



Public Works

Project Design & Development Guidelines

Job # _____

Date

Use of These Guidelines

The purpose of these guidelines is to provide a smooth design process, which will help the City of Russellville and the Consulting Engineer. The Consultant shall be notified of the requirement to follow these guidelines prior to contract and fee negotiation. These guidelines are set to allow the Consulting Engineer prior knowledge of requirements and expectations before fee negotiations. The guidelines will allow the Consultant to know exactly what to submit and the expected process of designing plans for the City of Russellville. All aspects of these guidelines shall be followed unless Consultant obtains prior written approval from the City of Russellville.

If the Consultant has any questions in regards to these guidelines, they should contact Public Works at 479/968-2406.

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Governing Codes and Standards

1. Roadway:

- a. Manual For Uniform Traffic Control Devices, Millennium Edition, Revised 2001.
- b. AHTD “Standard Specifications for Highway Construction” 1996 and latest supplemental specifications.
- c. A Policy on Geometric Design of Highways and Streets, 2001, AASHTO.
- d. City of Russellville standard drawings, latest edition and Land Subdivision Development Codes.

e. Design Data

Location: _____

Classification: _____

Current ADT: _____

Design Speed: _____

Directional Distribution: _____

Max Grade: _____

Min. Grade: _____

Min. Sight Distance: _____

Min. Right-of-Way: _____

Street Width: _____

Intersection Curb Radii: _____

Horizontal Clear: _____

Lane Width: _____

Curb and Gutter: _____

Sidewalks: _____

Cross Slope: _____

Side Slopes: _____

2. Pavement:

- a. A pavement design analysis shall be completed on all projects using the latest AASHTO guidelines unless otherwise notified in writing by the City of Russellville.
- b. If available subgrade material does not provide desired stability characteristics, either import better material or treat the on-site material.
- c. Pavement designs should include at least three (3) alternatives with an economic analysis for each alternate. Higher volume projects should include alternates for flexible and rigid pavement.
- d. One of the three (3) alternates should be a full depth asphalt pavement design with the others consisting of a stone base with asphalt surfacing.
- e. The consultant will submit these alternatives complete with cost estimates to the City of Russellville for review with a recommendation.
- f. The approved design shall be incorporated into the plan submittal process.

3. Drainage:

- a. Use City of Russellville Stormwater Design Manual

General

1. Prepare plans in accordance with the City's "Project Design and Development Guidelines."
 2. Make supplemental field and location surveys and run levels as are found necessary for the above purposes; and for determining the precise locations of all utilities where critical to the design and construction of the improvements, and plot locations on plan and profile sheets as accurately as possible.
 3. Perform all work in connection with establishment of permanent markers for horizontal and vertical control, establish such markers, and indicate locations and pertinent information on the drawings. Upon approval of construction centerline, consultant shall stake centerline at 100' intervals.
 4. Make property surveys and property maps necessary for the design and, for the preparation by the consultant, legal descriptions for both permanent and temporary rights-of-way, easements, and permits for construction. Each property map shall contain a visual monument for reference in negotiation with owner.
 5. Where land acquisition is necessary, legal descriptions shall be prepared according to "Arkansas Minimum Standards for Property Boundary Surveys and Plats," typewritten on 8 ½" x 14" bond paper and include:
 - a. Parcel areas before taking
 - b. Residual parcel area
 - c. Areas in the floodplain/floodway
- Right-of-Way acquisitions plats are to be drawn to scale on 8 ½" x 14" bond paper and certified by a surveyor licensed to practice in the state of Arkansas.
6. If necessary, coordinate with other local, state and federal agencies.
 7. Assist owner in securing any required permits.
 8. Make changes or revisions in the drawings, specifications and right-of-way plats as required.
 9. Prepare cost estimates

