

CITY OF WOODLAND PARK, COLORADO

TITLE 1

**POLICIES AND PROCEDURES FOR INFRASTRUCTURE
IMPROVEMENT PROJECTS**

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1.1 PURPOSE

The purpose of these Engineering Specifications is to provide minimum standards to safeguard life and limb, health, property and public welfare by regulating the design of, construction of, choice of materials used for, location of, and maintenance and use of all public improvements and common facilities. These include, but are not limited to, sanitary sewer systems, water supply systems, private utility services lines to water and sewer, public and private storm drainage systems, public and private streets, open space, parks and recreation facilities, traffic signals and devices, public and private parking lots and appurtenances thereto. All equipment and material shall be new unless approved by the City.

These Engineering Specifications and the various authorities reserved for the City herein shall be administered by the City Engineer or appointed representative. Responsibilities and authority to administer various aspects of these Engineering Specifications may be delegated by the City Engineer or appointed representative to other City employees (appointed representative) who shall conduct their related work under the supervision and coordination of the City Engineer or appointed representative.

These Engineering Specifications represent minimum requirements and design standards. Additional requirements of stricter design standards, or deviations from these specifications, commensurate with conditions, may be required by the Design Engineer or City Engineer or appointed representative if, in his judgement, they are appropriate for the project or in the best interest of the City.

1.1.1 ADOPTED STANDARDS

All applicable specifications of agencies or organizations listed below are made a portion of these Engineering Specifications by reference and shall be the latest edition or revision thereof.

A.A.N.	American Association of Nurseryman
A.A.S.H.T.O.	American Association of State Highway and Transportation Officials
A.C.I.	American Concrete Institute
A.D.A.	Americans with Disabilities Act Regulations
A.I.S.C.	American Institute of Steel Construction
A.N.S.I.	American National Standards Institute
A.P.W.A.	American Public Works Association
A.S.L.A.	American Society of Landscape Architects
A.S.T.M.	American Society of Testing Materials
A.T.S.S.A.	American Traffic Safety Services Association
A.W.S.	American Welding Society
A.W.W.A.	American Water Works Association
C.D.O.T.	Colorado Department of Transportation
C.D.P.H.E.	Colorado Department of Public Health and Environment
E.D.L.A.	Equivalent Daily Load Application
F.E.M.A.	Federal Emergency Management Agency
F.H.W.A.	Federal Highway Administration

I.B.C.	International Building Code
I.R.C.	International Residential Code
I.T.E.	Institute of Traffic Engineers
M.U.T.C.D.	Manual on Uniform Traffic Control Devices
N.A.C.E	NACE International (formerly National Association of Corrosion Engineers)
U.P.C.	Uniform Plumbing Code

Whenever a conflict exists between any of the above standards, the City Engineer or appointed representative shall decide which shall govern.

1.2 DESIGN POLICY

1.2.1 GENERAL

The City of Woodland Park shall review and accept or approve the plans and specifications for all items included in these Engineering Specifications and to coordinate the approvals of various other City departments and public agencies prior to the beginning of any construction. These design criteria have been compiled to ensure that plans and specifications are reviewed and approved on an equal basis and that uniformity exists in construction of the system. It is not the intent of these criteria to regulate the design engineer, but instead, to provide minimum design standards that should be used in normal situations.

All plans and specifications submitted for checking and acceptance for construction must have been prepared by or under the direct supervision of a Professional Engineer/Land Surveyor/Licensed Architect duly registered and licensed to practice in the State of Colorado.

A Professional Engineer is allowed to prepare Site Plans; Landscape Plans; and all Infrastructure Engineering Plans to include streets, stormwater, erosion control, grading, water, sewer, trails, parking lots, and sidewalks. All plans for residential driveways, water and sewer service lines, and dry utilities (gas, cable, phone and electric) shall be submitted to the City for review. These items must meet current City specifications and will be subject to City inspection. A Licensed Architect is allowed to prepare Site Plans and Landscape Plans. A Professional Land Surveyor is allowed to prepare Site Plans. Erosion and Sediment Control Plans may be prepared by a Professional Engineer or a Certified Professional in Erosion and Sediment Control (CPESC) when approved by the City Engineer or appointed representative.

1.2.2.1 SUBDIVISION FLOW CHART

PREAPPLICATION CONFERENCE/VICINITY SKETCH PLAN
Code Chapter 17.16
 Prior to preparing a Subdivision Plat, the applicant/developer shall meet with Staff and provide a vicinity sketch plan to identify critical design elements which will include utilities, streets, drainage, manmade features, open space, uses, etc.

MAJOR SUBDIVISION APPLICATION

PRELIMINARY PLAT—Code Chapter 17.20

- Plat with 2" contour Intervals, streets, easements, slopes, parks, trails, utilities, etc.
- A Master Plan of area is needed if developer has contiguous holdings.
- Supplemental Materials:
 1. Layout of existing and proposed water and sewer.
 2. Preliminary Utilities Report
 3. Street Grades
 4. Drainage Plan
 5. Traffic Report if required
 6. Others per Code Chapter 17.20

PUBLIC HEARINGS WITH PLANNING COMMISSION AND CITY COUNCIL

Construction Drawings are prepared prior to Final Plat. Code title 17 and 18.

- Streets (plans and profiles)-Engr. Specs. Title 5
- Utilities (plans and profiles).
- Grading/Erosion control-Engr. Specs. Title 4
- Others as required.

