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(Revised October 2015)

GENERAL INFORMATION

The following general information and general notes must be placed on the detail sheet or cover sheet of each set of construction plans. Additionally, the notes for grading and drainage, landscape and irrigation, paving, striping and signage, sewer and water must be placed on the detail sheet or cover sheet of each set of construction plans, as applicable.

No person, Corporation, Contractor, or Utility Company shall work within the right-of-way, road, street, alley or easement granted for public use without securing an off-site/on-site permit from the Engineering Department.

Off-site/On-site permits are required for the following:

Grading/drainage, erosion control, flood control structures, grading, hauling material in excess of 500 cubic yards, oiling, graveling or any surfacing of any street or alley, water system, sewer system, storm drain system, trenching, gas or any other types of pipe lines, drywells, paving, curb, gutter, sidewalks, driveways (concrete), flood irrigation, landscape/irrigation, traffic signals, striping and signage, bank stabilization and channelization, street lights, well abandonment, utility lines such as electric, telephones, television, communications and other franchised facilities.

Construction work hours within the City of El Mirage shall comply with the following:

	Construction Type	May 1 – September 30	October 1 – April 30
A	All Construction Work	6:00 a.m. to 7:00 p.m.	7:00 a.m. to 7:00 p.m.

No interference with traffic flow on arterial streets shall be permitted during the hours of 6:00 a.m. to 8:30 a.m. or from 4:00 p.m. to 7:00 p.m. unless prior authorization is obtained in writing by the City of El Mirage City Engineer or their designee.

Prior to issuance of Off-site/On-site permits, the Contractor/Developer must provide the City of El Mirage with the specific information and payment of fees required. Any person, Corporation, Contractor, or Utility Company working in the right-of-way, road, street, alley or easement granted for public use without securing a permit is subject to a fine and/or a cease work order.

GENERAL PERMIT APPLICATION PROCESS

The developer/contractor/applicant must provide the following information to the City of El Mirage prior to the issuance of an off-site permit:

- A. Pay all fees listed on the Plan Approval Letter.
- B. Show proof of Council approval and recordation of final plat or approval of site plan or minor land division.
- C. Submit an executed copy of the Agreement to Install Improvements, Install-A or Install-B.
- D. Prior to recordation of the final plat, the developer must provide a financial guarantee to assure completion of the improvements in one or more of the following; Performance bond, escrow account, letter of credit, or the alternate method of assurance. Pay all fees as identified on the construction plan approval letter. Such fees include, but are not limited to: repayment zone charges, improvement district assessment modification charges, fog seal application, water and sewer buy-in fees, processing alternate method of assurance, payment to incorporate plans into City's CAD system, Street Light Improvement District (SLID), Maintenance Improvement District (MID), and Fire Improvement District (FID) fees, plan review fees, street addressing fees, traffic signal participation, striping, street sign and street light installation, and all city expansion fees.
- E. Provide three (3) sets of approved construction plans to the City of El Mirage Engineering Department.
- F. Submit all Maintenance Improvement District (MID) and Street Light Improvement District (SLID) documentation listed in the MID and SLID Policies.
- G. Submit three (3) fully executed copies of the APS Street Light Warranty Agreement if streetlights are installed by a contractor other than APS (applicable to developments located within the Arizona Public Service area). All streetlights installed by the developer/Contractor must comply with the APS Standards and Approved Manufacturers for Street Lights.
- H. Process any required improvement district modifications.
- I. Provide a CD containing a CAD drawing, compatible with City software, of the final plat base map with legal description.
- J. All Contractors, Sub-Contractors, and Developers must provide a Certificate of Insurance naming the City as additionally insured. This includes Liability, Auto, and Worker's

Compensation.

- K. All Contractors/Developers must provide a copy of a signed contract showing quantities of materials and unit prices. The permit for water, sewer, paving, concrete, trenching, gas or other pipelines, drywells, flood irrigation, landscape/irrigation, traffic signals, street lights, striping, bank stabilization and channelization, storm drain facilities, well abandonment and utility lines, is 3.5% of the contract price.

All Contractors/Developers must provide a copy of the signed contract showing gross cubic yards (cut & fill) for the grading and drainage. The permit fee will be based upon calculated total cubic yards. A minimum of \$50.00 will be charged for custom homes and \$100.00 for commercial development.

- L. Traffic control shall conform to the latest editions of the City of Phoenix Traffic Barricade Manual, MUTCD, and the City of El Mirage Infrastructure Development Guidelines. The Contractor shall submit a traffic control plan per the Phoenix Traffic Barricade Manual. Barricades must be continually maintained throughout the duration of the project. If any part of the traffic control plan falls within 300' of a signalized intersection, an off-duty officer will be required for traffic control. A Traffic Control Plan (TCP) shall be submitted to the Engineering Department and accepted a minimum of 48-hours prior to construction. An accepted TCP will be stamped and a copy returned to the Contractor. A copy of the accepted plan must remain on the job site at all times.