10. Furnish three (3) sets of reproducible final drawings and one (1) digital copy in .dkf or .dwg format.

Plan Review

1. Consulting engineering firms hired by the City of Russellville for the purpose of plan preparation shall make a minimum of three (3) plan submittals to the City of Russellville.
 - a. Thirty percent (30%) submittal – This submittal shall include, but not be limited to the following information:
 - Title sheet with design data, job title and number, sketch map and vicinity map.
 - Typical sections of improvement
 - Geometric design (horizontal and vertical alignment) of all roadways in project, including all survey data.
 - b. Sixty percent (60%) submittal – This submittal shall include, but not be limited to the following information:
 - All information contained within the thirty percent (30%) submittal, with all revisions.
 - Typical sections of improvement detailing pavement section and widths.
 - Maintenance of traffic preliminary plan details.
 - Erosion control details.
 - Special details needed for the project.
 - Plan and profile sheets with all drainage design, right-of-way requirements, and construction limits.
 - Hydraulic calculations and drainage area maps.
 - Survey control detail sheet
 - Cross sections
 - Right-of-Way and temporary construction easement, legal description necessary to complete the project. (Consultant shall obtain an example of these documents from the City of Russellville for use in preparation of documents.)

- Any structural calculations and drawings.
- c. Ninety percent (90%) submittal – This submittal shall include, but not be limited to the following information:
- This submittal should include everything included in the first two submittals along with quantities, index with list of special provisions and general notes, summary of quantities.
 - This submittal should also include the final maintenance of traffic details, all benchmark locations detailed on the plan and profile sheets, and any floodplain limits (with floodway shown delineated and elevations) of the plan and profile sheets.
2. The final submittal should be a full size complete, signed and sealed set of plans on reproducible media.
 3. Consultant shall not proceed with design to sixty percent (60%) and ninety percent (90%) until receipt of written notice from the City of Russellville.
 4. During the City’s review of the sixty percent (60%) submittal the consultant shall attend a field walk through with plans and City personnel. The proposed center line shall be set at each station.
 5. The submittals shall consist of three (3) sets of “Preliminary” plans clearly marked thirty percent (30%) or sixty percent (60%)

Plan Assembly

The following sequence should be used as a general guide when assembling plans:

1. Title sheet
2. Index of sheets, special provisions general notes and legend
3. Quantity sheets
4. Typical sections
5. Plan and profile sheets
6. Street / drainage cross sections
7. Maintenance and traffic
8. Signalization plan (if required)
9. Pavement marking plan
10. Centerline field ties / layout sheet / benchmarks / control points
11. Standard details / special details

Title Sheet

The title sheet should generally include, but not be limited to the following information:

1. City of Russellville Public Works base cover sheet shall be used. (Provided by the City of Russellville)
2. Job title and job number
3. Site map showing beginning and end of project
4. North arrow and scale for site map
5. Section, township, and range.
6. Consultant's name and address in lower right corner
7. P.E. stamp and signature on final plans

Index, General Notes, Legend and Quantities

1. Page index shall match name of sheet exactly.
2. Legend shall match drawing on plan and profile sheets.
3. Quantities shall match pay items in specification book. Item numbers shall match specifications numbers. Any item not in AHTD specifications will be marked with “SP” and have special provisions written by consultant explaining materials, construction, measurement and payment.
4. Item numbers listed in numerical order.
5. Item description as listed.
6. Total quantities of each item.
7. The following list of general notes should include, but not be limited to the following notes. The entire list shall be reviewed by the consultant and only those notes that pertain should be used. If additional notes are necessary, the consultant should submit them during the review process.
 - a. All pipe lines, power, telephone and telegraph lines to be moved or lowered by the respective owners as per agreement with such owners.
 - b. The contractor shall be responsible for maintaining U.S. mailboxes with the project limits in such a manner that the public may receive continued mail service. Payment will be considered included in the price bid for the various bid items.
 - c. All trees that do not directly interfere with the proposed construction shall be spared as directed by the engineer. Care and discretion shall be used to insure that all trees not to be removed shall not be harmed.
 - d. One-call note.
 - e. Emergency access at all times.
 - f. Environmental protection of project site and surrounding area.
 - g. Local public access to residence or business.

Typical Section

The typical sections of improvement should generally include, but not be limited to, the following information:

1. All dimensions including sidewalk, paving, right-of-way, temporary construction, side slopes, etc.
2. All materials with compaction density.
3. Stations for typical section.
4. A typical section shall be provided for any section greater than 100' that deviates from the previous typical section or where necessary.
5. Typical section shall identify the profile point as it corresponds to its location on the plan and profile sheets.

