

INITIAL PLAN REVIEW CHECKLIST*

(Typically for 25%, 30% OR 40% Design Submittal)

ACKNOWLEDGMENT

I ACKNOWLEDGE THAT ALL APPLICABLE SUBMITTAL DOCUMENTS AND CHECKLIST ITEMS HAVE BEEN INCLUDED AND ADDRESSED. THE SUBMITTAL MAY NOT BE ACCEPTED IF ITEMS ARE NOT INCLUDED.

Professional Engineer's Name: _____

Professional Engineer's Signature: _____ Date: _____

Please complete and return this checklist and the check prints with each submittal.

- * This checklist is not intended to be all inclusive but does provide many basic items that should typically be checked and evaluated at this stage of design plan development. Some items on this checklist may not be applicable to initial plan stage plans, and if so, those items shall be marked "N/A" for "Not Applicable" at this stage.

Please complete and return this checklist and the check prints with each submittal. Discussion of redline comments on plans or this checklist should be directed to the plan reviewer.

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

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

REQUIRED SUBMITTALS

ENG **RVW**

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Electronic plan submittal in PDF format. Both full size (22" X 34") and half size (11" X 17") plans |
| <input type="checkbox"/> | <input type="checkbox"/> | Hard copies as requested by Project Manager ___ full size (22" X 34") and ___ half size (11" X 17") |
| <input type="checkbox"/> | <input type="checkbox"/> | Draft reports and/or memorandums:
<input type="checkbox"/> <input type="checkbox"/> Geotechnical Report
<input type="checkbox"/> <input type="checkbox"/> Drainage Report/Memorandum
<input type="checkbox"/> <input type="checkbox"/> Traffic Study/Analysis
<input type="checkbox"/> <input type="checkbox"/> Project Assessment |
| <input type="checkbox"/> | <input type="checkbox"/> | Opinion of Probable Cost using standard City bid item numbers, description formats, and unit measurements |
| <input type="checkbox"/> | <input type="checkbox"/> | Initial Plan Review Checklist completed and signed by the Engineer |

ENG RVW

- Draft affected parcel list (identifying any potential/anticipated right-of-way or easements)
- If project disturbed area is greater than one acre, provide Storm Water Plan Review checklist.

COVER SHEET REQUIREMENTS

ENG RVW

- Placeholder box for the Consultant's professional engineer seal, placed in the upper right-hand corner
- The project number, project description, appropriate Quarter Section number(s) (or City-wide, if appropriate) and the percent submittal of the plan set, for the project area marked along the right margin inside the border line.
- The appropriate signature lines
 - Plans that do not include Water Services Department work are signed by the Deputy Street Transportation Director and the Assistant Street Transportation Director.
 - Plans that do include Water Services Department work are signed by the Deputy Street Transportation Director, Assistant Street Transportation Director, Water Services Department, and Maricopa County Environmental Services Department. These plans also include an as-built signature block as required by the Water Services Department.
 - If the project requires outside agency approval, include their approval signature line and the approval signature line for the City of Phoenix City Engineer.
 - For projects requiring MCESD signature, add signature block to cover sheet
- Provide a project vicinity map with north arrow
- Provide an index of all sheets in the plan set
- Provide the names of the current Mayor, City Manager, and City Council
- Identify a minimum of two City-recognized benchmarks
- Provided the year the project will bid, placed under the City logo
- Provide total disturbed area of the project
- Provide a Blue Stake notification decal
- Provide a project title block with name of project

ENG RVW

- Provide a project description
- Provide a key map if more than one plan sheet
- Provide the designer's name, address, and telephone number
- Provide the appropriate processing numbers including: Project Number(s), Fed-Aid Number, and ADOT TRACS Number
- For projects requiring MCESD signature, add signature block to cover sheet
- Provide an As-Built Certification Statement as follows (include on the plans):

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/Land Surveyor Registration Number Date

REQUIREMENTS OF THE INITIAL PLAN REVIEW (15%, 30% OR 40%)

ENG RVW

- North arrow (in proper orientation) and specified drawing scale is shown on each appropriate plan sheet
- All title blocks are completed with required project information.
- Key map has been provided, preferably shown on the cover sheet if space permits. Large or complex projects may require a separate Key Map sheet.
- Minimum consistent lettering size meets requirements for readability when plans are reduced by half (minimum 14-point at full scale)
- Fully turned deflection angles (expressed in degrees-minutes-seconds) are shown at all intersections
- All existing found survey monuments are shown on plans, with type of monument found and station location, and elevation called out
- All temporary benchmarks set by field survey are shown on plans, with proper symbol, station and offset location, and elevation
- Project survey information ties to, and refers to, at least two City of Phoenix recognized benchmarks
- Each plan sheet shows the nearest benchmark—either City-recognized benchmark or temporary benchmark set by field survey, whichever is closest to work shown on the sheet

