
MEMORANDUM

TO: Avery Africa, Jacobs Engineering

FROM: Jose A. Macias, Planner/GIS · *JM*
Community Development Department, Planning & Zoning

RE: Microsoft PHX81 Site Plan Approval

DATE: March 2, 2021

Mrs. Africa,

Please see the comments from El Mirage Technical Advisory Committee (TAC) for the proposed Site Plan Approval for a Warehouse (Data Center) Use.

BUILDING & SAFETY

1. Please show the following items on the site plan with the construction submittal.
 - a. Specify the location of all fire riser rooms
 - b. Specify the location of all fire hydrants
 - c. Label all fire access roads, specify their widths and turning radii.

ECONOMIC DEVELOPMENT

2. Economic Development is thrilled to see the second Microsoft Data Center in El Mirage. The new data center will add 50 high wage direct jobs and 150 indirect jobs to the region. The combination of both centers will provide 100 jobs making it the seventh largest employer in the City. In addition to jobs, the data center will generate construction and utility sales taxes to boost the overall sales taxes that currently represents 30% of the revenue for the General Funds.

ENGINEERING

3. See attached memorandum.

FIRE DEPARTMENT

4. Please show the following items on the site plan with the construction submittal.
 - a. Hydrant locations
 - b. Riser room location
 - c. Knox locations

PLANNING & ZONING

The follow Site Plan and Landscape comments can be address with construction and civil plans submittal.

5. Site Data Table
 - a. Existing Zoning: The property was rezoned to be all Employment/Industry (E/I), please revise.
 - b. Proposed Use: Warehouse/Data Center, please revise.
 - c. Proved lot coverage percentage (under roof)
6. Site Plan - Parking: Please confirm the parking space provided. The site plan shows 53, but 2 are striped. Are those space not available for parking?
7. Site Plan: Please add the following note to the site plan:
 - a. *"Any change of use or occupancy of any building or buildings, including additions thereto requiring more parking, shall not be permitted until such additional parking spaces as required by this chapter are furnished."*
8. Site Plan: Parking lot, a landscape island or area is required for every 10 consecutive parking spaces. There are 14 consecutive spaces with no landscaping island.
9. Landscaping Plan: No comments regarding the planting plan.
10. Landscaping Plan: Please proved an Irrigation Plan with the Civil Plan submittal.

POLICE DEPARTMENT

11. No Comments.

PUBLIC WORKS

12. No comments.

MEMORANDUM

TO: Jose Macias, Planner & GIS
FROM: Bryce Christo, Assistant City Engineer
SUBJECT: PHX81 Pre-Application & Development Application Review
DATE: 03-02-21

Below are the Engineering Division's comments for the above referenced submittal prepared in February 2021. **The below items will have to be addressed during the Construction Plan Submittal.**

Narrative

1. The "Property Location and Description" Section of the Narrative states that "the proposed building will be serviced by EPCOR water and sanitary sewer, which will be assessed from municipal mains to be extended within the adjacent public right of ways". As was noted during the PHX80 project, the City water and wastewater systems cannot accommodate the site beyond the first data center and, once a second center was proposed, the developer would be required to find an alternative source for these utilities such as EPCOR. A viable water and wastewater system are required to be in place prior to the City releasing the Certificate of Occupancy.
2. The "Additional Information" section of the Narrative states that the "generator sound levels may exceed the City of El Mirage guideline of 55 decibels (dB) during operation." Per City Code Section 154.107, this level cannot be exceeded between 10 pm and 6 am as measured at the property line of the source. While it is understandable that emergencies may happen at any time, it is the responsibility of the developer to design a system that operates within the requirements of the Code.
3. The "Certificate of Assured Water Supply" and "Certificate showing compliance with minimum County and State water quality standards" will no longer be under the jurisdiction of El Mirage as incorrectly noted on page 3 of the Narrative.

On-Site Plans

4. Show the most current property boundary with dimensions. Also, show and label all easements and right of way widths
5. Update the Site Data Table to include the total (existing plus proposed) building area, total impervious coverage, etc.
6. The plans shall show that PHX80 and the Satellite Orbital project are existing and that the Temporary Hydrogen Project is not part of this phase or note as a separate/future submittal.
7. Provide dimensions of the parking lot (standard space length and width, ADA space length and width, drive aisles, etc.), drive aisle (width, radii, etc.), loading dock. The

parking lot shall adhere to Section 154.105 of the City Code. The plans call out 53 spaces but it appears there are only 51. Please verify.

