.

3.15.1.6 Storm drainage flow direction arrows, particularly at intersections and all high and low points.

3.15.1.7 Match lines and consecutive sheet number, beginning with cover sheet.

3.15.1.8 Station and elevation of all horizontal curves, P.C.'s, P.T's, P.C.C.'s, etc.; high or low point of all vertical curves; existing and proposed, centerline bearings and distances.

3.15.1.9 Curb return radii, existing and proposed. Stations and elevations of all curb returns; mid point elevations, flowline-flowline intersection

elevations, and per cent of grade from P.C.R. to flowline-flowline intersections of all crosspans.

3.15.1.10 Mid-block handicap ramp locations at tee intersections.

3.15.1.11 Complete Horizontal curve data-radius, length of curve, tangent length and central angle. (R,L,T)

3.15.1.12 Centerline stations of all non-single family residential driveways and all intersecting roadways.

3.15.1.13 Survey tie lines to section corners or quarter corners, consistent with that accomplished on the plat.

3.15.1.14 Typical roadway cross section for all roadways, existing or proposed, within and adjacent to the proposed development. These cross sections shall appear on the detail sheet, or if no detail sheet has been used, the first sheet of the submittal showing roadway design. They shall indicate type of roadway(s), profile grade, design point (centerline, flow-line, top of curb, lip of gutter, etc.), roadway width, right-of-way, type of curb, gutter and walk, pavement cross slope, pavement thickness, and structural material components of the pavement, base and sub-base. Refer to Chapter 5 of the Roadway Standards for methodology of submitting preliminary and final pavement thickness'. Final pavement design report must be based on testing of actual subgrade.

3.15.1.15 Construction plans for arterial improvements. Any roadway intersecting

an arterial, or any collector intersection requiring signalized traffic control shall include construction and lane details for the new construction and existing facilities a minimum of 150' beyond the limits of construction.

3.15.1.16 Basis of plan view and profile elevations shall be the same, i.e. flow-line and flow-line, top of curb and top of curb, etc.

3.15.2 Profile

The profile shall include, but not be limited to, the following:

3.15.2.1 Original ground (dashed) at each design grade (heavy, solid). Both grades are to be plainly labeled.

3.15.2.2 All design elevations shall be centerline, top of curb, lip of gutter, or flow-line (preferred) for 6" vertical curb and gutter; or back of walk, or lip of gutter, or flow-line (preferred) for combination curb, gutter and walk. The basis for record drawing information shall be the same as the design (both flow-line or both top of curb, etc.) when possible.

3.15.2.3 Stationing continuous for the entire portion of the roadway shown in the plan view, with the centerline station of all non-single family driveways and all intersecting roadways clearly labeled.

3.15.2.4 All existing curbs, gutters, sidewalks and pavement adjacent to the proposed design. Basis for existing grades shall be as-built elevations at intervals not to exceed twenty five (25) feet.

Previously approved designs are not an acceptable means of establishing existing grades. See Chapter 4 of these Roadway Standards for additional information.

3.15.2.5 Existing utilities. See Section 3.14 of these Roadway Standards.

Elevation and location of all utilities in the immediate vicinity of the construction shall be shown on the plans.

3.15.2.6 Station and elevation of all P.C.R.'s, horizontal P.C.'s, P.T.'s, P.C.C.'s, etc., existing and proposed.

3.15.2.7 Station and elevation of all vertical grade breaks, existing (as-built) and proposed. (The use of grade breaks with proposed construction is limited by these Roadway Standards.) See Chapter 4.

3.15.2.8 Distance and grade or slope between grade breaks.

3.15.2.9 Vertical curves, when necessary with VPI, VPC, and VPT, high or low point (if applicable) stations and elevations. All vertical curves shall be labeled with length of curve (L) and K=L/A where A is the algebraic difference in slopes, in percent.

3.15.2.10 Profiles for all curb returns (except medians). See Section 4.7.3 of these Roadway Standards for further information.

3.15.3 Additional Notes

In addition to the notes in Section 3.8 of

these Roadway Standards, the following notes shall appear on the cover sheet of all submittals containing roadway plans.

3.15.3.1 Inspection: Construction shall not begin until a permit has been issued. If a Bennett Engineering Inspector is not available after proper notice of construction activity has been provided, the permittee may commence work in the Inspector's absence. However, the Town reserves the right not to accept the improvement if subsequent testing reveals an improper installation.

3.15.3.2 Paving shall not start until a soils report and pavement design is accepted by the Engineering Division and subgrade compaction tests are taken and accepted by the Inspection Section.

3.15.3.3 Standard Handicap Ramps are to be constructed at all curb returns and at all "T" intersections.

3.15.3.4 All stationing is based on centerline of roadways unless otherwise noted.

3.15.3.5 All elevations are on USGS DATUM with date. Range point or monument shall be shown on construction location plans.

3.15.3.6 Private improvement note. See Section 3.14 of these Roadway Standards.

3.15.3.7 Except where otherwise provided for in these Plans and Specifications, the Colorado Department of Highways Standard Specifications for Road and Bridge Construction, and the Colorado Department of Highways M Standards, latest edition, shall apply.

3.16 DETAILS

The plans shall include adequate details of special structures not covered by the Town's Stand Details. Applicable Town of Bennett Standard Details found in these Roadway Standards shall be bound in the Contract Technical Specifications or shall be included in the construction plans. The document, which includes the Standard Detail, shall be available on the job site.

3.17 RANGE POINTS-PROPERTY MONUMENTS-BENCHMARKS

3.17.1 All monuments delineating boundaries of property or witness thereof shall be set in accordance with this Section and all applicable State Colorado Laws and Regulations.

3.17.2 Any "aliquot corner" (section corner, quarter corner, etc.), as described in the Public Land Survey System, shall be monumented per Colorado State Statutes. If such a corner falls within concrete or asphalt, a range box (as shown on Drawing No.'s 54 and 55) shall be installed to protect and provide access to said corner.

3.17.3 If so desired, the Developer may install range boxes in asphalt or concrete for property monuments, range points, benchmarks, etc., if the boxes comply with Drawing No.'s 54 and 55.

EXHIBIT "A" (24" x 36" STANDARD TITLE SHEET)

NAME OF PROJECT

ASSIGNED # OF PROJECT (IF APPLICABLE)

LOCATION OF PROJECT
(1/4 SECTION, RANGE, TOWNSHIP, ETC.)

DATE

3.16

VICINITY MAP

SUBMITTED BY:

SHEET INDEX

APPROVAL BLOCK

U.S.G.S. BENCHMARK
(IF APPLICABLE)

Exhibit B

The plans are reviewed for concept only, and the review does not imply responsibility by the reviewing department, the Town Engineer, City Engineer or the Town of Bennett for accuracy and correctness of calculations. The review does not imply that quantities of items indication the plan(s) are the final quantities required. The review shall not be construed for any reason as acceptance of final responsibility by the Town or reviewing departments for additional items and additional quantities of items shown that may be required during the construction phase.

ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH
THE TOWN OF BENNETT
STANDARD SPECIFICATIONS

| Approved for one year from this date: | | Required YES | NO |
|---|---|---|---|
| _____ | _____ | ____ | ____ |
| Town Engineer | Date | | |
| _____ | _____ | ____ | ____ |
| Director of Planning (or Town Planner) | Date | | |
| _____ | _____ | ____ | ____ |
| Director of Public Works | Date | | |
| _____ | _____ | ____ | ____ |
| Building Department | Date | | |
| _____ | _____ | ____ | ____ |
| Fire Chief | Date | | |