Final Plat prepared with SDA cost estimate and security. Code Chapter 17.28 and 17.44

Public Hearings with Planning Commission and City Council.

Fees are collected and Final Plat is recorded.

ZDP submitted.

Preconstruction Meeting. Notice to Proceed.

Construction

ZDP to install infrastructure submitted.

Preconstruction Meeting. Notice to Proceed

Construction

Final Plat prepared. Code Chapter 17.24.

Public Hearings with Planning Commission and City Council.

Fees are collected and Final Plat is recorded.

As-Builts submitted. Initial Acceptance and Warranty.

One Year Warranty (or Two Years for Drainage).

Final Acceptance

MINOR SUBDIVISION APPLICATION

FINAL PLAT—Code Chapter 17.24
 If no public infrastructure is extended into the property or a replat of previously subdivided property is proposed then a Final Plat is submitted pursuant to Chapter 17.24.

- Utility Service Plan
- Site Drainage Plan

PUBLIC HEARINGS WITH PLANNING COMMISSION AND CITY COUNCIL

Fees are collected and Final Plat is recorded.

SUBDIVISION EXEMPTION PLAT APPLICATION

EXEMPTION PLAT—Code Chapter 17.52
 An Exemption Plat is a Final Plat which does not increase the number of lots, meets the definition pursuant to 17.08.360, and is designed according to 17.52.030.

Surrounding property notification and posting.

If adjoining property owners are aggrieved and resolution is not reached the Plat is sent to Public Hearings.

No issues with adjoining property owners.

Administrative Approval

Final Plat is recorded.

Public Hearings with Planning Commission and City Council.

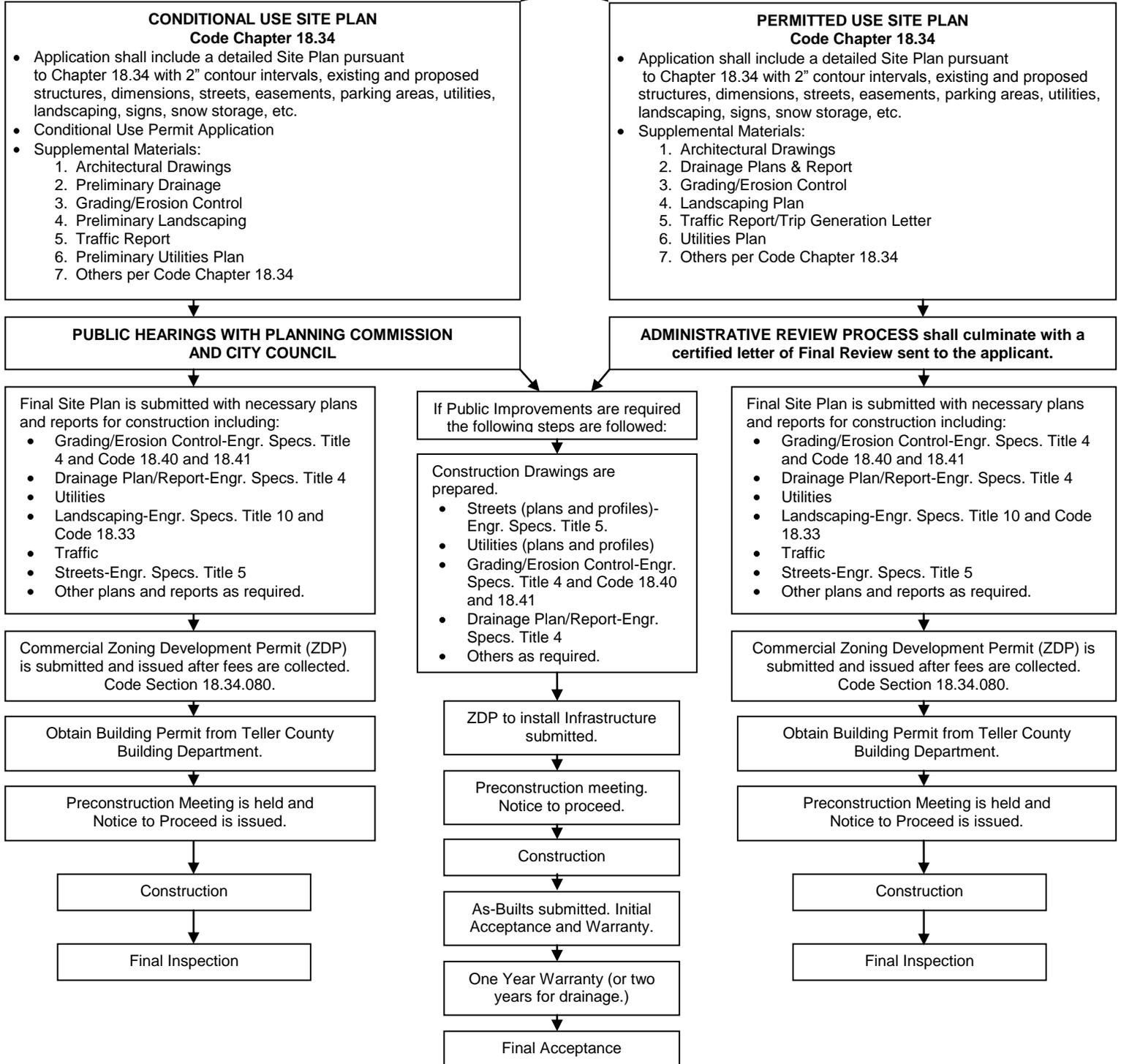
Final Plat is recorded.