8. Show existing and proposed contours. Show surface water drainage arrows to denote exactly how the site flows and to which basin.
9. There shall be at least two feet of level ground between any wall or vertical obstruction and the top of any side slope grading.
10. Show high water level, bottom elevations, volume required and volume provided for each retention basin. Show the basin overflow and the ultimate outfall elevation of the site.
11. The finished floors of any inhabited building shall be 12 inches above the 100-year base flood elevation and 14 inches above the low outfall of the site.
12. Basins shall be 3-feet deep with 4:1 side slopes. Deeper basins will require flatter slopes.
13. There shall be a separate water service for domestic, irrigation and fire. The minimum domestic and irrigation service size shall be 1-inch. The minimum fire service size shall be 6-inches.
14. The minimum sanitary sewer service size shall be 6-inches.
15. Separation between sewer, water and other utilities shall be per MAG standards and City Detail 402.
16. Plans shall include applicable City Notes. Call out MAG, City, etc. details to be used. Use the latest version of the City's Design and Development Standards Manual (DDSM) as a guide during the design.

Landscape Plans

17. The City Notes are not the latest version. A copy of the latest version has been attached. An AutoCAD version can be provided upon request.
18. Many of the non-City notes reference civil plans by CMX. Is this accurate?
19. Irrigation General Note #40 notes that a copy of the certified testing of the backflow preventer(s) shall be submitted to the Maricopa County Inspector. The City of El Mirage will be inspecting the site and will require this documentation. Additional information on the backflow preventer can be found on City Details EM-351, 352 and 353.

Drainage Statement

20. A Drainage Statement was not provided. A Final Drainage Report that updates the original PHX80 Drainage Report will be required and must include the following:
 - a. A tributary area map to show the areas contributing to each basin.
 - b. Sizing calculations for any storm drain and basin
 - c. Any offsite flows that reach the site.
 - d. For the dry up calculations, use Equations 9.2 and 9.3 from the *MCFCD Drainage Design Manual – Hydraulics* dated December 14, 2018.

Preliminary Water Report

21. As was noted during the PHX80 project, the City water system cannot accommodate the site beyond the first data center and, once a second center was proposed, the developer would be required to find an alternative source for water such as EPCOR, as noted in the Narrative.
22. The City of El Mirage will be responsible for the fire protection of the site and the updated Water Report will need to adhere to the requirements of the attached Water System Design Criteria for fire flow conditions.
23. Portions of this report has outdated information and shall be updated.

Preliminary Sewer Report

24. As was noted during the PHX80 project, the City wastewater system cannot accommodate the site beyond the first data center and, once a second center was proposed, the developer would be required to find an alternative source for wastewater such as EPCOR, as noted in the Narrative.
25. Portions of this report has outdated information and shall be updated.

Traffic Impact Statement

26. The Traffic Impact Statement (TIS) is accepted. As noted in the TIS, an update to the original PHX80 Traffic Impact Analysis must be submitted with the Construction Plan Submittal to determine the impacts of the new data center.

Parking Statement

27. A Parking Statement was noted in the Narrative as being attached to the submittal but none was found. Please provide a Parking Statement, similar to the one provided for PHX80, explaining the number of spaces required per Code versus the amount of spaces proposed and the reason for the reduction.

ALTA Survey (These comments were originally noted during the PHX80 review)

28. The “Benchmark” section on Sheet 1 should reference the northwest corner instead of southeast quarter corner of Section 35.
29. Schedule B Item #5 states that it is “plotted hereon “but it does not appear on the ALTA.
30. Surveyor Note #10 states that “there are no proposed changes in street right of way lines...” but right of way dedications will be necessary.
31. Sheet 2
 - a. L7 should be L9
 - b. L3 should be L2

Phase I Environmental Site Assessment (These comments were originally noted during the PHX80 review)

32. Section 3.2 states that both water and sewer is available. Both sewer and water exist in the area but offsite improvements/utility extensions will be required as noted in Comment 9.