- M. All Contractors, Sub-Contractors, and Developers must obtain a business license from the Finance Department in order to operate within the City of El Mirage. You must show receipt upon obtaining a permit or provide a business license number.

- N. The Developer/Contractor must provide 24-hour emergency telephone and cellular phone numbers

FINAL ACCEPTANCE OF PROJECTS

Prior to the final acceptance of the on-site/off-site improvements, the City requires the submission of the following:

- A. Provide as-built drawings certified by a registered land surveyor or professional civil engineer registered in the State of Arizona for: grading and drainage, including certificates of pad or finished floor elevations, drywell rim elevations, retention/detention basin bottom elevations, and flood zone determinations, water, sewer, paving, curb, gutter, sidewalk, driveways, storm drain, landscape and landscape irrigation, street lights, bank stabilization and channelization, traffic signals, striping and signage, and flood irrigation.
- B. All materials testing results, Bac-T test results for waterlines, and video tapes for sewer lines.
- C. Copies of drywell drilling logs, Arizona Department of Environmental Quality (ADEQ) Certification Registration and drywell percolation test results.
- D. Provide CAD drawing, compatible with City software, of the water and sewer systems base maps with as-built location of mains and services.
- E. All existing perimeter/adjacent damaged concrete (sidewalk, curb, gutter, apron, or valley gutter) shall be replaced. All existing perimeter/adjacent concrete damaged during construction shall be replaced.
- F. Additional test results, certifications, registrations and reports as required in the As-Built Requirements Section of the Infrastructure Guide.

GENERAL NOTES

1. All construction shall conform to the latest Maricopa Association of Governments, Uniform Standard Specifications and Details for Public Works Construction (MAG). City of El Mirage General Notes and Details, City of Peoria Infrastructure Guide and Standard Details will continue to apply where such details were not adopted or included by MAG. Alternate details and specifications may be submitted for review and acceptance by the Engineering Department. If accepted, alternate details will be shown as part of the approved plans/detail sheets.
2. This set of plans has been reviewed for compliance with City requirements prior to issuance of construction permits. However, such review shall not prevent the City Engineer from requiring correction of errors or omissions in plans found to be in violation of any law or ordinance.
3. Approval by the City Engineer means for general layout in right-of-way only. This approval of construction plans is valid for a period of nine (9) months. Construction permits shall be obtained within this period or the plans shall be resubmitted for approval. Work shall also be continuously pursued in order to maintain a valid plan approval and permit. Approval is only for work within the jurisdiction of the City of El Mirage.
4. The City Engineer does not warrant any quantities shown on these plans.
5. Off-site Permits for any work within the right-of-way and easements, and any grading and drainage, whether on-site or off-site, are required prior to commencing work. The building permit shall not be construed in any way as permission to commence work covered by an Off-Site Permit. It shall be the responsibility of the Contractor/Developer to understand the work covered by various permits.
6. The Engineering Department, Inspection Section, shall be notified twenty-four (24) hours prior to any construction work by telephone at (623) 876-2977. Any work concealed without inspection shall be subject to removal and replacement at the Contractor's/Developer's expense.
7. An approved set of plans must be available on the job site at all times. The Contractor's/Developer's representative (capable of communicating with the City's representatives) shall be on the job at all times the work is being pursued.

8. The Contractor/Developer is responsible to provide emergency telephone numbers to the City of El Mirage at time of issuance of Off-site/On-site permits and have personnel available 24-hours a day to respond to emergencies. If the City is required to respond and make emergency repairs on behalf of the Contractor/Developer, the Contractor/Developer is responsible to reimburse the City for all costs incurred.
9. It shall be the responsibility of the permittee to arrange for the relocation and relocation costs of all utilities, and submit a utility relocation schedule prior to the issuance of a construction permit.
10. All underground tanks require a permit from the Fire Department prior to removal.
11. The procedures and methods used to sample, test materials, and report test results will be determined by the Engineering Department. For all phases of construction, the type, scheduling, frequency and location of all materials testing and sampling shall be determined by the Engineering Department. All test results shall be reported directly (in writing) to the Engineering Department. For each phase of construction, test results (in writing) must be received from the testing laboratory, prior to the start of the next phase of construction. Rock corrections are required for each in-place density test. Nuclear/Sand cone correlations are required with one (1) sand cone test for every ten (10) nuclear density tests taken on-site. See City of El Mirage Materials Testing Guidelines for more information.
12. The excavating Contractor must give location for wasting excess excavation and a letter from the owner giving permission for dumping prior to starting on-site construction. Developer's engineer shall submit certification of construction building pad elevations prior to City acceptance of project.
13. It is the Contractor's sole responsibility to verify the presence and location of all existing overhead and/or underground utilities that may interfere with this construction, whether or not said utilities are shown on the construction plans for this project and to adequately protect and maintain any such utilities.
14. The Engineering Department does not assume any liability for errors of line and/or grade on any staking which has been disturbed in any way, nor does the engineer assume any liability for errors of line and/or grade on any staking that has been in place for a period of twenty-four (24) hours or more without the commencement of the construction for which it was set.
15. The Contractor shall contact Blue Stake (602) 263-1100 prior to construction. It is the responsibility of the Contractor to maintain current Blue Stake markings throughout construction.