DISCLAIMER: This flow chart is not intended to provide all the Information necessary to submit an application for Site Plan Review. The applicant/developer must refer to the applicable Municipal Codes and Engineering Specifications to prepare complete plans and drawings.

1.2.1.2 SITE PLAN REVIEW FLOW CHART

PREAPPLICATION CONFERENCE AND SKETCH PLAN

Prior to submittal of a Site Plan/Conditional Use Permit application the applicant/developer shall meet with the Staff and provide a sketch plan of the proposed development to determine the feasibility and critical design elements pursuant to Engineering Specifications Section 1.2.2 and Municipal Code Chapter 18.34.



DISCLAIMER: This flow chart is not intended to provide all the information necessary to submit an application for Site Plan Review. The applicant/developer must refer to the applicable Municipal Codes and Engineering Specifications to prepare complete plans and drawings.

1.2.2 PREAPPLICATION CONFERENCE CONCEPT/SKETCH PLAN

Prior to preparing a plat for the subdivision of land or a site plan for new development, the subdivider or developer shall make his intention known to the City by holding a preapplication conference and preparing a concept/sketch plan. This plan shall be submitted showing the proposed subdivision or development with the adjacent properties at a scale sufficient to provide enough detail to determine the feasibility of the development proposal and critical design elements. This concept/sketch plan shall include but not be limited to:

- Existing and proposed uses for residential, commercial, industrial, or public purposes.
- Existing and proposed streets, trails and sidewalks.
- Existing and proposed wet utilities for water and sewer lines and associated appurtenances and a general location of the dry utilities for electric, gas, phone and cable.
- Natural drainage courses and proposed drainage improvements including storm water and detention facilities.
- Types of vegetation and major natural or manmade features of the area.

The developer may also be required to provide a letter of intent with the concept/sketch plan to describe the feasibility and design of the project. The City will provide comments regarding the concept/sketch plan and subsequent report requirements to the developer.

1.2.3 PRELIMINARY PLANS AND REPORTS

As a minimum, Preliminary Plans and Reports are required when new development is proposed for a major subdivision or site development of vacant land for commercial or other purposes except for single-family homes. A major subdivision means all subdivisions, commercial or residential, not classified as a minor subdivision including any size subdivision requiring any extension of public improvements. A minor subdivision means any re-subdivision of any existing subdivision fronting on an existing street not involving any new street, or road or the extension of municipal facilities, or the creation of any public improvements, and not adversely affecting the remainder of the parcel or adjoining property. A major subdivision requires the submittal of the Preliminary Plat according to the criteria described in Section 17.20 of the Municipal Code, which includes preliminary utilities, drainage, grading, erosion control, traffic and landscaping. All proposed developments shall make a submittal when required, which shall include the following information:

A. PRELIMINARY UTILITIES PLAN AND REPORT:

The Preliminary Utilities Plan shall show the location and size of the existing water and sewer lines within or adjacent to the tract and the proposed layout of the water and sewer system, with the proposed size of all mains and proposed location of valves, hydrants, and manholes. For most projects, the Preliminary Utilities Plan shall consist of a 24 inch x 36 inch plan sheet using proposed rights-of-way, lot configuration, and easements as the base. For a single commercial building, the Preliminary Utilities Plan shall typically be included on the site plan.

A Preliminary Utilities Report is a concise narrative describing the development's utility needs and the methods proposed to meet those utility needs. The volume of engineering calculations attached shall depend on the complexity of the service.

The report must cover water, sewer, natural gas, electricity, telephone, and cable TV/Data. The fundamental information required is the identification of existing locations of each utility that will be extended to serve the subject project. Some utility companies, such as telephone, may not provide specifics but an indication they know where and what is proposed. This acknowledgement accompanied by a commitment to serve the project, will be sufficient.

The primary emphasis of the Preliminary Utilities Report should be on water and wastewater services. The Preliminary Utilities Report shall include information defining the projected water demand. For all residential projects the number of single-family residential units and the number of multi-family residential units will provide adequate definition. Multi-family units must be distinguished as rental unit buildings or private ownership dwellings.

Fire flow requirements shall be included based on the latest adopted Fire Code, proposed land uses, building sizes, and building types.

For non-residential development, the water demand must be defined by building square footage or acreages of land use types and standard unit demands. The source of unit demands must be referenced.

The report shall identify which City water pressure zone the project is within and what range of water pressures will exist in the project area based on the range of project elevations. Special needs including all fire flows required above 1000 gpm or pressure-regulating stations shall be identified. Water main looping is required unless in a cul-de-sac that serves less than twelve (12) dwelling units and required fire flows are met without looping. Plans for looping shall be described. Detailed hydraulic analyses are required except where eight (8) inch minimum diameter water mains are proposed and the City determines that the size of projected fire flow demands, water main looping and service elevations within the appropriate water pressure zone indicate adequate service is provided without detailed analysis.