Plan and Profile Sheets

1. Show beginning and ending stations of project.
2. Show North arrow and proposed center line stationing
3. Provide transition from existing conditions to proposed project at beginning and end of project.
4. Dimension lengths for any tapers
5. Show proposed centerline and curb locations.
6. Show all proposed driveways and streets. Show proposed driveway and side street widths. Provide construction notes for all driveway and side streets including size, location, material, etc.
7. Show proposed cross drains and provide construction notes for each. Provide material (class of RCP), type of bedding, grade, elevations, etc.
8. Show all drop inlets and storm drainpipe locations. Show picture of drop inlets and storm drains in profile. Provide top, flow line, and invert elevations for all drop inlets in profile as well as pipe material, type of bedding, length, and slopes of storm drain pipes.
9. Provide in the profile the beginning and ending stations and elevations of all ditch grades.
10. Show placement of erosion control devices if separate sheet is not necessary.
11. Show all existing and proposed right-of-way.
12. Provide complete curve data. Include superelevation rates and transition lengths with curve data. Provide station limits detailing beginning, end and maximums for superelevation in profile.
13. Provide existing profile. Provide proposed grade line in profile along with lengths of vertical curve.
14. Show limits of floodplain.
15. Show locations of wheelchair ramps and note type.
16. Property owner name and address for each parcel.

17. Horizontal and vertical control shall be shown on each sheet. Construction benchmarks shall be set at a maximum of 500 foot intervals.
18. All street names.
19. Match lines and associated stations shall be shown where streets overlap.
20. Utility locations with note that contractor shall make one-call and verify locations.
21. All existing and new improvements and removal items not mentioned previously shall be clearly identified.

Cross Sections

1. Cross sections should generally include, but not be limited to, the following information:
2. ROW and TCE locations.
3. Beginning and end stations of project and transitions.
4. Existing and proposed centerline elevations on sections using profile grade.
5. Side slopes and cross slopes of all roadways, walks, shoulders, driveways and at any other location where necessary.
6. Cross drain culverts with flow line elevations with construction notes that include pipe material and type of bedding.
7. Drop inlets and storm drain with flow line elevations.
8. Area and volume of earthwork for each station.

Traffic Control Plan

1. A traffic control plan should be developed for each project. The details of the traffic control plan should be commensurate with the complexity of the project.
2. Traffic control plans shall show placement of advanced warning signage and devices.
3. Plan should have notes showing each phase of construction and associated traffic control devices.
4. Centerline stationing of street shall be the same as plan and profile sheets
5. North arrow and scale.

Pavement Marking Plan

1. Plan to scale with North arrow.
2. Plan shall be dimensioned showing proposed striping, including stationing, type, size and color of stripe.
3. Removal of existing striping shall be shown where required.
4. The following note shall be on the striping plan:
 “Contractor shall spot mark for striping layout with a non-permanent material and obtain approval from City of Russellville – Public Works prior to permanent installation.”
5. The following table shall be used for selecting type of permanent pavement makings unless otherwise directed by the City of Russellville:

ADT > 2000	Asphalt	Concrete
Center	Thermo	Contrast Tape
Skip	Thermo	Contrast Tape
Edge	Thermo	Thermo
Misc.	Thermo	Paint/Thermo

ADT < 2000	Asphalt	Concrete
Center	Paint	Contrast Tape
Skip	Paint	Contrast Tape
Edge	Paint	Paint
Misc.	Paint	Paint

Layout Sheet

1. All horizontal and vertical control identified.
2. All PI points and delta angles.
3. Provide bearings and distance along centerline construction.
4. List city control point information used to set project controls.

Design Checklist

Job # _____

- _____ 1. ADA ramps provided, truncated domes installed.
- _____ 2. No inlets in radius
- _____ 3. Hydraulics
- _____ 4. No utility conflicts
- _____ 5. Quantities correct
- _____ 6. Pay items correct
- _____ 7. Survey control sheets included
- _____ 8. Traffic control plan included
- _____ 9. Sequence of construction included
- _____ 10. Pavement marking removal included
- _____ 11. Any items paid at plan quantity
- _____ 12. Pipe materials and bedding specified
- _____ 13. P.E. stamp (signed and dated)

Design Engineer _____ Date _____