

PROCEDURE FOR
PUBLIC IMPROVEMENT PROJECT PLAN SUBMITTAL

All developers and engineering consultants submitting plans for public improvement projects to the City for review are required to follow the procedures outlined in the following. No public improvement projects may be constructed in the City of Liberty without the prior approval of the office of the City Engineer.

1. Two (2) complete sets of prints, one electronic set (PDF version) and one reduced-size (11"x17") hardcopy set, of the project plans shall be submitted to the office of the City Engineer for review.
2. Upon receipt by the City, the checkprints will be date stamped and assigned a project number.
3. The normal time for review shall be 10 working days. In the case of abnormally large sets of prints (greater than 20 sheets) or of extremely complicated drawings, a longer time may be required for review.
4. The checkprints will be routed through appropriate City departments and/or divisions to obtain a complete review of all facilities which may be affected by the proposed construction. In each review, comments and necessary revisions will be noted on the checkprints.
5. Subsequent to the review of the plans, the consultant or his representative shall be notified that the submittal is ready for return.
6. The consultant will be required to make all necessary corrections or revisions as noted on the checkprints and communicated by the City Engineer. Upon completion of the revisions and/or corrections the plans will again be submitted to the City Engineer's office for further review. Revised sheets submitted shall contain a revision block with identifying notations and date of revisions. All previous checkprints must accompany each re-submittal. If the checkprints are not submitted with the revised drawings, the plans shall be returned to the consultant without action until such time as the checkprints are included with the submittal.
7. In conjunction with submittal of final plans, all permits and/or applications for permits shall be submitted to the appropriate agency for approval prior to final approval of the plans by the City Engineer (i.e., State Highway Department, Department of Natural Resources, etc.).
8. The length of time for final plan approval will normally be within 5 working days. Upon notification of final approval of the plans by the City Engineer, the number of sets of plans as specified in the appropriate section of the Design Criteria Manual shall be submitted for signing and distribution.
9. An original title sheet shall accompany the submittal of plans for final approval by the City Engineer. The City Engineer shall sign and date the cover sheet

serving as the City's approval. This original title sheet shall be returned to the consultant and shall be utilized for all further cover sheets in bid documents sent out for proposals.

10. Public improvement plans and engineering reports are approved initially for one (1) year after the date noted on the returned cover sheet. After one (1) year, the plans or report shall become null and void and must be re-submitted prior to approval of construction of that project. Such plans and/or reports shall be re-submitted to the office of the City Engineer in accordance with the foregoing outlined procedures and requirements.
11. The Design Engineer shall send one set of plans to each of the private and public utility companies having territorial jurisdiction in the area of the improvement upon notification that the drawings have been approved.

GENERAL PLAN REQUIREMENTS FOR
PUBLIC IMPROVEMENT PROJECTS

- A. GENERAL. All plans and reports submitted shall be prepared by, or under the direction of, a professional engineer, licensed in the State of Missouri, and shall be reviewed by the City for compliance with the minimum design requirements as established in the Design Criteria Manual for Public Improvement Projects of the City of Liberty and with all other applicable City codes and standards.

Attention is directed to the design engineer that whenever extraordinary or unusual problems are encountered in conjunction with a proposed project, additional information and analysis beyond the minimum requirements of these standards and criteria will be required.

The City of Liberty is not responsible for the accuracy and the adequacy of the design or dimensions and elevations as depicted on the plans (which shall be confirmed and correlated at the site of the work). The City of Liberty, through the approval of the plans and/or report, assumes no responsibility for the completeness and/or accuracy of the public improvement plan or report.

- B. REQUIRED NOTES GENERAL. The following general notes will be required as a minimum on all plan submittals for public improvement projects. These notes are not meant to be all-inclusive, and in certain situations the use of additional notes may be required by the Engineer.