Wastewater service shall be provided to the project by gravity flow to existing mains. Additional public pump stations will only be allowed if absolutely necessary. The minimum allowable sewer main diameter is eight (8) inches and all mains shall have adequate capacity for anticipated project extensions. Locations of proposed connections to existing mains and identification of any lots or areas not to be provided gravity sewer service are key wastewater elements of the Preliminary Utilities Report. Where, in the opinion of the City, utility service is not complex, the Preliminary Utilities Report shall consist of a letter narrative and a concept sketch showing the project, key water and sewer

tie-ins, and the range of static water pressures within the project. For difficult-to-serve projects the report shall include the engineering basis for water storage tanks, distribution system hydraulic analyses, wastewater pump station design parameters and similar detailed components.

The apparent scope of the Preliminary Utilities Report shall be determined to the greatest extent possible by the applicant and the City at the preapplication conference. The initial scope of the Preliminary Utility Report shall be supplemented with additional engineering or information if further needs are identified.

B. PRELIMINARY DRAINAGE PLAN AND REPORT:

The Preliminary Drainage Plan shall show the concept and method of achieving Woodland Park standards for drainage improvements. It shall include a general layout of the proposed system for collection, conveyance, and release of stormwater utilizing such structures as curb and gutter, crosspans, culverts, inlets, swales, and detention facilities. If the development is to be phased, then the drainage plan shall show how the system will be a complete, functioning drainage system at the completion of each phase.

The Preliminary Drainage Report shall have sufficient information and calculations to support the concept and method given in the Preliminary Drainage Plan.

C. EROSION AND SEDIMENTATION CONTROL PLAN:

An Erosion and Sedimentation Control Plan is required for all land-disturbing activities of 7,500 square feet or more or if construction of either a temporary or permanent road is part of the land-disturbing activity pursuant to Section 18.40.140 of the Municipal Code.

D. GRADING PLAN:

A Grading Plan is required for all land-disturbing activity greater than 7,500 square feet and shall include the criteria pursuant to Section 18.41.070 of the Municipal Code. Grading Plan review and approval is necessary before the issuance of a Zoning Development Permit for grading.

E. PRELIMINARY LANDSCAPE PLAN:

A Preliminary Landscape Plan is a plan that shows the areas proposed for landscaping as a part of a site specific development. The Preliminary Plan shall provide a general description of planted material proposed for each planted area. Detailed information such as plant type, size, number, maintenance and tree protection measures, etc., shall be part of the Final Landscape Plan submitted prior to issuance of a Zoning Development Permit.

F. TRAFFIC REPORT:

A Traffic Report is a written document to assess the development impacts on the capacity, safety and operations of adjacent streets and US/State Highways as applicable. The Traffic Report is required if the proposed subdivision is larger than ten (10) residential lots or the traffic counts exceed 100 average daily trips (ADT). A detailed traffic study which includes intersection analysis is required for projects either adjacent to or in the proximity of US Highway 24 and/or State Highway 67.

G. UTILITY COORDINATION:

Early in the planning process, the Owner/Developer or engineers shall contact the non-municipal utility companies to coordinate the location of the dry utilities with the wet utilities. The site plan or subdivision utilities plan shall include the existing and proposed dry utilities such as natural gas, electricity, telephone and cable TV/Data.

These reports shall be approved by the City prior to the preparation of final construction drawings and shall be submitted with the subdivision preliminary plat.

1.2.4 CONSTRUCTION PLANS

All grading, erosion control, drainage, utility, and street plans shall conform to the minimum design criteria set forth in these specifications. Four (4) complete sets of plans on 24" x 36" sheets and one (1) set on 11" x 17" shall be submitted for review and comment. Once the plans have been reviewed, written comments shall be returned to the applicant for amending the plans.

Construction plans shall consist of the following:

A. COVER SHEET OR FIRST PAGE OF PLANS:

1. Project Name/Subdivision Name
2. Owner's/Developer's name, address, phone number
3. Vicinity Map
4. Index
5. Signature Block
6. Vertical Datum

B. OVERALL SITE PLAN

C. STREET PLAN AND PROFILE AND TRAFFIC CONTROL MEASURES

D. SANITARY SEWER PLAN AND PROFILE

E. WATER PLAN AND PROFILE

F. STORM SEWER AND/OR SURFACE DRAINAGE PLAN AND PROFILE

- G. GRADING AND EROSION CONTROL PLAN
- H. LANDSCAPING, LIGHTING AND TREE PRESERVATION PLANS
- I. CONSTRUCTION DETAILS AND NOTES

1.2.5 CONSTRUCTION DRAWINGS

Construction drawings shall consist of the following:

- A. DRAFTING STANDARDS:
 - 1. Plans shall be 24" x 36" and one (1) set on 11" x 17". Final "As-Built" plans shall be Mylar, clear and clean from objectionable background. Also, one (1) blue line shall be submitted.
 - 2. Information for "as-builts" will also be submitted in electronic file format (e.g. ArcView shapefile, DXF file or DWG file with a description of the geographic coordinate system).
- B. THE FOLLOWING SHALL BE SHOWN ON EACH AND EVERY PAGE OF ALL DRAWINGS:
 - 1. Title Block (right margin of sheet preferred).
 - 2. North Arrow. North shall point to the top or to the right margin of the sheet; other details and drawings on the sheet shall be oriented consistently with the North arrow.
 - 3. Scale:
 - a. Vertical: 1" = 5' (1" = 10' may be used in areas that have average slopes over 5%).
 - b. Horizontal: 1" = 50' standard for Plan & Profile.
 - 4. Date and Revisions. The original date of the plans and any subsequent revisions shall be shown in the title block.
 - 5. Name, address, and telephone number of a licensed professional or firm.
 - 6. Professional Seal and Signature. Standard City of Woodland Park approval block in the lower right-hand corner of the sheet

