

Preliminary Water Design Report  
**"Minnezona Condominiums"**  
**7314 E Minnezona**  
**Scottsdale, Arizona 85250**

July 27, 2022

Prepared By:

Final BOD required  
for DRB approval.  
DSPM 6-1.202

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Job No. 21-08-010-00

<b>PRELIMINARY Basis of Design Report</b>	
<input type="checkbox"/> ACCEPTED	
<input checked="" type="checkbox"/> ACCEPTED AS NOTED	
<input type="checkbox"/> REVISE AND RESUBMIT	
<small>Disclaimer: If accepted, the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.</small>	
BY aprichard	DATE 8/22/2022


Prepared for:

Kontexture  
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Contact: Mark Cunningham

The City of Scottsdale  
Permit # 45-DR-2021

Signature:



  
Geoffrey A. Markowski, PE

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## Introduction:

The purpose of this Water Design Report is to provide an analysis of the proposed water and fire suppression supply for the new multi-family site located at 7314 E Minnezona, Scottsdale Arizona. The water design for the site shall comply with the water and waste water requirements of the City of Scottsdale. The report and analysis calculations are based on the Arizona Administrative Code Title 18, Chapter 9-E301, the City of Scottsdale Water Services Department Design Standards Manual, dated, January, 2020, the current adopted City of Scottsdale Fire Code and the 2018 Uniform Plumbing Code (UPC).

## Property Description:

The legal description of the site is the original lots 38 and 39 of the Final Plat for "Daryl Estates – Unit 2" according to Book 61 of Maps, Page 48, records of Maricopa County, Arizona. This development site is the two lots which will be combined with a Condominium Plat. Currently, each lot has an existing building structure on it with multi-family units. Both lots will be demolished, along with existing pools, hardscaping and landscaping. Refer to Appendix A for Aerial Photographs and Vicinity Map.

The site is currently zone R-5 for high density residential development.

## Project Description:

The development of this lot will consist of the construction of a three (3) new buildings. The north building will have five (5) living units. The south two (2) buildings will have two (2) living units each for a total of nine (9) individual living units on the property. Each unit will have a separate domestic service and sewer service to the unit. All nine units will receive domestic service from separate taps from the existing 6-inch water main in Minnezona. A separate master meter for site landscaping will also be provided from the 6-inch main along Minnezona.

Fire suppression will be provided via a domestic system that will tap the new domestic services just after the meter. The fire suppression system will be a deferred submittal by the fire sprinkler contractor. Also, a new public fire hydrant will be installed near the southeast corner of the property to ensure adequate hydrant coverage of the overall site. This will be provided by the existing hydrant located approximately 90-feet northwest along North 73<sup>rd</sup> Street, as well as the new hydrant at the southeast corner of the site. Refer to Appendix B for On-site Utility Plans to see connection location and detailing for all on-site and off-site water and fire services to the site.

3/4" meter identified  
on utility plan

## Domestic Design Flows:

Minimal domestic flows will be required for the site for landscaping, and new domestic demand for the nine (9) new living units. Based on the square footage of each unit and the water demand provided by the Plumbing Engineer, each unit will require a 1" water meter with a 1-1/2-inch service tap to the main. The supply for these demands will be made via separate domestic service taps to the existing 6-inch main in Minnezona.

According to City of Scottsdale Design Standards, Chapter 6, Section H, the water demand for the site can be determined by the land use table in Figure 6-1.2. Since the site has nine (9) dwelling units (DU), the

table row for 8-11.9 DU/ac should be used. Therefore, the inside and outside total use per DU is 0.33 (0.22 + 0.11). Refer to Plumbing Plans for the new buildings in Appendix E for the building Plumbing Plans. So, the average daily demand for the overall site development on the existing 6-inch main located in Minnezona is 2.97-gpm ( $0.33 * 9 = 2.97$ ).

The peak demand the site generates is as follows:

Peak factor of 3.0 ->  $3.0 * 2.97 = 8.91$ -gpm total landscape/domestic demand on the existing system.

Therefore, the maximum daily domestic demand for the overall development will be 2.97-gpm. The peak hour domestic demand for the overall development will be 8.91-gpm. Fire flow will be discussed in later sections of this report.

Not retail building.

**Fire Design Flows:**

The site fire flow requirements for the retail building will be based on the total square footage of the larger building on the site which is approximately 3,905-square feet. The building construction type is V-B. Based on fire design flow tables in the International Fire Code, the required fire flow for the site will be 1,750-gpm for 2-hours. However, since the system being installed is a "wet pipe" system per NFPA 13, the required fire flow for fire suppression to the building can be reduced by 50% per City Fire Code and Fire Marshal approval. However, the absolute minimum per Fire Code is 1,500-gpm for 2-hours. Therefore, the required potential fire flow needed for the building will be 1,500-gpm for 2-hours at a minimum residual pressure of 20-psi.