ENG RVW

- Project benchmarks (existing or temporarily set) are no more than 1,000 feet apart
- All temporary benchmarks set by field survey are located in areas that will be out of the way of disturbance by ultimate planned project construction (such as, a chiseled "X" on top of a curb to remain)
- All horizontal survey is in accordance with NAD83 and all vertical datum is based on NGVD 1929
- Accurate centerline stationing is shown on all plan sheets, with "tick" marks at each even 50-foot and 100-foot station, and callouts for each 100-foot station
- All major topographical features within 30 feet of proposed right-of-way are shown on the plans, and corresponding topo notes with station and offset dimensions are shown. All offset dimensions are measured to street face side, except utility lines, manholes, and valves are measured to the center. Notes for overhead signs include overhang dimensions and vertical clearance dimensions above existing ground.
- All topographical feature symbols on plans match the symbols on the standard General Legend and Notes sheet
- The extents of partial building footprints within 30 feet of proposed right-of-way are shown in plan, and finished floor elevations of those buildings are shown and called out in the profile
- The extents of any existing Portland cement concrete pavement (on surface or underlay) are shown on the plans
- All existing manhole rim and invert elevations and water valve nut elevations are called out on the plans. Manholes and valves shall be labeled with the city valve or manhole numbers as shown on the City of Phoenix Quarter Section maps.
- All underground utility lines are shown on the plans and called out as to type and size, using symbols as shown on the General Legend and Notes sheet. Utility lines that are 12 inches in diameter or smaller are shown as a single line, and lines that are larger than 12 inches in diameter are shown as double lines, spaced apart to match the proper scale of the utility line.
- All existing utilities, existing or proposed curb and gutter, sidewalks and ultimate project right of way lines and easements (proposed or existing) are dimensioned in a neat, consistent, and organized manner on each plan sheet. All utilities shall be dimensioned from street monument lines.
- Geometric dimensions and alignment of proposed facility matches project scope requirements

ENG RVW

- All tapers and angle points are noted where they occur on plans by station, elevation, and dimensional offset
- Horizontal angle deflections in roadways greater than 1 degree generally use horizontal circular curves
- Where present, horizontal curve data information, sufficient to stake in the field, is shown on the plans
- Longitudinal grade of new storm drain or sewer line pipes meet requirements established in corresponding City of Phoenix Storm Water Policies and Standards Manual or Water Services Department Design Standards Manual for Water and Wastewater Systems.
- Longitudinal grade of roadway is at least 0.2000%, with an absolute minimum grade of 0.1500%. Maximum longitudinal grade is 6.0000%, unless otherwise approved by Project Manager.
- All longitudinal grade breaks are called out, with station, offset, and elevation
- Where roadway longitudinal grade breaks are greater than 1%, a vertical curve is provided
- Roadway pavement cross slopes generally range between 1.0% minimum and 3.0% maximum, with most cross slopes in the desirable 2.0% +/- range. General cross slopes are less than 1.5% have been avoided wherever possible, except where necessary through side street intersections.
- Changes in roadway cross slope passing through side street intersections generally do not change by more than 1.0% +/-
- Combinations of minimum longitudinal slope and minimum cross slope on roadways have been avoided to facilitate positive drainage
- Algebraic differences in longitudinal grades through intersections (intersection breakovers) are generally 2.5% or less, and do not exceed 3.0% maximum at existing, proposed or potentially signalized intersections
- Roadway cuts or fills have been reviewed carefully for impacts to utilities, drainage, and access to adjacent properties, as well as minimizing work beyond standard right of way limits where possible
- New roadway top of curb is generally set below elevation at right-of-way where possible, to avoid blocking private property drainage toward the street, and to prevent street drainage from flowing into private property
- Roadway grades are set such that maximum sump depths are at least 0.1 foot below top of curb elevation (0.4 maximum depth for typical vertical curb), and set such that drainage in excess of this maximum sump depth will break over the pavement grade and continue flowing in its historical direction

ENG **RVW**

- When storm drain systems are existing or proposed with the project, existing side street valley gutters and aprons have been eliminated, and side streets crowned and storm drain catch basins added (preferably in sump for maximum drainage efficiency), wherever possible or practical
- New roadway crown grades are generally set no higher than existing, and at least 0.5 foot lower than upstream finished floor elevations whenever possible to avoid blocking drainage and potentially increasing localized ponding or flooding on private property
- All roadway profile lines are shown and labeled — typically monument line and/or construction centerline or crown line; left and right curb and gutter or edge of pavement; and tick marks shown at proper elevation along the ultimate right of way line at least every 50 feet, and where significant grade changes occur
- Stations, elevations, and sheet number references are shown on the plans at all match lines and at the beginning and end points where the project matches existing
- Spot station, offset, and elevations are shown in plan view for all critical points on roadway median islands (typically at median nose, points of curvature or reverse curvature, points of tangency and grade breaks), rather than depicting profile lines in the profile view
- Intersecting side street and project match end point spot elevations for at least 100 feet beyond curb returns or proposed match points are shown in plan view, along with appropriate drainage arrows to indicate direction of flow adjacent to project.
- Intersection grading worksheets have been provided for all major, collector, and any other potentially-signalized intersections
- For storm drainage projects, the Storm Drain Design Checklist in the City of Phoenix Storm Water Policies and Standards Manual has also been checked for appropriate items at this initial stage of development
- For water or sewer line projects, all required standards as stated in the City of Phoenix Water Services Department Design Standards Manual for Water and Wastewater Systems have been met, and an initial water or sewer plan checklist has been completed and included with this plan submittal. (Note: Some existing topography and elevation data requirements listed on this checklist may be reduced to meet the needs of the specific water or sewer project).
- Asphalt restoration is required for any street cut. Refer to Street Pavement Cut Policy (TRT 00164 and Ordinance G-6308). Indicate restoration limits on plan.