Miscellaneous

33. Any extensions or modifications to the onsite or offsite water and sewer systems may require an Approval to Construct (ATC) from the Maricopa County Environmental services Department (MCESD). Copies of the Approvals of Construction (AOC) shall be submitted to the City prior to Certificate of Occupancy.
34. It is understood that the site may have future phases with unknown time frames on the upgrades. Each new phase will require a separate review by the City.
35. A Geotechnical Report will be required to provide on-site pavement sections and percolation rates. Verify the pavement and DG sections can handle 75,000 lbs. or more if the trucks entering and exiting the site will be heavier. The report should also address any potential fissures located within the project site.
36. A Stormwater Pollution Prevention Plan (SWPPP) will be required per the City’s SWPPP Guidelines document.
37. Groundwater rights shall be extinguished and credits shall be pledged to the City.

38. A Haul Permit will be required if 500 cubic yards or more of material will be brought into or out of the site. This will require separate application, an exhibit showing the haul route and insurance from the company performing the haul. The fee is \$300.

The above comments are meant to be general in nature and are not considered to be all inclusive. Additional comments will arise during the formal permit submittal.

GENERAL INFORMATION:

1. NO PERSON, CORPORATION, CONTRACTOR, OR UTILITY SHALL WORK WITHIN THE RIGHT-OF-WAY, ROAD, STREET, OR EASEMENTS GRANTED FOR PUBLIC USE OR ALLEYS WITHOUT SECURING AN ENGINEERING CONSTRUCTION PERMIT FROM THE ENGINEERING DIVISION.
2. ENGINEERING CONSTRUCTION PERMITS ARE REQUIRED FOR GRADING, DRAINAGE, EROSION CONTROL, FLOOD CONTROL STRUCTURES, 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, 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 SIMILAR FACILITIES.
3. 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 - MONDAY THROUGH SATURDAY	6:00 A.M. TO 7:00 P.M.	7:00 A.M. TO 7:00 P.M.
B	ALL CONSTRUCTION WORK - SUNDAY	8:00 A.M. TO 7:00 P.M.	8:00 A.M. TO 7:00 P.M.

FRIDAY, NIGHTTIME AND WEEKEND WORK REQUIRES PERMISSION IN WRITING FROM THE CITY ENGINEER OR THEIR DESIGNEE.

4. 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.
5. PRIOR TO ISSUANCE OF ENGINEERING CONSTRUCTION PERMITS, THE CONTRACTOR/DEVELOPER MUST PROVIDE THE CITY OF EL MIRAGE WITH THE SPECIFIC INFORMATION NOTED IN SECTION L OF THE CITY'S DESIGN & DEVELOPMENT STANDARDS MANUAL (DDSM) AND PAYMENT OF FEES PER THE CITY'S LATEST FEE SCHEDULE. ANY PERSON, CORPORATION, CONTRACTOR, OR UTILITY COMPANY WORKING IN THE RIGHT-OF-WAY, ROAD, STREET, OR EASEMENTS GRANTED FOR PUBLIC USE OR ALLEYS WITHOUT SECURING A PERMIT IS SUBJECT TO A FINE IN ACCORDANCE WITH THE CITY CODE.
6. TRAFFIC CONTROL SHALL CONFORM TO THE LATEST EDITIONS OF THE CITY OF PHOENIX TRAFFIC BARRICADE MANUAL, MUTCD, AND THE CITY OF EL MIRAGE DESIGN AND DEVELOPMENT STANDARDS MANUAL (DDSM). 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 DIVISION A MINIMUM OF TWO WORKING DAYS (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.
7. REFER TO SECTION N AND CHAPTERS 7-3 AND 7-4 OF THE DDSM FOR A LIST OF THE REQUIRED CLOSE OUT ITEMS. ANY QUESTIONS SHOULD BE DIRECTED TO THE ENGINEERING INSPECTOR.



ADOPTED BY COUNCIL:
DECEMBER 1, 2020

GENERAL INFORMATION

REVISION DATE: 01/2021

STANDARD DETAIL NO.

