



CITY OF KINGMAN

ENGINEERING DEPARTMENT

SEWER MAIN, PLAN CHECKLIST

310 N. 4th Street Kingman, AZ 86401 Ph: (928) 753-8122 Fax: (928) 753-8118

Project Name: _____ Project Number(s): _____

Reviewed By: _____ Phone: _____ Date: _____

Engineer: _____ Phone: _____

The purpose of this checklist is to offer comments on plan design for construction of sewer mains and to set the minimum submittal requirements for sewer plans. Source of sewer development code and design policy is the City of Kingman Utility Regulations, MAG Standard Specifications & Details, City of Kingman Addendums to MAG Standard Specifications & Details, Arizona Administrative Code and ADEQ Engineering Bulletins.

This checklist serves to minimize redline comments on the check prints and to maintain consistency among plan reviewers on plans for public sewer main construction in the public right-of-way or public water easements. Plan approval and issuing permits depends on compliance with the comments made on the check prints and this checklist. The engineer of record shall satisfy themselves of the completeness and accuracy of the design.

A completed checklist must be attached to the sewer plans when submitted for first review. The following Certification Statement must be signed by the Engineer of record certifying that all applicable requirements on this checklist have been met.

CERTIFICATION

I CERTIFY THAT THE REFERENCED PLANS COMPLY WITH ALL APPLICABLE CITY ORDINANCES AND STANDARDS, INCLUDING FEDERAL, STATE AND COUNTY REQUIREMENTS AND REGULATIONS. IN ADDITION, I CERTIFY THAT THIS CHECKLIST HAS BEEN COMPLETED ENSURING ALL ITEMS LISTED ARE PROPERLY ADDRESSED. I UNDERSTAND THAT IF I FAIL TO ADDRESS ALL APPLICABLE ITEMS IN THIS CHECKLIST, THE PLANS MAY BE IMMEDIATELY RETURNED TO ME WITHOUT ANY FORMAL REVIEW BEING PERFORMED.

Engineer's Name: _____

Engineer's Signature: _____ Date: _____

Discussion of redline comments on plans or this checklist should be directed to the plan reviewer listed above.

Engineer of record (**ENG**) must fill out all boxes in the first column as either (Addressed) or (Not Applicable).

Civil plan reviewer (**RVW**) shall check the second column as (Required) when requirements have not been properly addressed.

REQUIRED SUBMITTALS

ENG RVW

Plan sheets shall be 24" X 36"; submit five (4) sets of Sewer main plans, a signed Extension Agreement form, a sealed cost estimate, a signed and sealed Sewer Design Report by the engineer of record, and a completed and signed Sewer Main Checklist.

GENERAL REQUIREMENTS

Symbols shall be per City of Kingman Uniform Standard Details for Public Works Construction or MAG Standard Details for Public Works Construction as applicable.

Orientation of each plan sheet shall be shown by a north arrow and scale of drawing. (North arrow is to be up or to the right.)

A cover sheet is required on plans of two (2) sheets or more.

Each sheet shall be identified by sheet number, project name, and match lines.

All sheets shall have the Civil Engineer's Arizona registration seal with original signature and date prior to any plan submittal.

All plan sheets shall be sufficiently clear to allow legible prints to be reproduced from scanning. The size of lettering and symbols shall be 1/8 inch minimum. Shading or zip tape is not permitted. All proposed sewer mains, fittings, and services shall be shown with thick solid lines on the plans sheets.

If the existing sewer main that is to be used as a point of outfall is 15" or larger, contact the Engineering Department at (928) 753-8122 for further information prior to submitting to the City of Kingman Engineering Department for plan review.

COVER SHEET REQUIREMENTS

Engineering plan review project number (ENG#) in lower right corner.

Provide a project title block with name and address of project.

Provide the Owner/Developer's name, address, and telephone number.

Provide Engineer's name, address, and telephone number.

Provide a vicinity map with a north arrow oriented up or to the right.

Provide an index of plan sheets if more than one plan sheet is included.

Provide Signature Approval Block. (In lower right-hand corner)

**APPROVED FOR:
THE CITY OF KINGMAN**

CITY ENGINEER (OR DESIGINEE)

DATE

Provide an As-Built Certification Statement as follows:

**AS-BUILT CERTIFICATION:
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON
WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF
MY KNOWLEDGE AND BELIEF.**

**REGISTERED ENGINEER
REGISTRATION NUMBER**

DATE

Key map is required on plans with more than two (2) sheets. A key map is a small-scale map of the project site that provides a system overview and is used to index the plan sheets. The key map shall clearly show the following:

- All streets with names, alleys, easements, tracts, and parcels shall be identified or shown “unsubdivided.”
- Sewer mains with types and sizes, manholes, cleanouts, and any associated facilities. Direction of flow must be indicated. Manholes and cleanouts must be numbered consecutively (cleanouts are only allowed for a temporary condition when the next phase of a project extends the sewer and the cleanout is removed).
- Index of plan sheets indicated by single line with arrows showing beginning and end of each sheet.