Prepared for construction under my direct supervision:	
_____ (Affix Seal, Expiration Date and PE Signature)	_____ Date
_____ Approved for Construction City Engineer or appointed representative	_____ Date
----- "As-Built" Certified by:	
_____ (Affix Seal, Expiration Date and PE Signature)	_____ Date
_____ Approved for "As-Built" Record City Engineer or appointed representative	_____ Date

C. PLAN:

1. Property lines, easement lines and lot numbers.
2. Street names and easements with all dimensions including lot dimensions.
3. Utilities and Structures:
 - a. Water – Show location of valves, fire hydrants, and fittings by station. Standard position for locating mains, unless some major interference prevents it, is six (6) feet off the centerline of the street. Show main sizes on all drawings. Minimum depth of water line is seven (7) feet.
 - b. Sanitary Sewer – Number and show location of manholes and appurtenances. Standard position for locating mains, unless some major interference prevents it, is six (6) feet off the centerline of the street and twelve (12) feet from water main. Show main sizes on drawings. Minimum depth is six (6) feet but typical installation is eight (8) to 14 feet deep.
 - c. Gas – Standard position for location of gas mains is 20 feet off the center of the road.
 - d. Storm Sewer – Standard position for location of storm sewer mains is under and/or behind curb and gutter.
 - e. Telephone, Electric and Other Cable – Standard position for location of utility cables is within the six (6) foot bench behind top back of curb. Joint trenches are encouraged. Electric is in the bottom of the shared trench.
 - f. Minimum depth for all dry utilities is 36 inches.
4. The plan shall show sufficient adjacent area to give relation of new facilities to existing facilities.
5. The plans shall be made from actual field surveys referred to land corners and other official survey control points. Fences shall not be used as the basis of surveys.

D. PROFILE:

1. Finished surface (existing and proposed).
2. Existing and proposed utility line crossings.
3. Benchmarks will be on U.S.G.S. Datum. Monument locations shall be shown and described.

E. FIELD CONTROL:

It is the responsibility of the developer or his authorized representative to survey the proposed installation and set control stakes in accordance with approved plans. Installation of lines shall not be allowed where in the opinion of the City Engineer or appointed representative proper control has not been furnished. The contractor shall be responsible for preserving all permanent benchmarks and survey monuments.

1.2.6 EASEMENTS

All public improvements shall be in platted street rights-of-way or easements. Easements for water and sewer must have a width of at least two (2) times the depth to the invert, with a minimum width of 20 feet.

See: City of Woodland Park Municipal Code Title 17.40.170.

1.3 CONSTRUCTION POLICY

1.3.1 ENGINEERED AND APPROVED PLANS

Construction shall be done in accordance with City accepted/approved construction plans for the work prepared under the direction of a professional licensed in the State of Colorado. Plans shall conform to the City of Woodland Park Engineering Specifications. Plans approved by the City are valid for a period of two (2) years, after which the plans shall be resubmitted for review, as if they were a new submittal, to verify conformance to current City requirements. Construction of improvements shall not begin without approved construction plans and a written notice to proceed from the City in the form of a Zoning Development Permit. After the 3rd review the City Engineer or appointed representative may determine that a recovery fee is necessary for excessive plan review.

1.3.2 CONTRACTOR LICENSES REQUIRED

All contractors and sub-contractors must be licensed by the appropriate agencies. All excavation greater than one foot (1') in depth within existing or proposed rights-of-way and infrastructure easements shall be done by a contractor holding a "Full Excavator" License issued by the Teller County Building Department. All contractors and sub-contractors must have a City of Woodland Park Business License and Street Cut Permit prior to the start of work.

1.3.3 PERMITS

All permits required from other agencies must be approved in writing and provided to the City Engineer or appointed representative prior to construction. Examples of this requirement include access or utility permit from Colorado Department of Transportation, Section 404 Wetlands Permit from the U.S. Army Corps of Engineers, and Colorado Discharge Permit System – Stormwater, from the State of Colorado Department of Public Health and Environment.

1.3.4 PRE-CONSTRUCTION CONFERENCE

Prior to commencement of construction, the Contractor/Developer shall arrange a conference with the City for the following:

- A. The purpose of the pre-construction conference is to become familiar with applicable City of Woodland Park Engineering Specifications and to identify any critical or unusual items on the project.

- B. To make application for a Zoning Development Permit.
- C. The following procedures shall also be discussed:
 - 1. The day prior to beginning construction, the contractor shall call the City for notification of commencement of work.
 - 2. The Owner/Developer/Contractor shall call the Construction Inspector for any required inspections, including witnessing of required tests. To ensure an inspection time the Inspector should be called at least 24 hours in advance.
 - 3. The contractor shall notify the City for a final inspection when work is completed. The contractor shall meet with the City Engineer or authorized representative on location for said final inspection. Final inspection shall not take place until street or easement is at final grade and all manholes, valve covers, etc., are brought to final grade.
 - 4. Traffic control devices, either temporary or permanent, must be installed before Initial Acceptance. The City will not be responsible for installation or maintenance of any barricades or warning signs to protect the public because of phased construction of streets.