16. The Contractor shall contact the Customer Service Department at 623-876-2966 or 623-876-2967 to obtain a fire hydrant meter for construction and to schedule the relocation of hydrant meters. Contractors shall not relocate hydrant meters themselves. The Contractor shall install a support and certified backflow preventor and submit the certification to the City Inspector prior to use.
17. All Contractors/developers are responsible to construct stabilized construction entrances in order to reduce or eliminate the tracking of sediment onto public rights-of-ways or streets. Gravel track-out pads shall meet current Maricopa County standards. The contractor/developer shall immediately remove any sediment tracked onto public rights-of-ways or streets.
18. All drainage protective devices such as swales, interception ditches, pipes, protective berms, concrete channels or other measures designed to protect improvements, whether existing or proposed, from runoff or damage from storm water, must be constructed prior to the construction of any improvements.
19. Traffic control shall conform to the latest editions of the City of Phoenix Traffic Barricade Manual, MUTCD, and the City of Peoria Infrastructure Development Guidelines. The Contractor shall submit a traffic control plan per the Phoenix Traffic Barricade Manual. Barricades must be continually maintained throughout the duration of the project. If any part of the traffic control plan falls within 300' of a signalized intersection, an off-duty officer will be required for traffic control. A Traffic Control Plan (TCP) shall be submitted to the Engineering Department and accepted a minimum of 48-hours prior to construction. An accepted TCP will be stamped and a copy returned to the Contractor. A copy of the accepted plan must remain on the job site at all times.
20. Any and all obstructions within the rights-of-way and easements shall be removed before any construction is commenced.
21. All Contractors/Developers are responsible to obtain a National Pollution Discharge Elimination System (NPDES) Permit in accordance with Federal and State Regulations, including Notice of Intent (NOI), Notice of Termination (NOT), and Storm Water Pollution Prevention Plan (SWPPP). A copy of the NOI and SWPPP shall be available on the job site at all times.
22. All contractors/developers are responsible to obtain the necessary 401 and 404 permits. A copy of the permit shall be submitted to the City prior to approval of the Grading and Drainage plans.
23. It is the responsibility of the Contractor/Developer to obtain any and all other permits and meet any requirements set forth by other agencies or utilities, which have jurisdiction, at the Contractor's/Developer's expense, including OSHA. Contractor shall meet OSHA standards for trench safety.

24. As a reminder, Maricopa County Environmental Services Department has asked the City to inform all Contractors/Developers working in the City of El Mirage of the following:

Per the Maricopa County Air Pollution Control Rules and Regulations on Earth Moving Equipment Permits, no person shall cause or permit the use of any power or mechanical equipment for commercial purposes to clear, excavate or level land, including but not limited to blasting, demolition, road and street construction, swimming pool excavating, trenching, vegetation removal, or engage in any other earth moving activities without first obtaining a permit from the Maricopa County Environmental Services Department. The property owner, lessee, developer or Prime Contractor will be responsible for acquiring the permit.

Also as a reminder, if the above referenced development has work that needs to be done in the Maricopa County rights-of-way, please obtain all permits from the Maricopa County Department of Transportation. The Off-site permits issued by the City of El Mirage do not cover the Maricopa County rights-of-way.

25. Fire access to be maintained during all phases of construction as required by the City of El Mirage Fire Department.
26. It is the responsibility of the Contractor/Developer to schedule water and sewer testing with the City Inspector per the water and sewer guidelines. No testing shall be accepted by the inspector until all underground utilities have been installed.
27. Any existing landscaping and/or irrigation system disturbed by construction shall be replaced in kind by the Contractor. The Contractor shall call and coordinate this work with the City of El Mirage's Parks Supervisor at 623-980-9404.