1. Development plans are approved initially for one (1) year after which they automatically become void and must be updated and re-approved by the City Engineer before any construction will be permitted.
2. The City of Liberty plan review is only for general conformance with City of Liberty Design Criteria, Technical Specifications and Code of Ordinances. The City is not responsible for the accuracy and adequacy of the design, or dimensions and elevations which shall be confirmed and correlated at the job site. The City of Liberty through approval of this document assumes no responsibility other than that as stated above for the completeness and/or accuracy of this document.
3. The contractor shall have one (1) signed copy of the plans (approved by the City of Liberty) and one (1) copy of the appropriate Construction Standards and Specifications at the job site at all times.
4. Construction of the improvements shown or implied by this set of drawings shall not be initiated or any part thereof undertaken until the City Engineer is notified of such intent, and all required and properly executed bonds and permit fees are received and approved by the City Engineer.
5. The City of Liberty Technical Specifications, latest edition, shall govern construction of this project.

6. All existing utilities indicated on the drawings are according to the best information available to the Engineer; however, all utilities actually existing may not be shown. Utilities damaged through the negligence of the contractor to obtain the location of same shall be repaired or replaced by the contractor at his expense.
7. All backfill shall be tamped and at the option of the Engineer tested by a certified laboratory. Where footings will bear on compacted fill material, the placement and testing of compacted fill shall comply with the appropriate compacted fill section of the Soils and Foundation Chapter of the International Building Code version most recently adopted by the City of Liberty.
8. Contractor shall not be allowed to work on Saturdays, Sundays or Holiday without prior approval by the City Engineer.
9. All materials and workmanship associated with this project shall be subject to inspection by the City of Liberty. The City of Liberty reserves the right to accept or reject any such materials and workmanship that does not conform to the City of Liberty Standards and Technical Specifications.

The contractor shall notify the City of Liberty Engineering Services Department twenty-four (24) hours prior to the beginning of construction.

10. Relocation of any water line, sewer line or service line thereof required for the construction of this project shall be the responsibility of the contractor at his expense.

C. REQUIRED NOTES INDIVIDUAL

1. WATER:
 - a. The proposed water line improvements shown by this set of drawings have been designed to provide for the following fire flow requirements as determined by the City of Liberty: __GPM (Note to be placed on development drawings that contain areas zoned for higher densities than R-2).
 - b. Each water main shall be de-chlorinated by injecting a solution to safely neutralize chlorine to a concentration level of less than 10-ppm upon flushing chlorinated water mains.
2. SANITARY SEWER:
 - a. All sanitary stublines shall be laid on 2.00% or greater grade unless approved otherwise.
 - b. MBF denotes Minimum Basement Floor Elevation.
 - c. The Contractor shall install and properly maintain a mechanical plug at all connection points with existing lines until such time that the new line is tested and approved.
 - d. The contractor shall be responsible for video of installed sanitary mains

including distance logging between manholes for verification of stub locations. Video shall include all lines in these drawings. Digital video must be received and reviewed by the City Engineer prior to acceptance of the sanitary mains.

- e. Connections to existing manholes shall be core drilled and connected with a watertight Fernco gasket or approved equal. The gasket is to be installed according to the manufacturer's recommendations.

3. STREETS AND STORM DRAINAGE

- a. All sidewalks shown are for informational purposes only. Sidewalks along collectors and arterials will be constructed with this project and will be considered as part of Final Acceptance.
- b. All compactions shall be performed as set forth in the Technical Specifications. All testing laboratory expenses shall be paid for by the contractor.

4. EROSION CONTROL

- a. Erosion protection shall be in place prior to areas being disturbed. All disturbed areas shall be seeded, fertilized and mulched, or sodded, in accordance with the Standards and Specifications of the City of Liberty and good engineering practices. This shall be completed within fourteen (14) days after completing the work, in any area. If this is outside of the seeding period, silt barriers or other similarly effective measures shall remain until such time that the areas can be seeded and a stand of grass established.
- b. All erosion control measures, temporary or permanent, require maintenance to preserve their effectiveness. All erosion control devices shall be inspected immediately after each heavy rainstorm and at least daily during prolonged rainfall. Any required repairs should be made immediately. All costs associated with the repair work including related incidentals will be the contractor's responsibility.
- c. Site inspection reports shall be completed per the project Storm Water Pollution Prevention Plan (SWPPP) following regularly scheduled site inspections by the Developer (or representative) at least once per seven calendar days. A log of each inspection and a copy of the inspection report shall be kept on file by the Developer and be made available to City project inspectors upon request.