EM-101-1

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 DESIGN AND DEVELOPMENT STANDARDS MANUAL (DDSM), GENERAL NOTES 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 DIVISION. 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 ENGINEERING 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. ENGINEERING CONSTRUCTION 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 ENGINEERING CONSTRUCTION PERMIT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO UNDERSTAND THE WORK COVERED BY VARIOUS PERMITS.
6. THE ENGINEERING INSPECTOR SHALL BE NOTIFIED TWENTY-FOUR (24) HOURS PRIOR TO ANY CONSTRUCTION WORK BY TELEPHONE AT 623-876-2975. 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 ENGINEERING CONSTRUCTION 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 AN ENGINEERING 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 DIVISION. FOR ALL PHASES OF CONSTRUCTION, THE TYPE, SCHEDULING, FREQUENCY AND LOCATION OF ALL MATERIALS TESTING AND SAMPLING SHALL BE DETERMINED BY THE ENGINEERING DIVISION. ALL TEST RESULTS SHALL BE REPORTED DIRECTLY (IN WRITING) TO THE ENGINEERING DIVISION. 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 A 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 DIVISION 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 AT (602) 263-1100 PRIOR TO CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN CURRENT BLUE STAKE MARKINGS THROUGHOUT CONSTRUCTION.



ADOPTED BY COUNCIL:
DECEMBER 1, 2020

GENERAL NOTES

REVISION DATE: 01/2021

STANDARD DETAIL NO.

EM-101-2
SHEET 1 OF 2

GENERAL NOTES (CONTINUED):

16. THE CONTRACTOR SHALL CONTACT THE BUILDING SAFETY DIVISION AT (623) 251-3503 TO START THE PROCESS FOR OBTAINING A FIRE HYDRANT METER. ONCE APPROVED, THE CONTRACTOR WILL CONTACT THE CUSTOMER SERVICE DEPARTMENT AT (623) 933-1228 TO SCHEDULE THE INSTALLATION OR RELOCATION OF THE HYDRANT METER. CONTRACTORS SHALL NOT RELOCATE HYDRANT METERS THEMSELVES. THE CONTRACTOR MUST PROVIDE THEIR OWN SUPPORT, BACKFLOW PREVENTER AND CERTIFIED TESTER WITH A CITY WITNESS. A COPY OF THE CERTIFICATION MUST BE PROVIDED 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. ANY AND ALL OBSTRUCTIONS WITHIN THE RIGHTS-OF-WAY AND EASEMENTS SHALL BE REMOVED BEFORE ANY CONSTRUCTION IS COMMENCED.
20. 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.
21. CONTRACTORS/DEVELOPERS ARE RESPONSIBLE TO OBTAIN ANY 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.
22. 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. THE CONTRACTOR/DEVELOPER SHALL MEET THE REQUIREMENTS OF THESE PERMITS AS SET FORTH THEREIN.
23. 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.
24. FIRE ACCESS TO BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION AS REQUIRED BY THE CITY OF EL MIRAGE FIRE DEPARTMENT.
25. IT IS THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO SCHEDULE WATER AND SEWER TESTING WITH THE CITY INSPECTOR PER THE CITY'S DESIGN & DEVELOPMENT STANDARDS MANUAL (DDSM). NO TESTING SHALL BE ACCEPTED BY THE INSPECTOR UNTIL ALL UNDERGROUND UTILITIES HAVE BEEN INSTALLED.
26. 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 OPERATIONS SUPERINTENDENT AT (623) 935-6405.
27. THE CONTRACTOR/DEVELOPER IS SOLELY RESPONSIBLE FOR ALL JOB SITE SAFETY, INCLUDING BUT NOT LIMITED TO MEETING ALL REQUIREMENTS OF OSHA AND ADOSH. THE CITY OF EL MIRAGE ENGINEERING INSPECTOR IS NOT AUTHORIZED TO ADVISE OR DIRECT THE CONTRACTOR/DEVELOPER REGARDING MATTERS OF JOB SITE SAFETY. SHOULD THE CONTRACTOR/DEVELOPER ACT ON SUCH ADVICE OR DIRECTION, IT IS AT THE RISK OF THE CONTRACTOR/DEVELOPER.