GRADING AND DRAINAGE

1. The Grading and Drainage plans must be approved by the City Engineer. The City Engineer's Office shall be notified at (623) 876-2977 or 623-980-9987, 48 hours before any on-site construction begins.
2. A separate permit is required prior to any on-site grading, including custom homes.
3. Grading and Drainage Plan approval includes:
 - a. Construction of all surface improvements shown on the approved grading and drainage plan, including but not limited to, retention areas and/or other drainage facilities, drainage patterns, channels, walls, curbing, asphalt pavement, bank protection and channelization, and building floor elevations.
 - b. Contractor shall provide minimum slope to the bottom in all retention basins at elevations as shown on the plans. Retention basin side slopes shall not exceed 2:1 on private property and 6:1 adjacent to public right-of-way unless noted otherwise on plans. Retention basins shall not exceed 3 feet in depth without written approval from the City Engineer or their designee.
4. All drainage protective devices such as swales, interceptor ditches, pipes, protective berms, concrete channels or other measures designed to protect homes or other improvements whether existing or proposed, from runoff or damage from storm water, must be constructed prior to the construction of any improvements.
5. Drywells must be drilled a minimum of ten (10) feet into permeable porous strata and percolation tests will be required. The Off-site Inspector must be present before backfill or wall pipes are placed within any drywell. Percolation tests must be conducted by an independent laboratory and results provided to the Engineering Department. All drywells must be registered with ADEQ. Copies of drilling logs and ADEQ registration information must be provided to the City.
6. All finish floor elevations shown are a minimum of 14-inches above the point of outfall, or one (1) foot above the 100-year base flood elevation as shown on the approved plan.
7. A FEMA Elevation Certificate for all new and substantially improved construction in the floodplain shall be submitted to the Engineering Department prior to final acceptance of the project
8. Soils compaction test results must be submitted to the City Engineer's office for all building pads that have one (1) foot or more of fill material indicated.
9. Staking pad and/or finish floor elevations is the responsibility of the developer and his

engineer. No minimum finish floor elevation will be raised or lowered without approval of the City Engineer. In non-critical areas, the developer's engineer shall submit certification of constructed building pad elevations prior to request for final inspection. In critical drainage areas, or in the 100-year floodplain, substitute building floor elevation in above note, or FEMA Elevation Certificate.

10. The Contractor is responsible for locating and confirming depth of all existing utility lines within proposed retention and drainage facility areas. If the drainage facilities cannot be constructed per plan as a result of conflict with underground utilities, the Contractor should contact the City Engineer and the Design Engineer and request modification of the drainage facility design.
11. All bank protection and channelization must be completed prior to final acceptance of the project.
12. A separate haul permit shall be required whenever hauling in excess of 500 cubic yards of material in or out of a site. A haul route must be submitted and approved by the Engineering Department. Additional requirements as set forth by the Engineering Department shall be met.
13. All Contractors/Developers are responsible to obtain a National Pollution Discharge Elimination System (NPDES) Permit in accordance with Federal and State Regulations, including Notice of Intent (NOI), Notice of Termination (NOT), and Storm Water Pollution Prevention Plan (SWPPP). A copy of the NOI and SWPPP shall be available on the job site at all times.
14. Once an existing shoulder is disturbed by the grading operation or any other phase of construction, the shoulder shall be barricaded. Such barricading shall remain in place until final acceptance of the project.

LANDSCAPE AND IRRIGATION

1. All landscape and irrigation installed within the public right-of-way or other City maintained areas shall be installed per the City's specifications. All landscaping approved as a part of the site plan process shall be installed per the approved plans. Any deviations to the approved plans require City approval.
2. Permits are required for electrical connections, including electric meter installation, backflow preventers, and work within the City right-of-way or City dedicated property. The Contractor is responsible for obtaining these permits prior to the commencement of any work.
3. All landscape projects requiring City maintenance or within the City right-of-way shall be inspected for the following:
 - A. Plant locations: these locations shall be staked in the field with identification as to trees or shrubs; or holes for the plant materials may be dug with identification of plant type. Use of this method does not relieve the Contractor of any plant relocations made by the City.
 - B. Irrigation installation: Inspections shall be made at the point the irrigation system is installed. Inspections of the pipe depth, automatic valve installation and emitter/spray installations will be made.
 - C. Substantial Completion: An inspection at completion of the landscape and irrigation installation will be made. Any deficiencies in the installation will be noted and corrected by the Contractor during the maintenance period.
 - D. Final Acceptance: A final inspection is required prior to City acceptance of the landscape and irrigation improvements.

The above inspections require a minimum of 48-hours prior notification to the City. Call the El Mirage Community Development Department at (623) 876-2996 and leave a message including the subdivision, location and type of inspection to arrange for these inspections.

4. Separate inspections are required for the backflow preventer and electrical connections. Please call Fire, Building & Life Safety at (623) 876-2979 a minimum of 24-hours prior to arrange for these inspections.
5. Landscape and irrigation, which is installed on private property in conjunction with a City approved site plan, will be inspected by the Community Development Department for conformance to the approved site plan prior to issuance of a certificate of occupancy.
6. The landscape and irrigation for this project will be maintained by the Homeowners

Association (HOA) per the approved plans. If no HOA exists, the property owner shall be responsible.