- D. APPROVAL BLOCK. A signature block shall be required on the cover sheet of all plans and reports submitted for review and approval. All plans require the signature of the City Engineer and the date of such signing for formal approval by the City.

The general form of the approval block shall be as follows:

APPROVED

City Engineer

Date

APPROVED FOR ONE YEAR FROM THIS DATE

Public Water and Sanitary Sewer improvement plans shall include the following addition to the approval block:

REVIEWED

Director of Utilities

Date

APPROVED FOR ONE YEAR FROM THIS DATE

- E. PRIVATE IMPROVEMENTS. Private improvements, if any, shown on public improvement plans, shall be clearly defined and marked as such. These improvements will not be maintained by the City of Liberty and, as such, an appropriate note shall be included on the drawings.

REQUIREMENTS FOR
PUBLIC IMPROVEMENT PROJECT PLAN PREPARATION

- A. INTRODUCTION. The following criteria is being established to provide a uniform system of plan preparation that will aid the Engineer in preparing plans for work within the City of Liberty. It is not intended that the criteria be an iron-clad set of rules that would restrict the Engineer from utilizing imaginative design; however, all items as described below shall be shown on the plans in some manner.
- B. GENERAL. All plans and specification for public improvement construction within either publicly-financed or privately-financed developments shall be prepared by a professional engineer licensed in the State of Missouri and submitted to the office of the City Engineer for review. Subsequent to the review, the engineer will be notified of the approval of the plans as submitted, or of any necessary changes. (Refer to the section "Public Improvement Project Plan Submittal" for plan review procedures.)

In addition, one set of approved plans shall be sent to each of the utility companies providing service in the proposed construction area.

The suggested plan sheet size is 24" x 36" with all sheets in a given set of plans being of the same size. Plan and profile views shall be drawn on double or single plan and profile sheets to minimum scales of one (1) inch equals fifty (50) feet horizontal by one (1) inch equals ten (10) feet vertical, unless otherwise approved by the City Engineer for special cases.

The plans shall consist of:

1. Title Sheet
2. General Layout Sheet
3. Grading Plan (Street and/or storm drainage improvement plans only unless otherwise required by the City Engineer)
4. Erosion Control plans, including all required elevations.
5. Plan and Profile Sheets
6. Cross-Section Sheets (Street improvement plans only unless otherwise required by the City Engineer)
7. Standard and Special Detail Sheets

Each sheet should contain a sheet number, including the individual sheet number and the total number of sheets, the engineer's seal, revision block, proper project identification and date.

Each respective type of development project (i.e. sanitary sewer, streets, water mains, etc.) shall be submitted on a separate set of plans unless otherwise allowed by the City Engineer. Plans depicting the location and types of street name and regulatory signs shall be submitted with the street improvement drawings for review. All required signage is to be furnished and installed in connection with the improvement at the developer's expense.

When required by the City Engineer, plans depicting the location of street lights and all related appurtenances shall be submitted with the street improvement drawings for

review of the appropriate power company. Such review shall be for the purpose of verifying easement locations to be indicated on the final plat. Plans for street light installation shall conform to all applicable standards of the power company having jurisdiction over the work.

Unless otherwise directed by the City Engineer, storm sewer construction details should be incorporated into street construction drawings.

C. TITLE SHEET. The following items shall be included on the title sheet.

1. Name of project
2. City project number
3. Index of sheets included in plans
4. A location map adequately showing project location in relation to major streets (minimum scale of 1" = 2000')
5. General description of project area (by Township, Range, and Section)
6. A summary of plan quantities of principal items, such as:

X Pipe sizes and material, lengths, number of manholes, etc. (sanitary sewers).

X Length of curb and gutter, square yardage or tonnage of asphaltic concrete pavement, etc. (streets).

X Pipe sizes and material, lengths, number of inlets, etc. (storm sewers).

X Pipe sizes and material, lengths, number of valves, etc. (water lines)

Additionally, a separate column shall be provided for listing of "as-built" quantities once the project has been completed and accepted by the City.