1.3.5 INSPECTION, TESTING, STOP WORK ORDERS

All construction work covered by these Engineering Specifications is subject to inspection by the City and certain types of construction shall have continuous inspections.

It shall be the responsibility of the Owner/Developer/Contractor to notify the City that such work is ready for inspection. The Construction Inspector may be available for same day inspections during normal business hours by calling him at City Hall or on his cell phone. To ensure a specific time for an inspection a call shall to be placed to the City 24 hours prior to the requested time. It shall also be the responsibility of the person requesting inspections required by these Engineering Specifications to provide access to and means for proper inspection of all work. Subsequent inspections shall be coordinated with the City by telephone.

An authorized City representative shall have the authority to halt construction when these specifications or standard construction practices are not being adhered to. Whenever any portion of these specifications is violated, the City may order further construction to cease until all deficiencies are corrected. The notice to cease construction shall be in writing (Stop Work Order). The contractor will pay for all required tests.

See Section 1.3.5.3

The City Engineer or appointed representative may require additional inspections of any work as deemed necessary to ascertain compliance with the provisions of these Engineering Specifications and other provisions of the City Code.

1.3.5.1 RE-INSPECTIONS

A re-inspection fee may be assessed for each inspection or re-inspection when such portion of work for which inspection is called is not complete or when corrections called for have not been made.

The fee for re-inspection will be \$30.00 per hour or the total hourly cost to the City, whichever is greater. This cost shall include supervision, overhead, equipment, hourly wages and fringe benefits of the employee involved.

This subsection is not to be interpreted as requiring re-inspection fees the first time a job is rejected for failure to comply with City requirements, but as controlling the practice of calling for inspections before a job is ready for such inspections or re-inspection. Re-inspection fees may be assessed when the permit is not in the possession of the permit holder, when the approved plans are not readily available to the inspector, failure to provide access at the time for which inspection is requested, or for deviating from plans approved by the City Engineer or appointed representative.

To obtain a re-inspection, the applicant must call the Construction Inspector who may be available for same day re-inspections during normal business hours by calling him at City Hall or on his cell phone. To ensure a specific time for a re-inspection a call shall be placed to the City 24 hours prior to the requested time and pay a fee as determined by the City. In instances where re-inspection fees have been assessed, no additional inspection of the work shall be performed until the required fees have been paid.

1.3.5.2 INSPECTIONS OUTSIDE NORMAL INSPECTION HOURS

Inspections performed outside the normal inspection hours of the City (8:00 AM – 4:00 PM), Monday through Friday, shall be assessed a fee as determined by the City. These inspection fees are to be paid on a monthly basis and prior to project acceptance.

The fee for after hour inspection will be \$45.00 per hour (two (2) hour minimum) or the total hourly cost to the City, whichever is greater. This cost shall include supervision, overhead, equipment, hourly wages and fringe benefits of the employee involved.

1.3.5.3 STOP WORK ORDERS

The Inspector or other authorized City Representative may issue a Stop Work Order to the Contractor/Developer for any of the following circumstances:

- The Contractor/Developer has not applied for or received all appropriate licenses and permits and is working in the public right-of-way or on projects not approved by the City.
- The Contractor/Developer is working on an approved project that is not being constructed in conformance with City specifications or approved plans.
- The Contractor/Developer is working on an approved project that has a public health or safety problem (e.g., but not limited to, deficient traffic control, deficient erosion and sediment control, unsafe trenching operations, dangerous obstructions in the public right-of-way, improper use of equipment, use of alcohol or drugs).

Upon issuance of a Stop Work Order, the Contractor/Developer shall, except for emergency repairs by same, immediately discontinue work until such time as:

- Proper permits are issued.
- Mitigation of non-conformance items has been properly addressed.
- Mitigation of health or safety issues has been properly addressed.

If the Contractor/Developer, or agent of the developer, does not immediately discontinue work upon the issuance of a Stop Work Order, the Contractor/Developer shall be subject to fines up to \$1,000.00 and imprisonment up to one (1) year.

In the event where the City deems it necessary to affect a remedy or repair to mitigate any of the above-mentioned circumstances (due to emergencies or untimely performance), the cost plus 15 percent of the work shall be paid by the Contractor/Developer.

1.3.6 “AS-BUILT” DRAWINGS

As-Built Drawings shall be submitted by the Owner/Developer and approved by the City Engineer or appointed representative as a condition of City Initial Acceptance of every public infrastructure project. “As-Built” Drawings shall accurately reflect the as-constructed condition of the installed infrastructure using drawings approved for construction as the base and adding notes and corrections to accurately reflect materials provided, field changes to design and locations of critical underground elements.

It is the duty of the Contractor/Developer to record and document the physical dimensions and any changes on a set of “as-builts” drawings and to certify their accuracy. A licensed professional in the State of Colorado per Section 1.2.1 of these specifications shall certify/stamp the “as-builts.” The certification shall also have the date of certification by the Licensed Professional.

The standard certification statement and signature block is:

Prepared for construction under my direct supervision:	
_____	_____
(Affix Seal, Expiration Date and PE Signature)	Date
Approved for Construction	_____
City Engineer or appointed representative	Date

“As-Built” Certified by:	
_____	_____
(Affix Seal, Expiration Date and PE Signature)	Date
Approved for “As-Built” Record	_____
City Engineer or appointed representative	Date

“These drawings are a correct “as-built” representation of the final construction improvements, as per the Engineering Specifications for the City of Woodland Park.”