7. All City maintained projects require a 90-day maintenance period to begin at the date of substantial completion as determined by the City.
8. Right-of way and City maintained areas require separate water meter connections. Right-of-way areas designated for maintenance by the adjacent property owners for commercial, industrial and multi-family developments shall have the right-of-way irrigation isolated or separated from the on-site irrigation system.
9. The Contractor shall be responsible for installation, cost and required permit fees for the water meter(s) designated to serve the irrigation system.
10. All plantings at maturity shall maintain a minimum 6'-0" clearance around all fire hydrants and fire suppression devices.
11. Plantings shall not interfere with any traffic control signs and shall maintain a maximum height of 24" within any sight distance triangles.
12. Installation of the landscape and irrigation system including addition of ground plant materials shall not impede the flow of designed drainage facilities nor decrease the design volume of any detention/retention basins.
13. The Contractor is responsible for the location and protection of all underground utilities during the landscape and irrigation installation.
14. All trees shall maintain a minimum of 6'-0" clearance from any City water or sewer line. All plantings shall maintain a sufficient distance to any sanitary and storm sewer manholes to allow access by maintenance vehicles.
15. A swale a minimum of 6" in depth shall be provided in all landscape areas within the City right-of-way to promote water harvesting.
16. All planting areas (except turf areas) to be maintained by the City shall be treated with a pre-emergent herbicide by a licensed applicator prior to and after the placement of the decomposed granite, river rock etc. Product labels and application documentation will be required prior to acceptance of the landscaping by the City.
17. As-built drawings of the landscape and irrigation system are required prior to acceptance by the City and for projects within the City right-of-way or City owned property. The as-built drawings shall show the locations of all plantings and the dimensions to fixed points of all irrigation equipment, piping, etc. The as-built drawings must be submitted on a CD that contains PDFs of all plan sheets.

PAVING

1. Exact point of pavement matching, termination and/or overlay, if necessary, shall be determined in the field by the Engineering Division. Crack seal is required between old and new asphaltic concrete.
2. All frames, covers, valve boxes and manholes shall be adjusted to finished grade upon completion of paving or related construction. The concrete collar shall be adjusted level with existing bituminous pavement. The edge of the concrete collar shall be crack sealed.
3. All Contractors/Developers shall comply with the City of El Mirage Standard Detail 149 for Trench Plating.
4. Paving shall not start until all appropriate testing has been completed and accepted (pressure testing of utilities, density testing, video of sewer line, etc.). Service stubs to all platted lots shall be extended, and all conflicting utility construction completed prior to start of paving.
5. Trees and shrubbery in the right-of-way, which conflict with the improvements proposed herein, are not to be removed or relocated without prior approval of the City of El Mirage. The permittee shall be responsible for obtaining the necessary authorization to remove and/or relocate said trees or shrubbery.
6. In all areas where new construction of curb, gutter, sidewalks, and driveways is required, and the engineer determines the existing grade to consist of soils with swelling characteristics, the moisture content shall be brought as close as possible to optimum required for compaction by the addition of water, blending of dry suitable material or by drying of existing material. The material shall then be compacted to a relative density of 95 percent maximum.
7. Construction loads: During construction operations, heavy equipment may cross existing or proposed pipe. In this case, an earth fill should be constructed to at least three (3) feet above pipe. The fill must be sufficient to prevent the lateral displacement of the pipe.
8. Unless otherwise specified, the City of El Mirage requires that the asphaltic concrete mix design meet the current City of Phoenix mix design for a C-¾" & D-½". Copies of these mix designs and related product codes are available from the Engineering Department.
9. All street improvements for custom homes must be completed in accordance with the City of El Mirage policy on unpaved roads. All private access must be constructed with an acceptable dust palliative.
10. All Contractors/developers are responsible to construct stabilized construction entrances in order to reduce or eliminate the tracking of sediment onto public rights-of-ways or streets. Gravel track-out pads shall meet current Maricopa County standards. The

contractor/developer shall immediately remove any sediment tracked onto public rights-of-ways or streets.

11. If any existing barricades, traffic signs or street name signs need to be removed during construction, notify the City of El Mirage Operations Superintendent at (623) 876-4254. A minimum of 48-hours notice is needed for removals. If signs and barricades belong to another agency, it is the responsibility of the contractor/developer to notify them.
12. No water supply hose or ramps shall be placed across or in the arterial or collector streets. Approval in writing from the City Engineer or his designee is required for placement of the supply hose or ramps in local streets. Applications shall include submittals of the manufacturer's specifications, materials used, and dimensions of the ramp, proposed location, proposed barricading and signage.

SEWER

1. Acceptable Sewer Line Materials:
 - a. PVC SDR 35 Sewer Pipe, which conforms to Section 745 of the MAG Standard Specifications, is acceptable for sewer line sizes eight (8) inches through fifteen (15) inches in diameter. Bedding and backfill shall conform to the minimum requirements of the City of El Mirage Standard Detail 406, Bedding and Backfill for Pipelines.
 - b. New sewer taps shall be per MAG Standard Detail 440-1 (Type 'A'), except that materials shall be Schedule 40, not SDR 35.
2. The Contractor shall uncover all existing lines to be connected and verify grades before any other construction.
3. All utility installations in conflict with these plans shall be removed or relocated at the Contractor's expense. Any utility removals or relocations must be approved by the governing municipality or agency.
4. Trench excavation, backfilling and compaction shall conform to MAG Standard Specification Section 601 except as modified herein.
5. Bedding and backfill for sewer lines shall conform to the minimum requirements of the City of El Mirage Standard Detail 406, Bedding and Backfill for all Pipelines.
6. Backfill shall be Type I as defined in Section 601 of the MAG Standard Specifications.
7. The Contractor is responsible to notify the Project Engineer before the sewer line is covered, so "as-built" measurements may be taken. Any changes to the approved plans must be authorized by the Project Engineer and the City Engineer before the change is made in the field.
8. Service line connections to the sewer main shall have a "Y" fitting. Saddles are not acceptable.
9. Sewer services shall not be located under driveways.
10. An approved metallic locator tape and tracing wire shall be installed on all sewer lines and services (linear or non-linear).
11. Manholes which exceed ten (10) feet in depth, or are on arterial streets shall be five (5) feet in diameter, without steps, and shall be epoxy coated per Raven 405, Sauereisen Sewergard No. 210 or an approved equal.