Only one flow test is provided in Appendix C.

Fire flow testing has been performed on the existing fire hydrants along Minnezona east of the site. The test results of the two hydrant flow tests are provided in Appendix C of this report.

As mentioned, the fire suppression system for each dwelling unit will be a domestic system that will be tapped from the new domestic water service. This system will be a deferred submittal by the fire sprinkler contractor. Design analysis and calculations for this system shall be provided by the Plumbing Engineer and Fire Sprinkler Contractor at the time of permit submittal and approval.

Otherwise, site fire suppression will be provided via the new hydrant assembly installed at the southeast corner of the site. This new hydrant will be tapped from the existing 6-inch water main, along with a new 6-inch line and valve to the hydrant. Pressure loss information for the new hydrant system is as follows:

Fireline Pressure Loss:

- 1 ~ tapping sleeves and valves – 1.5
- 1 ~ 90 degree bend - 1.5
- 51 lineal feet of 6-inch DIP, CL350 waterline – 7.72-psi

Pressure loss or pressure?

Total pressure drop = 10.72-psi. Therefore, 42-psi residual - 10.72-psi = 31.28-psi of available pressure at the tested flow rate of 1,750-gpm. The pressure loss in the system is still greater then 20-psi. Flow rate at the test hydrant near the site is greater then 1,750-gpm. Therefore, the new fireline loop system will adequately supply the required fire flow for the demand requirement based on the City Code.

30 psi required. See DSPM 6-1.406.C. Also, min pressure of 15 psi at highest floor elevation at maximum day demand is required. Show calculations that this has been satisfied. DSPM 6-1.406.C

30 psi is required at hydrant tee/tap under design fire flow per DSPM 6-1.406.C.

Fire Flow Results:

Static Pressure: 100-psi  
Residual Pressure: 42-psi  
Pito Pressure: 17-psi  
Flow: 1,772 gpm  
Flow at 20-psi: 1,670 gpm with safety factor added

**Conclusion:**

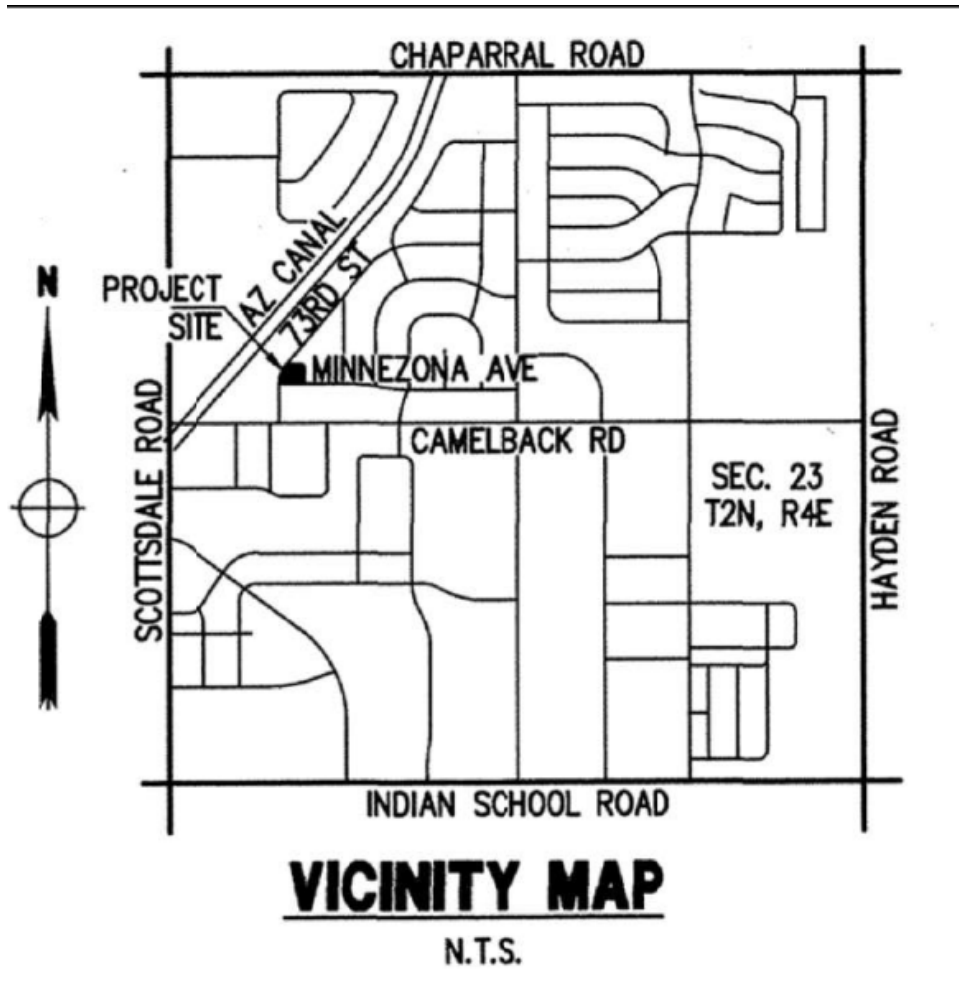
The existing water supply provided by the City within the existing 6-inch water main located in Minnezona will provide adequate domestic water demand as well as fire suppression for the new condominium complex. The maximum required fire flow of 1,500-gpm for the overall site will be met by the new fire hydrant installed in the southeast corner of the site. The new improvements will not negatively impact the existing system adjacent to the new site.