1.3.6.1 RESPONSIBILITIES

Owner/Developer has ultimate responsibility to insure that accurate “as-builts” are prepared, submitted and approved.

Contractor has the responsibility during construction to keep an up-to-date “red-line” set of approved construction drawings showing field modifications, materials of construction, tie-downs to underground locations and other notes from which “as-builts” can be prepared.

The Engineer has the responsibility to convert contractor’s red-line drawings to reproducible “as-built” drawings, which meet the general standards of the industry and all specific requirements of the City of Woodland Park.

1.3.6.2 SPECIFIC “AS-BUILT” REQUIREMENTS

- A. Major changes to designed pipeline alignments shall be shown with a new line showing the new pipeline alignment. Minor changes to locations of bends, valves, manholes and other appurtenances shall be recorded by crossing out the designed station and showing the “as-built” station. Major changes shall be re-drawn to show the “as-built” location.
- B. Changes from designed vertical elevations, such as manhole rims and sewer inverts shall be shown by crossing off the designed elevation and adding the “as-built” elevation. Adjusted slopes of sewers and other design information, which are changed during construction, shall be crossed out with as-installed information added.
- C. Horizontal distances from surface features to buried water lines shall be included at a minimum of every 300 feet and at every fire hydrant and every sanitary sewer manhole cover. Distance shall be from center of fire hydrant or manhole cover to center of water main.
- D. Information on the location of each water and sewer stubout to each lot shall be on the “as-builts.”
 - 1. Tie-Down Method (projects without curb and gutter): A minimum of two (2) tie-down distances shall be given from permanent ground features to the end of each stubout. Permanent ground features shall include, but not limited to, fire hydrants, valve boxes, manhole covers, electrical transformers, etc. A table of information shall be created to minimize clutter on the “as-built” drawings.
 - 2. Flowline Method (projects with curb and gutter): This method uses a distance along the flowline of the street gutter from a point perpendicular to a permanent ground feature to the location where the service stubout crosses under the curb and gutter and a distance from back of curb to the end of the constructed service line. A table of information shall be created to minimize clutter on the “as-built” drawings. (Refer to Figure 1-A)

- E. The exact end locations of water or sewer main installations provided for future main extensions shall be identified with a minimum of three (3) tie-down dimensions to permanent surface features. “As-builts” shall include a description of water and sewer main endings planned for future extension. Said description shall include all information needed to design and prepare for an extension, including at least: depth to main invert, pipe type and size, type of anchorage, and type of pipe cap or plug.

The following measurements use the flowline, a fixed point, and the object being located. The first measurement is taken along the flowline starting at a known point (A) looking at a fixed object (hydrant, meter, etc.) 90 degrees from the flowline and then moving to a point (B) that is 90 degrees from the object being located. The second measurement is taken from the top back of curb (TBC) at point (B) to the object being located. All measurements are taken from the center of objects.

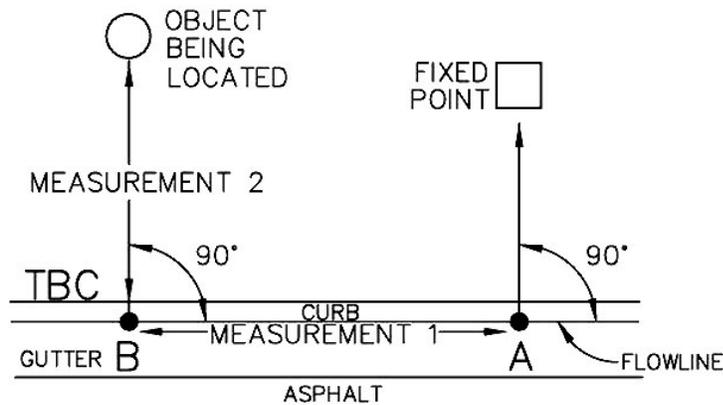


Figure 1-A

Lot Number		Fixed Object	Distance in flowline A to B	Distance from TBC to object located.
	Water			
	Sewer			
	Water			
	Sewer			
	Water			
	Sewer			

- F. All significant materials of underground construction shall be identified on “as-built” drawings. This shall include but is not limited to Megalugs, type of anchor, type of pipe, class of pipe, type and locations of imported bedding.
- G. All changes in approved street design shall be indicated with particular attention to flowline elevations and street design cross section.

- H. Locations and descriptions of all utility crossings (not including service lines) and utility conflicts shall be included. This shall include but not be limited to fiber optics, gas lines, cable TV, water mains, sanitary sewers and storm sewer. Utilities that are not crossing, but are running parallel within three (3) feet of the installed pipeline shall also be included.
- I. Name, address and telephone number of the Developer or Owner’s representative who coordinated and reviewed contractor’s work shall be included on the cover page.
- J. Names, addresses and telephone numbers of all significant contractors and subcontractors shall be added to the cover page of each project “as-built.”
- K. Names and telephone numbers of City inspectors and/or engineer’s inspectors on the job shall be added to the cover page.
- L. Descriptions, locations and elevations of permanent and temporary benchmarks used for vertical control on the project shall be included.
- M. Easements required for utilities shall be shown out of the street right-of-way.