12. All PVC sewer manhole connections shall have an approved water stop.
13. All pavement replacement shall conform with MAG Standard Detail 200-1 modified with a one-half (1/2) sack Portland Cement ABC slurry, which conforms to MAG Standard Specification 728, (modified for one-half sack Portland Cement), for trench backfill from one (1) foot above the top of pipe to the existing pavement subgrade. Use Type 'A' for longitudinal trench repair and use "T Top" for transverse trench repair or when a trench runs through an intersection. Pavement replacement thickness shall be 1.5 times the existing asphalt thickness. AC mix design shall be per the City of Phoenix C-3/4" mix. Crack sealing is required.
14. Manholes, which are located in a paved area, shall be adjusted to the finish grade upon the completion of pavement work.
15. Prior to any concrete or street work and prior to acceptance, the Contractor shall do the following: lamp 100% of the sewer lines, mandrel and air pressure test 100% of the sewer lines, and provide a video inspection (DVD) of 100% of the sewer lines. One-hour prior to videoing, the sewer lines shall have a sufficient volume of water passed through them to identify "dips". The camera unit shall have a "measuring device" attached that is visible to the tape viewer. At a minimum, the device shall be marked in increments of 1/2". The DVD shall be submitted with a log detailing (showing distances from previous manholes) for any dipped sections, depth of dipped section and service locations. Lines shall be clean prior to any testing or videoing.
16. Sewer lines shall remained "plugged" at the point(s) of connection to existing lines (outfalls) until all phases of the project have been accepted by the City Engineer.
17. The Contractor shall not make a tie-in to existing mains until after all tests have been passed and approved by the City Off-site Inspector.
18. The following MAG Uniform Standard Details are specifically NOT approved:

No. 425	24" Aluminum Manhole Frame and Cover
No. 428	Manhole Steps - "Cast Iron" option
No. 440-2	Sewer Building Connection - Type 'B'
No. 441	Sewer Cleanout – "Sewer Tap At Cleanout" option
19. The owner will be responsible for the sewer service line from the main to service facility.
20. It is the contractor's responsibility to meet OSHA standards for "trench safety".
21. Any tap proposed to be made directly into a 12-inch or larger sewer must be approved by the City of El Mirage Engineering Department. The City has the right to request that the tap be made directly into a manhole.

22. No sewer lines shall be located within Retention/Detention Basins.
23. All manholes located outside paved areas shall have a 'Curve-Flex' Utility Marker as manufactured by Carsonite (CFRM-400-Green).
24. All manholes located outside paved areas shall have locking covers.
25. An "Engineer's Certificate of Completion" issued by the Maricopa County Environmental Services Department, is required prior to final project acceptance.
26. Workmanship on manhole bottoms will be closely inspected for uniformity and smoothness of channel. The preferred method for construction of manhole invert channels shall be pipe placement in manhole bottom and removal of top of pipe after manhole is constructed. Failure to provide smooth, uniform channels shall be cause for rejection, removal and re-construction.
27. A copy of the Approval to Construct (ATC) issued by Maricopa County Environmental Services Department (MCESD) is required within ninety (90) days of issuance of the off-site permit.
28. A copy of the Approval of Construct (AOC) issued by MCESD is required prior to final project acceptance.