7. The project control benchmark shall be identified as to location and elevation and be within one thousand (1000) feet of the boundary of the project; USGS datum. (Not required on Water Line Plans.)

8. Name, address and telephone number of the consulting engineer and owner/developer.

9. List containing name and telephone number of each utility company and public agency listed below;

Electric Power	Telephone
Cable television	Gas
Highway Department (Local Office)	Water and Sewer
City Engineering Department	

Missouri One-
Call

10. Approval block (see paragraph D of General Plan Requirements)

11. Project engineer's name and seal.

12. Revision schedule.

D. GENERAL LAYOUT SHEET. The following items shall be included on the general layout sheet for all improvement projects.

1. A legend of symbols and abbreviations shall be shown which shall apply to all sheets.
2. North arrow and graphic scale. Scale of the general layout map shall be one(1) inch equals one hundred (100) feet, unless otherwise approved.
3. Layout shall include names of subdivision, block designation, if any, lot designation, or proposed block and lots, all street names, elevation of all lot corners, and an accurate tie to at least one quarter section corner. An unplatted tract shall have an accurate tie to at least one (1) quarter section corner.
4. Boundary line of project area.
5. A list of general notes to the contractor that include at least those notes indicated in the "Procedure For Public Improvement Project Plan Submittal" section of this manual.

In addition, the following items shall be included on the general layout sheet for the particular type of improvement stated below.

Streets

1. Location of all existing and proposed streets and roadways within and adjacent to the project area (list City project).
2. Location of all existing and proposed drainage system improvements (list City project name and number).

Storm Drainage

1. Drainage calculation summary table containing the following information.
 - Pipe size and slope
 - Pipe capacity
 - Velocity (design and at capacity)
 - Time of concentration
 - Runoff coefficient
 - "K" factor (for antecedent precipitation)
 - Design storm (return frequency)
 - Incremental tributary acreage
 - Accumulative acreage
 - Rainfall intensity
 - Rainfall runoff

Sanitary Sewer and Water Lines

1. Location of all existing (water or sewer) lines properly designated within or adjacent to the project area (list City project name and number).
2. Connection point or points to existing facilities (tied to a known point on existing facility) and the type of connection to be utilized.
3. Location of all proposed (water or sewer) lines and appurtenances with designation and sheet number on which they appear in plan and profile.
4. All lots located adjacent to drainage ways, channels or overflow channels shall include the lowest basement opening (LBO) for the lot calculated as one (1) foot above the 100-year flood plain elevation or 100-year storm elevation..
5. Sanitary service line summary table containing station, length, size, flowline elevation at the main, and MBF elevation for each service line. The table values shall be corrected in the As-Built plans as necessary reflecting verified post-construction elevations and locations.

Erosion Control

1. Location and type of all devices to be used for erosion control protection within or adjacent to the project area.
2. Show phasing (if any) of the location and type of erosion control protection as work is to progress and structures and facilities are added.

E. SITE GRADING PLAN. The following items shall be included on the general layout sheet for all street and/or drainage improvement projects.

1. Property lines and elevation of lot corners identified as to existing or proposed lot and block number.
2. Elevation and location of nearest bench mark (U.S.G.S. datum)
3. One-hundred year flood plain line.
4. Existing and final grading contours drawn at intervals not to exceed two (2) feet. Intervals of less than two (2) feet may be required by the City Engineer dependent on the character of the topography.

F. PLAN AND PROFILE SHEETS. The plan and profile shall be shown on a single (split) sheet. The following items shall be included on the plan and profile sheets for all improvement projects.

1. North arrows and graphic scale.
2. Elevation and location of all applicable bench marks (USGS datum).
3. Existing and proposed streets with names and widths.
4. Property lines properly identified as to existing or proposed lot, block and subdivision.
5. All existing and proposed utilities such as power, gas, oil, water, telephone, sewer, cable television, and other items shall be properly located in conformance with the best information available (from the records of the owner of such facilities or field location) and identified as to

- size, depth, material, and type of construction.
6. All existing and known proposed improvements within seventy-five (75) feet each side of centerline shall be shown at their proper locations. This shall include such existing items as paved streets, curbs and gutters, driveways, culverts, fire hydrants, utility poles, trees, shrubs, fences, walls, houses, and other such items, and shall be identified as to type, size, material, etc., as may be applicable.
 7. All existing easement and right-of-way information recorded with the county.
 8. All proposed easement and right-of-way information.
 9. Minor construction notes shall appear on the proper plan and profile sheets.
 10. Locations and widths of existing and proposed sidewalks.