1.3.6.3 SUBMITTAL OF CERTIFIED “AS-BUILT” PLANS AND DOCUMENTS

Three copies of the “as-built” plans shall be submitted prior to approval for review. Once approved by the City one (1) complete set of full-size Mylar plans and two (2) sets of blue lines or photo copies shall be submitted. Information for “as-built” shall also be submitted in electronic file format (e.g. ArcView shapefile, DXF file or DWG file with a description of the geographic coordinate system).

1.3.7 ACCEPTANCE AND WARRANTY

1.3.7.1 PRE-ACCEPTANCE INSPECTION AND PUNCH LIST

When the development is complete the Owner/Developer shall request an inspection, which may result in a pre-acceptance punch list. An on-site meeting is held with the Owner/Developer and the City Inspector to review the items on the punch list and establish a timetable to rectify punch list deficiencies. Prior to requesting Initial Acceptance, the Owner/Developer shall complete the punch list items and submit “as-built” drawings for review and approval by the City Engineer or appointed representative and other necessary documentation listed below.

Inspections and punch lists for the initial acceptance of public improvements may include utilities not owned or operated by the City but are allowed in the Public Rights of Way (ROW) (e.g. gas, electric, cable TV, data, etc.). Installation of these utilities, not owned or operated by the City, shall also be installed in accordance with these Engineering Specifications and acceptance of the ROW may not be granted if there are deficiencies with the installation of those utilities.

1.3.7.2 INITIAL ACCEPTANCE

The Owner/Developer shall send a letter to the City Engineer or appointed representative requesting Initial Acceptance of the public improvements. The letter shall designate a contact person for the Owner/Developer, including address and telephone number. The letter shall also include a statement signed by the Owner/Developer stating: “I hereby affirm that the public improvements for (name of subdivision or project) have been constructed in substantial compliance with the construction plans approved by the City of Woodland Park”. Such verification shall include visual observation by the Owner/Developer, and acceptance of destructive or nondestructive tests with an evaluation report based on those tests, which substantiate compliance to the approved plans.

Within ten (10) working days following the request for Initial Acceptance, an inspection shall be conducted by the City to insure that all improvements associated with the project are clean, free from dirt and debris, and in compliance with City Engineering Specifications and approved plans. Also in order to consider authorizing Initial Acceptance the City shall be in receipt of the following items:

- Results of all required tests (soils, concrete, asphalt, and camera sewer inspection).
- Statements of compliance from suppliers for all materials used.
- Operations manuals where necessary for proper operation and maintenance.
- Certified sets of “as-builts.”
- Any additional requirements of the City Engineer or appointed representative or these specifications.

The City Engineer or appointed representative will review all public or private improvements and revise list of outstanding punch list items if necessary. All items noted in the revised punch list shall be rectified prior to Initial Acceptance or completion of selected items as approved by the City Engineer or appointed representative may be included in the warranty period. An irrevocable letter of credit, escrow agreement, or cash shall secure any punch list items included in the warranty period.

A letter of Initial Acceptance and Start of Warranty is issued by the City Engineer or appointed representative and signed by the Owner/Developer. Upon Initial Acceptance the City shall be responsible for the routine maintenance of the public infrastructure (e.g. snow plowing, maintain and test fire hydrants, clean sewer lines, etc.) and operation and maintenance of the water and sewer system. The Owner/Developer shall agree to warrant the infrastructure improvements and repair all major defects according to the paragraphs below. Also the letter of Initial Acceptance and Warranty will acknowledge the conveyance/dedication of said public infrastructure to the City’s ownership.

A one (1) year warranty period shall commence on the date of Initial Acceptance. A two (2) year or extended warranty period may be necessary as determined by the City Engineer or appointed representative especially as it relates to drainage facilities, revegetation and erosion control, or when construction failures have occurred during the one (1) year warranty period.

The Owner/Developer shall warrant all work to be free of defects in workmanship and materials throughout this period. In the event deficiencies are discovered during the warranty period, the Owner/Developer's contractor shall correct them within a reasonable time period. The determination of the necessity during the warranty period for the Owner/Developer to repair or replace the work in part shall rest with the City whose decision in the matter shall be final and obligatory upon the Owner/Contractor.

If within 72 hours after the City gives the Owner/Developer notice of a defect, failure, or abnormality of the work and the Owner/Developer neglects to make, undertake with due diligence, or coordinate with the City, to make the necessary repairs or adjustments, the City is hereby authorized to make repairs or adjustments or order the work to be done by a third party, and the cost of the work will be paid by the Owner/Developer, plus 15 percent.

In the event of an emergency where, in the judgment of the City, delay would cause serious loss or damage, repairs or adjustments may be made by the City, or a third party chosen by the City, without giving notice to the Owner/Developer. The Owner/Developer shall pay the cost of the work plus 15 percent.

1.3.7.3 FINAL ACCEPTANCE

Prior to the end of the warranty period, the City Engineer or appointed representative will review the site for any defects in the work. If no defects exist, the City Engineer or appointed representative will recommend the improvements for Final Acceptance by the City at the end of the specified warranty period. Conversely, if defects exist, the City Engineer or appointed representative will develop a written list of defects to be repaired or replaced prior to Final Acceptance.

After all warranty period defects are repaired and/or replaced, the City Engineer or appointed representative will send a letter of Final Acceptance to the Owner/Developer.