Provide a Blue Stake notification decal.

Elevation datum and bench marks (city datum required). Please dial (928) 753-8139, to obtain city datum for the existing benchmark closest to the project site. Equations cannot be used.

Provide a material list for Right-Of-Way or easement work.

NOTES FOR SEWER PLANS:
(ALL notes to appear on cover sheet)

Engineering Department’s Civil/Site Inspection Staff shall be notified 48 hours before any construction begins telephone (928) 753-8195.

Any sewer main 15” in size or 12’ in depth, or greater, requires 5’ manholes.

All construction to conform to M.A.G. Specifications and Details and city of Kingman Supplement to M.A.G. Specifications and Details, unless modified on the plans.

Compaction shall comply with M.A.G. Section 601 & City of Kingman Supplements.

New sewer lines are to be built in Standard Utility Locations per City of Kingman Detail 120.

This set of plans has been initially reviewed by the City of Kingman. Such review is part of the process that developer(s)/contractor(s) must go through in order to obtain a Construction Permit. The results of such initial review shall not dictate the city of Kingman’s final determination as to the acceptability of the plans, nor shall it prevent the City of Kingman from requiring errors and omissions, as found on plans, be addressed by developer(s) /contractor(s), where such errors and omissions cause the plans to be in violation of or inadequate under applicable federal/state/county/local codes, ordinances, regulations, or other laws. This reviewed and stamped set of plans must be kept at the construction site at all times.

All lines must be tested for uniform slope by lamp lighting or remote camera before they are accepted as complete. Testing method must be approved in advance by the Engineering Department. The results shall be recorded and submitted to the engineer for review and approval.

Deflection testing for the entire length of PVC sewer lines shall be performed in accordance with MAG Standard Specification 615.11(c) and AAC R18-9-E301(D)(2)(i).

All manholes shall be tested using one of the following procedures:

A. Water Testing

In accordance with AAC R-18-9-E301(D)(3)(e), the entire manhole shall be filled with water and exfiltration shall be limited to 0.0034 of the total manhole volume in one hour.

B. Vacuum Testing

In accordance with AAC R-18-9-E301(D)(3)(e), manholes shall be tested in accordance with ASTM C-1244-02, “Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test Prior to Backfill”.

The contractor shall perform manhole testing after installation of the manhole cone to verify water tightness of the manhole from the top cone down. Upon satisfactory test results, the contractor shall install the manhole rings and spacers, complete with the joints and seal the manhole to a water tight condition.

The entire sewer line shall be tested for tightness for each pipe material in accordance with AAC R18-9-E301(D)(2)(j).

All work must comply with requirements of the Manual on Uniform Traffic Control Devices (MUTCD)

New manholes are to be built without steps.

A six (6) foot minimum horizontal separation from any underground utility shall be provided for sewer mains, and water mains. The minimum horizontal separation is measured from outside of sewer main, or water main to outside of underground utility.

A one (1) foot minimum vertical separation from any dry underground utility crossing shall be provided for sewer mains, sewer services, water mains, and water services. The minimum vertical separation is measured from outside of sewer main, sewer service, water main, or water service to outside of dry underground utility.

A two (2) foot minimum vertical separation shall be provided between any water main or storm drain crossing a sewer main. The minimum vertical separation is measured from outside of sewer main to outside of water main or storm drain main. See City of Kingman Standard Detail 404 for additional information and/or provisions for clearance.

Exceptions or deviations from the above minimum clearances must be approved and shown on the approved water and sewer plans. When utility conflicts are found during construction, all changes and revisions must be preceded by an approved plan revision.

Any and all more stringent requirements required by Federal, State, County, or Local codes or ordinances take precedence.

Any sewer lines that are installed with less than .004 ft/ft slope must be installed using a laser.

When DIP sewer pipe is used, an epoxy lining is required as approved by the City Engineer.

Concrete or asphalt damaged during the course of construction shall be removed and replaced in kind prior to final inspection.

Plan approval is valid for one year.

PLAN SHEETS REQUIREMENTS:

The plan sheets shall show the following to proper scale:

Provide a title block on all sheets.