In addition, the following items shall be included on the plan and profile sheets for the particular type of improvement stated below.

Streets

1. Station and critical elevation (flowline, invert of pipe, etc.) of all utility or drainage appurtenances, existing and proposed.
2. Flow direction arrows, particularly at intersections.
3. Match lines and consecutive sheet number, beginning with cover sheet.
4. Station and elevation of all curb returns (at 1/5 points); horizontal P.C.'s, P.T.'s, etc.; high or low point of all vertical curves; existing and proposed.
5. Curb return radii, existing and proposed.
6. Complete horizontal curve data. (R, L, Tan)
7. Centerline stations of all non-single family residential driveways and all intersecting roadways.
8. Basis of plan view and profile elevations shall be the same, i.e., flowline and flowline, top of curb and top of curb, etc.
9. Existing grade above centerline shown as a dashed line; proposed finish grades or established street grades shown as a solid line.
10. All design elevations shall be centerline, top of curb, lip of gutter, or flowline (preferred) for 6" vertical curb and gutter; or lip of gutter, or flowline (preferred) for combination curb, gutter and walk. The basis for as-built information shall be the same as the design (both flowline or both top of curb, etc.). All design elevations shall be based on adjacent abutting streets and shall show existing profile a minimum of 150' beyond the boundary of the project.
11. Stationing continuous for the entire portion of the roadway shown in the plan view (100 feet minimum stationing), with the centerline station of all non-single family residential driveways and all intersecting roadways clearly labeled.
12. All existing curbs, gutters, sidewalks, and pavement adjacent to the proposed design (minimum distance of 100 feet). Basis for existing grades shall be field verified elevations at intervals not to exceed fifty (50) feet. Previously approved designs are not an acceptable means of establishing existing grades.
13. Station and elevation of all P.C.R.'s, horizontal P.C.'s, P.C.C.'s, etc.;

- existing and proposed.
14. Station and elevation of all vertical grade breaks, existing (as-built) and proposed. (The use of grade breaks with proposed construction is discouraged.)
 15. Distance and grade or slope between grade breaks.
 16. Vertical curves, where 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). All vertical curves shall be symmetrical.
 17. Design speeds and stopping sight distances for all vertical and horizontal curves.
 18. Existing and proposed utilities. Field verified elevations and locations are required to be indicated on the plans for all utilities (existing or proposed) which will potentially affect the design and construction of the improvement.
 19. The location and designation of all signs (regulatory and street name) to be installed in connection with the project.

Storm Drainage

1. Detailed alignment of the storm sewer along with all appurtenances, sizes of lines, conduit material and wall thickness, and other details relating to the storm drainage system including inlet and junction box (manhole) stations and top and invert elevations.
2. All existing drainage facilities and structures such as, but not limited to, irrigation ditches, roadside ditches, improved or unimproved drainage channels, gutter flow directions, culverts, etc. All pertinent information such as size, shape, slope, location, etc. of such facilities shall be included to facilitate review and approval of the plans.
3. Roadway section and grade including type of curb and gutter and gutter flow directions.
4. Erosion control and energy dissipation devices.
5. Proposed outfall point for runoff from the project area along with required easement information.
6. Routing and cumulative flows at various critical points along the drainage system for both the standard design storm and major storm runoff.
7. Critical minimum finished floor elevations of all buildings adjacent to the project for protection from major storm runoff.
8. Distances between storm sewer system components and other existing or proposed utilities within the right-of-way or drainage easement.

Sanitary Sewers/Water Lines

1. Existing water distribution facilities including, but not limited to, pipe size and location, valves, fire hydrants, blowoffs, etc.
2. Existing sanitary sewer facilities including, but not limited to size, slope, location, hydraulic capacity, and all pertinent information regarding which trunk line will ultimately receive the wastewater collected by the proposed system.
3. Proposed piping with all appurtenances plainly labeled.
4. Existing or proposed easements and/or tracts through offsite areas.