WATER

1. Acceptable Water Line Materials:
 - a. Ductile Iron Pipe, pressure class 350, is acceptable for water lines sizes six (6) inches through twelve (12) inches in diameter. All Ductile Iron Pipe shall be polywrapped in conformance with Section 610.5 of the MAG Standard Specifications.
 - b. Ductile Iron Pipe, pressure class 250 minimum, is acceptable for water lines 16 inches in diameter and larger. All Ductile Iron Pipe shall be polywrapped in conformance with Section 610.5 of the MAG Standard Specifications.
 - c. PVC Pipe, AWWA C-900 pressure class 200, is acceptable for water lines sizes six (6) inches and eight (8) inches in diameter. (Private Only)
2. Trench excavation, backfilling and compaction shall conform to MAG Standard Specification Section 601 except as modified herein.
3. Bedding and backfill for water lines shall conform to the minimum requirements of the City of El Mirage Standard Detail 406, Bedding and Backfill for All Pipelines.
4. Backfill shall be Type I as defined in Section 601 of the MAG Standard Specifications.
5. The Contractor is responsible to notify the Project Engineer before the water line or fittings are covered, so "as-built" measurements may be taken. Any changes to the approved plans must be authorized by the Project Engineer and the City Engineer before the change is made in the field.
6. Six-(6) inch and eight (8) inch waterlines located in streets shall have a minimum cover of 48 inches over the top of the pipe to finish grade. Six (6) inch and eight (8) inch waterlines in locations other than streets shall have a minimum cover of 36 inches over the top of the pipe to finish grade, unless design conditions warrant additional cover.
7. Twelve (12) inch waterlines located in streets shall have a minimum cover of 60 inches over the top of the pipe to finish grade. Twelve (12) inch waterlines in locations other than streets shall have a minimum cover of 48 inches over the top of the pipe to finish grade, unless design conditions warrant additional cover.
8. Sixteen (16) inch waterlines shall have a minimum cover of 60 inches over the top of the pipe to finish grade, unless design conditions warrant additional cover.
9. All stub-outs shall have a two (2) inch brass ball corp stop as a blow-off, left in place with a two (2) inch riser, per MAG Standard Detail 390, Type 'A', and shall be

accessible to use.

10. Fire Hydrants shall conform to City of El Mirage Standard Detail 360. The fire hydrant manufacturer must be approved by the City of El Mirage prior to the installation of the fire hydrant.
11. All valves 16 inches and under shall be resilient seat AWWA approved gate valves and shall open by turning to the left.
12. Valves shall not be located in sidewalks, gutters, curb, or valley gutters.
13. All Water valves shall have a valve box and cover per MAG Standard Detail 391-1, Type 'A' and 392, Type 'A'. Adjustments shall conform to City of El Mirage Detail 393.
14. Contractors shall not operate valves on the existing City system.
15. Water lines shall be installed in such a manner to eliminate dips or high points. Water lines constructed on linear streets shall not have horizontal alignment deflections. All horizontal deflections in water lines (constructed in nonlinear streets) shall comply with the manufacturer's recommendations for deflection at joints.
16. Thrust restraint shall be inspected prior to backfill. Reinforcing steel and form work shall be inspected prior to placing concrete for thrust blocks. Thrust restraint shall conform to MAG Standard Specification 610.4 and MAG Standard Details 301, 380 and 381.
17. Water services two (2) inches and smaller in diameter shall conform to City of El Mirage Standard Detail 325. The minimum service connection shall be one (1) inch. Single family residences may use a minimum one-(1) inch service connection. Water service saddle manufacturer and model must be approved by the City of El Mirage prior to installation.
18. Water services shall not be located under driveways, or under concrete aprons adjacent to driveways.
19. An approved metallic locator tape and tracing wire shall be installed with all water lines and services (linear and nonlinear), and attached to valve boxes.
20. All pavement replacement shall conform with MAG Standard Detail 200-1 modified with a one-half (1/2) sack Portland Cement ABC slurry, which conforms to MAG Standard Specification 728, (modified for one-half sack Portland Cement), for trench backfill from one (1) foot above the top of pipe to the existing pavement subgrade. Use Type 'A' for longitudinal trench repair and use "T Top" for transverse trench repair or when a trench runs through an intersection. Pavement replacement thickness shall be 1.5 times the existing asphalt thickness. AC mix design shall be per the City of Phoenix C-3/4" mix.

Crack sealing is required.

21. Pressure testing shall not be conducted until after the Contractor has pretested 100% of the lines. Inspection testing must be called for twenty-four (24) hours in advance. Water lines must pass pressure testing prior to paving.
22. All mains shall be chlorinated in conformance with Section 611 of MAG Standard Specifications. Samples will be taken in conformance with MAG Standard Specification Section 611.
23. The contractor shall not tie into existing mains without prior approval of the City Engineer or his/her designee.
24. The following MAG Uniform Standard Details are specifically NOT approved.
 - No. 345-2 4", 6" Water Meter with On-site Fire Hydrants
 - No. 360-1 Dry Barrel Fire Hydrant Installation
 - No. 360-2 Wet Barrel Fire Hydrant Installation
 - No. 360-3 Fire Hydrant Installation Details
 - No. 389 Curb Stop with Valve Box and Cover
 - No. 391-1 Valve Box Installation and Grade Adjustment - Types 'B' & 'C'
25. It is the contractor's responsibility to meet OSHA standards for "trench safety".
26. In accordance with AAC R18-4-119, all materials added after January 1, 1993, which may come into contact with drinking water shall conform to National Sanitation Foundation Standards 60 and 61.
27. No Water Lines shall be located within Retention/Detention basins.
28. All Water Valves located outside paved areas shall have a 'Curve-Flex' Utility Marker as manufactured by Carsonite (CFRM-400-BLUE).
29. An "Engineer's Certificate of Completion" issued by the Maricopa County Environmental Services Department, is required prior to final project acceptance.
30. A copy of the Approval to Construct (ATC) issued by Maricopa County Environmental Services Department (MCESD) is required within ninety (90) days of issuance of the off-site permit.
31. A copy of the Approval of Construct (AOC) issued by MCESD is required prior to final project acceptance.
32. All materials shall be lead free as defined in AAC R18-5-504 and R-18-4-101.