ADOPTED BY COUNCIL:
DECEMBER 1, 2020

GENERAL NOTES

REVISION DATE: 01/2021

STANDARD DETAIL NO.
EM-101-2
SHEET 2 OF 2

LANDSCAPE AND IRRIGATION NOTES:

1. ALL LANDSCAPE AND IRRIGATION INSTALLED WITHIN THE PUBLIC RIGHT-OF-WAY OR OTHER CITY MAINTAINED AREAS SHALL BE INSTALLED PER THE APPROVED PLANS AND 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 THE BUILDING SAFETY DIVISION 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 30" 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 AND A MINIMUM OF 5'-0" CLEARANCE FROM ANY CITY SIDEWALK AND CURB. ALL PLANTINGS SHALL MAINTAIN A SUFFICIENT DISTANCE FROM 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. 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.



ADOPTED BY COUNCIL:
DECEMBER 1, 2020

LANDSCAPE AND IRRIGATION NOTES

REVISION DATE: 01/2021

STANDARD DETAIL NO.

EM-101-4

WATER SYSTEM DESIGN CRITERIA	
DESCRIPTION	CRITERIA
AVERAGE DAY DEMAND	
Gallons per capita per day (gpcd) ⁽¹⁾	117
Density (people per dwelling unit) ⁽²⁾	3.34
Land Use Category ⁽³⁾	Varies
PEAKING FACTORS	
Maximum Day / Average Day	1.7
Peak Hour / Maximum Day	1.7
Peak Hour / Average Day	2.9
VELOCITY CRITERIA	
Maximum Day Condition	Max Velocity < 5 fps
Peak Hour Condition	Max Velocity ≤ 7 fps
Max Day Plus Fire Flow Condition	Max Velocity ≤ 10 fps
HEAD LOSS CRITERIA	
Maximum Day Condition	2 to 7 feet per 1,000 feet of pipe
Peak Hour Condition	≤ 10 feet per 1,000 feet of pipe
PRESSURE CRITERIA	
Max Day Plus Fire Flow Condition	Min Residual Pressure of 20 psi
Peak Hour Condition	Min System Pressure of 40 psi
FIRE DEMAND CRITERIA	
Single Family Residential	1,500 gpm at 2 hours
All Other Land Uses	3,500 gpm for 4 hours

NOTES:

(1) Average per capita water use per 2012 *Water and Wastewater Master Plan* provided by Wilson Engineers

(2) Persons per household, 2014-2018, per US Census Bureau

(3) Use latest version of City of Phoenix *Design Standards Manual for Water and Wastewater Systems*. Other values may be used with prior approval from the Engineering Division.

WASTEWATER SYSTEM DESIGN CRITERIA	
DESCRIPTION	CRITERIA
AVERAGE DAY DEMAND	
Gallons per capita per day (gpcd) ⁽¹⁾	58.5
Density (people per dwelling unit) ⁽²⁾	3.34
Land Use Category ⁽³⁾	Varies
PEAKING FACTORS	
Dry Weather Peaking Factors (Applied to Average Flows)	Per AAC R18-9-E301.D
Wet Weather Peaking Factors (Applied to Peak Flows)	1.17
VELOCITY CRITERIA	
Gravity Mains	2 fps ≤ Velocity ≤ 8 fps
Force Mains	3 fps ≤ Velocity ≤ 7 fps
FLOW DEPTH CRITERIA (d/D) FOR DRY WEATHER PEAK HOUR FLOWS	
d/D for new sewer with diameter less than 10 inches	0.50
d/D for new sewer with diameter 12 inches and above	0.75 (AAC R18-9-E301.D.e.iii)
FLOW DEPTH CRITERIA (d/D) FOR WET WEATHER PEAK HOUR FLOWS	
d/D for designing new sewer pipe	< 0.90
d/D for evaluating existing pipe in developed areas	< 1.00
HEAD LOSS CRITERIA	
Gravity pipe	Manning's n=0.013
Pressure pipe	Hazen Williams' C=120
MANHOLES	
When smaller pipe joins larger pipe	Match Crowns
Invert drop through manhole	0.20 feet

NOTES:

- (1) Average per capita water use per 2012 *Water and Wastewater Master Plan* provided by Wilson Engineers
- (2) Persons per household, 2014-2018, per US Census Bureau
- (3) Use latest version of City of Phoenix *Design Standards Manual for Water and Wastewater Systems*. Other values may be used with prior approval from the Engineering Division