5. Estimated average quantity of wastewater generated offsite that would be tributary to the proposed development, naturally as developed. The "Land Use Plan", which is a part of the Comprehensive Plan for the City of Liberty shall be the basis for determining the future use of offsite undeveloped land.
6. Proposed minimum, maximum, and average design flows at all junction manholes. (Manholes where two (2) or more branches have peak flows in excess of three (3) c.f.s.)
7. All design elevations shall be invert of pipe.
8. Stationing continuous for the entire length of the utility beginning at the downstream end of the project. Centerline of roadway shall be the basis for stationing whenever possible.
9. Existing utilities, particularly where crossed, with "as-built" elevations and stations.
10. Detailed alignment of the proposed sewer with the manhole designation, either by station and angle shown at each manhole or dimensioned ties to property lines at reasonably frequent control points to provide unquestionable locations of the sewer within street right-of-way or on private property.
11. The channel centerline of waterways within fifty (50) feet either side of centerline of sewer shall be shown.
12. All manholes shall be shown with manhole designation station and invert elevations. Drop manholes shall be designated as such. Invert elevations shown shall be the invert of the pipe in and out of the manhole. Proposed finish grade elevation of top of manhole shall be shown. Distance between manholes shall be shown, indicating whether measured to end of pipe or center of manhole as well as the gradient, pipe size, and type of material.
13. Results of all rock borings shall be shown at the proper locations.
14. Accurate elevations of the lowest floor surface shall be shown, and identified, for all existing and/or proposed structures for all building sites to be served by the proposed sewer system.
15. A uniform system of line and manhole designation shall be used subject to the approval of the City Engineer's office.
16. Station, length, and size of each stubline, along with MBF elevation.
17. Profile view shall show existing grade above centerline as a dashed line, proposed finish grades or established street grades by solid lines, and shall show the flow line of any drainage channel, either improved or unimproved, within fifty (50) feet either side of centerline. Each line shall be properly identified. The proposed sewer shall be shown as double solid lines properly showing the height of the pipe.
18. Alignment of the proposed water line dimensioned from curb lines or right-of-way lines.
19. Designation by station of all fire hydrants and line valves.

G. CROSS-SECTION SHEETS. The following items shall be included on the cross-section sheets.

1. 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. They shall indicate type of roadway(s),

profile grade design point (centerline, flowline, top curb, lip of gutter, etc.), roadway width, right-of-way, type of curb, gutter, and walk, pavement cross slope, etc.. Cross-sections to show existing grade lines a minimum of ten (10) feet beyond right-of-way lines.

2. Cross-sections shall be shown at all intersecting streets and driveways.
3. Channel cross-sections shall be shown for all drainage channel improvements.
4. Additional cross-sections shall be shown as required by the City Engineer to clearly describe the extent of the grading operations.

H. STANDARD AND SPECIAL DETAIL SHEETS. Detail sheets shall be included to show all details of appurtenances, materials, and construction whether or not covered by the Liberty, Missouri Standards. Details shall conform to the City of Liberty Standards and are to be drawn clearly and neatly with proper identifications, dimensions, materials, and other information necessary to insure the desired construction.

I. CONSTRUCTION RECORD DRAWINGS. Construction record (as-built) drawings shall be submitted to the City Engineer upon completion of the project and prior to final acceptance of the project by the City of Liberty. The design engineer shall provide the City with corrected construction record drawings in one (1) set of reproducible prints and also in PDF electronic format, AutoCAD version burned on a CD or as specified by the City Engineer, for all public improvement projects. The drawing shall be corrected to show the project as constructed and shall accurately and completely denote all changes made during the course of the work. Each sheet within the plans shall be clearly marked as "Conforming to Construction Records" and shall include the date of revision and certifications by the engineer. For sanitary sewer and water main improvements permitted by MDNR, a copy of the applicable statement of completion as submitted to MDNR shall be attached to the as-built submittal to the City.