All sheets shall be numbered with match lines (if required) and street names.

Orientation of each sewer line shall be shown by a north arrow (up or to the right) and a scale of the drawing.

New manholes built on existing lines require showing its station and its distance to the nearest upstream manhole. Note with field verified inverts, rim and slope.

All existing and proposed utilities shall be shown with size, material, and location in right-of-way in plan and profile.

Proposed finished grades at centerline of sewer shall be shown in profile with a solid line. Existing grades of ground surface at centerline of sewer shall be shown with a dashed line.

Provide 3'-0" minimum horizontal clearance between sewer services.

Provide 6'-0" minimum horizontal clearance between water and sewer lines, outside of pipe to outside of pipe.

Use City of Kingman "Standard Utility Locations".

Show encasements of water and sewer lines per City of Kingman Std. Detail 404-1 in plan and profile. Double protection is required when sewer crosses over water. Encasement is only allowed when specifically approved by the City Engineer.

Show total lineal feet of pipe between manholes (calculated from center of manhole to center of manhole) with calculated slope.

Review all slopes; minimum slope shall be 0.004 ft/ft.

Show all utilities in plan and profile. Where city utilities cross other utilities, show complete dimensional data measured from street monument lines.

Label all connections to existing sewer lines with method of connection specified.

Show all streets, alleys and easements. Streets shall be identified by name. Streets, alleys and easements shall be dimensioned at least once and at all breaks. Monument line of streets shall be shown. Show both sides of the streets.

Locate all existing and proposed utilities, structures, paving, and other topographic features affected by construction.

Existing and proposed sewer main size and location must be shown. Sewer main shall be shown in a "lighter weight" line to identify it as being information only and not part of this construction plan. Label as existing or proposed.

For waterline to be relocated because of sewer conflicts, show all valves involved in the shutdown. A plan may be required for such relocation.

Indicate the locations of the beginning(s) and the end(s) of the construction, and all manholes, cleanouts, and service connections. Their locations must be shown by stationing and dimensioning from appropriate monument lines, or in their absence, appropriate easement references. No dimensioning from points of curvature or tangency is acceptable. The drawings must clearly indicate the specific points of reference.

NOTE: In all cases where the pipe is constructed within or parallel, in close proximity, with the right-of-way, all stationing and dimensioning must be from the nearest appropriate monument line and monument line intersection.

A profile is required for all size of lines. In profile, vertical scale shall be 1" = 2' or 1" = 4'. Horizontal scale shall not be smaller than 1" = 40'. For major streets and cases of unusual topography or complex situations where more detail is necessary, then the scale shall be 1" = 20'.

Existing and proposed paving shall be shown. Shading is not allowed. Cross-hatching is acceptable.

Sewer taps are not to be under sidewalk ramps and driveways, if possible.

When replacing curb, gutter, and sidewalk, show, and label, existing and proposed concrete. Construct sidewalk ramps to accommodate access per ADA requirements. One half (1/2) sack slurry backfill is required.

Pavement replacement thickness and type are to be per City of Kingman Detail 200-1. Curb and gutter replacement shall be a minimum of one (1) full section, per M.A.G. Standard Detail 220. Sidewalk replacement shall be a minimum of one (1) full panel per City of Kingman Detail 230. At the discretion of the City of Kingman Engineering Inspector, tunneling under existing curb and gutter, in City of Kingman R.O.W., will be allowed. Tunneling under existing sidewalk will not be allowed in the City of Kingman R.O.W.

5' diameter manhole required with sewer lines 15" and larger and on sewer mains 12' in depth or greater.

Sewer taps shall be shown to each lot or parcel to be served. Services may be stationed from street intersection monuments, except on curved streets and in cul-de-sacs where the tap will be angled, therefore, the tap must be stationed on the main and dimensioned to the applicable property line.

Discussion of redline comments on plans or in this checklist should be directed to the plan reviewer.

PLANS FOR REVISION

All original plan approvals, signatures, and seals are to remain on the revised plans.

ENG RVW

All plans revised after the original approval shall be resubmitted for review and approval. The nature of the revisions must be called out on the cover sheet and on the sheet(s) which have been revised. The revision number itself shall consist of a numeral within a triangle next to each revision. Δ Changes on each plan sheet shall be highlighted with "clouding".

All revised sheets, including the cover sheet are to be re-sealed, signed and dated.

New approval signature block is required to be added to the cover sheet for approval of the revisions.

**APPROVED FOR:
THE CITY OF KINGMAN**

CITY ENGINEER OR DESIGNEE

DATE