STRIPING & SIGNING

1. The Contractor shall notify the City of El Mirage's Engineering Division at least 48 hours in advance of any striping at 623-972-8116. Striping completed prior to the City's inspection shall be removed if it is not consistent with City standards.
2. The obliteration of existing striping in areas that will be re-striped shall be accomplished by water blasting or other methods approved by the City.
3. Crosswalk, stop bar and turn arrow pavement marking installations shall be done in accordance with the City of El Mirage's standard, Alkyd Thermoplastic material applied at 90 mil thickness. Longitudinal striping shall be installed with Alkyd Thermoplastic material applied at 60 mil thickness as per the signing and striping plan.
4. Signing shall be installed as per the City of El Mirage details #132-1 and 132-2.
5. The Contractor shall return all removed traffic signal equipment/signs to the City of El Mirage Municipal Operations Center. Contact the City Engineer's office at 623-933-8318.
6. The Contractor shall comply with all provisions for traffic control, barricading, signing and striping as per the current edition of the Manual on Uniform Traffic Control Devices (MUTCD) adopted by the Arizona Department of Transportation (ADOT), the City of Phoenix Traffic Barricade Manual and City of El Mirage supplements.

(See separate "City of El Mirage Guidance for Design of Striping and Signing Plans" document for additional information)

STORM WATER POLLUTION PREVENTION (SWPPP)

1. A copy of the approved grading and drainage plan for this project and this Storm Water Pollution Prevention Plan (SWPPP) shall be maintained on the site and available for review. Those elements of the grading and drainage plan pertinent to or referenced on the SWPPP shall be considered a part of the SWPPP.
2. The City of El Mirage Engineering Department, Inspection Section, shall be notified 48-hours before any on-site and/or off-site construction begins, telephone (623) 876-2977.
3. The Notice of Intent (NOI) shall be completed and submitted to the Arizona Department of Environmental Quality (ADEQ) and the City of El Mirage 48-hours prior to any construction activity.
4. The SWPPP and related records must be made available upon request to ADEQ and the City of El Mirage.
5. The Prime Contractor or Owner shall obtain a Dust Control Permit from Maricopa County Environmental Services and perform measures as required by the permit to prevent excess dust (and as incorporated in this SWPPP).
6. The Prime Contractor or Owner shall perform, at a minimum, a visual inspection of the construction site once every seven days and within 24-hours of rainfall greater than or equal to a half of inch (½ Inch). The operator shall prepare a report documenting his/her findings on the conditions of the SWPPP controls and note any erosion problem areas. The operator's report is to be submitted to the Engineering Inspector for review and approval and shall be maintained on site by the operator. Facilities shall be maintained as necessary to ensure their continued functioning. In addition, all temporary siltation controls shall be maintained in a satisfactory condition until such time that construction is completed, permanent drainage facilities are operational, and the potential for erosion has passed as determined by the City Engineer or his designee.
7. The Prime Contractor or Owner shall amend this plan as necessary during the course of construction to resolve any problem areas, which become evident during the construction and/or during rainfalls.
8. The implementation of these plans and the construction, maintenance, replacement, and upgrading of these facilities is the responsibility of the permittee/contractor until all construction is approved and a Notice of Termination (NOT) has been submitted.
9. The facilities shown on this plan must be constructed in conjunction with all clearing and grading activities in such a manner as to ensure that sediment-laden water does not enter the drainage system or violate applicable water standards. Additionally, they must be

installed and in operation prior to any grading or land clearing. Wherever possible, maintain natural vegetation for silt control.

10. The contractor to whom the “at-risk”/final G&D permit will be issued must have the approved SWPPP issued in their name.
11. The owner (operator)/contractor of the site must also maintain records with the following information:
 - The dates when major grading activities occur in a particular area;
 - The dates when construction activities cease in an area, temporarily or permanently; and
 - The dates when an area is stabilized, temporarily or permanently; and
 - The dates when any maintenance/replacement or removal of required BMPs.
12. Construction sites are dynamic in nature. The site operator is required to maintain full compliance with the general construction permit, as issued by ADEQ, to maintain an effective SWPPP. As such, this plan must be updated to accurately reflect site features and operations. The plan must also be amended if it is determined by the City Engineer as not effective at minimizing pollutant discharges from the site.
13. Once the construction activities have been completed and the site has met the final stabilization requirements of the permit, the authorized site representative may file a Notice of Termination (NOT) with ADEQ, with a copy submitted to the City of El Mirage Engineering Division, to terminate coverage under the permit.