PLAN SHEET REQUIREMENTS

ENG RVW

- Existing contours or spot elevations, drainage arrows, and grade breaks to indicate drainage patterns

- Show existing and proposed top of curb, gutter, sidewalk, and pavement elevations

- Show all existing and proposed easements, dedications, right-of-way, streets, and alleys with dimensions and offsets. 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.

- All abutting lots shall be identified by address and APN number

- All proposed and existing structures, paving, and other topographic features affected by construction shall be shown

- If the proposed fire hydrant is adjacent to a driveway maintain five foot (5') minimum distance from the top of wing to the hydrant location

WATER REQUIREMENTS

ENG RVW

- Call out M.A.G. Standard Detail 340 for tapping sleeve installation

- When re-locating or abandoning a fire hydrant, add a note to the plan to remove the tap from the main per city of Phoenix Detail P1344

- Call out City of Phoenix Supplement to M.A.G. Uniform Standard Specifications P1360 for the fire hydrant assembly

- All valves shall be installed using the City of Phoenix Supplement to M.A.G. Uniform Standard Specifications P1391 Type 'A'

- Show all valves in the area of construction and their assigned numbers as shown on the quarter section map. Include all water valves necessary to isolate the water main in the event of an emergency shut down.

- Fire hydrant tap is to be called out as follows:
Install a/an _____" X _____" tapping sleeve and valve, box and cover.

Abbreviation is acceptable: TS & V, B & C. Specify type of valve box to be used. An example: 12" X 8" TS & V, B & C per M.A.G. Detail 340 and city of Phoenix Supplement Detail P1391.

When the tap size is the same as the size of main to be tapped conform to MAG Specifications Subsection 630.4.2(A) (1).

TRAFFIC SIGNAL REQUIREMENTS

ENG RVW

- All underground utilities shall be shown on foundation sheet
- All overhead utilities shall be shown on equipment sheet
- For clarity, utility line work shall not be shown on striping and signing sheets
- All proposed lane widths shall be dimensioned on striping sheet. Where existing is tying into proposed, the existing lane widths shall also be dimensioned.
- Show existing lanes 100-feet past proposed improvements
- Relationship between curb ramps, 4-foot by 4-foot landing areas, crosswalks, pedestrian access route, APS push buttons, and poles shall be established and meet ADA requirements at each submittal
- Orientation of the traffic signal plans shall be north up
- File number to be assigned by Traffic Services and included on the plans
- For any projects with a file number (Traffic Signals, paint and sign, etc.), sheet numbering shall be for each intersection and shown on the bottom of the sheets for each file number (i.e. 1 of 5). Page numbers for the entire plan sheet shall be indicated on plan sheet (i.e. 201 of 250).
- Elevation view shall be shown for HAWK and CRFB showing pole and signing.

STREETLIGHTING REQUIREMENTS

ENG RVW

- Underground/Overhead details need to be applicable for power source
- Provide northing/easting for all streetlight locations
- Determination of power easement is evaluated and shown on plan if required

CURB RAMP REQUIREMENTS

ENG RVW

- There shall be a 4-foot by 4-foot level landing at top and bottom of all ramps. The bottom of ramps within the street may not have a 4-foot by 4-foot level landing, but still need to have a 4-foot by 4-foot turning space wholly contained within the painted crosswalk.
- Maintain a continuous 4-foot wide Pedestrian Access Route (PAR) throughout the facility

ENG RVW

- If using a combination ramp (i.e. MAG 236-4), show enough information to clearly indicate slopes, landings, PAR are adequately designed.

ACCESSIBLE PEDESTRIAN SIGNALS (APS) BUTTONS REQUIREMENTS

ENG RVW

- Placement shall be 10-feet minimum from nearest adjacent APS button
- Placement shall be 10-feet maximum from face of curb
- APS button shall have 4-foot by 4-foot level landing – centered on push button. Note: the level landing for push buttons and ramps can overlap.
- Level landing: Shall be designed to 1.5% cross slope (2% max)
- Design ramp slope with construction tolerances in mind. Do not design to max slope, unless required.
- Level landing in roadway shall be incorporated into crosswalk