The proposed domestic/landscape services and fire suppression systems have been designed to effectively provide adequate demand flows and fire flows to the new development site, without negatively impacting the proposed or existing facilities. All calculations are based on the on-site conditions with the completion of the overall site development.

Include hydraulic network diagrams for each analysis scenario in DSPM 6-1.202.G. Pay special attention to DSPM 6-1.202.G D due to the multi level construction of the development.

APPENDIX A

Vicinity Map



# 2021 Maricopa County GIS Aerial Photograph



## APPENDIX B



**BACKFLOW PREVENTION REQUIREMENTS**

BUILDING TYPE	BLDG. SQ. FOOTAGE	FLOW DURATION	FIRE FLOW REQ'D.
V-B	3,130 S.F.	2 HOURS	1,500 GPM
V-B	3,905 S.F.	2 HOURS	1,750 GPM

THE FIRE SPRINKLER SYSTEM BEING INSTALLED IS A "WET PIPE SYSTEM" PER NFPA 13 FOR A COMMERCIAL FIRE SUPPRESSION SYSTEM. REQUIRED DEMAND FLOW CAN BE REDUCED BY 50% PER FIRE CODE.

ALL EXISTING OVERHEAD UTILITIES SHALL BE UNDERGROUNDED PER PRIVATE UTILITY COMPANY STANDARDS AND REQUIREMENTS. OWNER/DEVELOPER SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES.

**ON-SITE WATER & SEWER CONST. NOTES**

- 1 INSTALL NEW 1" FEBCO LF-856 DOMESTIC REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY.
- 2 INSTALL 1" FEBCO LF-856 LANDSCAPE REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY.
- 3 NOT USED.
- 4 INSTALL NEW 1" DOMESTIC COPPER WATERLINE AND TRENCHING PER IPC STANDARDS. REFER TO PLUMBING PLANS TYPE AND MATERIAL.
- 5 1" LANDSCAPE COPPER WATERLINE AND TRENCHING PER IPC STANDARDS. REFER TO LANDSCAPE PLANS.
- 6 6" PVC SEWERLINE AT 1.04% PER IPC STANDARDS. MAINTAIN 3'-FEET OF COVER OVER SEWER LINE UNDER RETENTION BASIN.
- 7 CONNECT TO EXISTING SEWER SERVICE TAP. CONTRACTOR TO FIELD VERIFY VERTICAL AND HORIZONTAL LOCATION OF EXISTING SERVICE PRIOR TO TRENCHING AND CONNECTION.
- 8 REFER TO BUILDING & PLUMBING PLANS FOR CONTINUATION OF UTILITIES INTO BUILDING.
- 9 REFER TO LANDSCAPE PLANS FOR CONTINUATION.
- 10 INSTALL 6"x 6" TEE, VALVE & COVER PER M.A.G. STD. DETAIL 340 & 391-1, TYPE 'A'. EXISTING ACP MAIN SHALL BE REMOVED AND REPLACED WITH D.I.P. PER DSPM SEC. 6-1.408.
- 11 CONSTRUCT 6" D.I.P. (PRESSURE CLASS 350 MIN. OR APPROVED EQUAL) FIRELINE.
- 12 CONSTRUCT 4" D.I.P. (PRESSURE CLASS 350 MIN. OR APPROVED EQUAL) FIRELINE.
- 13 WATER/SEWER CROSSING AND ENCASEMENT PER M.A.G. STD. DET. 404-3.
- 14 INSTALL 6" PVC CLEANOUT WITH OYE FITTING PER I.P.C. STANDARDS. ADJUST RIM TO FINISHED GRADE.
- 15 REFER TO FIRE SPRINKLER PLANS FOR CONTINUATION.
- 16 INSTALL 6" VALVE, BOX AND COVER PER M.A.G. STD. DET. 391-1.
- 17 INSTALL 4" VALVE, BOX AND COVER PER M.A.G. STD. DET. 391-1.
- 18 INSTALL 6" 90° BEND WITH THRUST BLOCKING PER M.A.G. SPECS.
- 19 INSTALL 6"x 4" TEE WITH THRUST BLOCKING PER M.A.G. SPECS.
- 20 4" PVC SEWERLINE AT 2.08% PER IPC STANDARDS.
- 21 INSTALL 4" DIA. PVC 45° BEND WITH SEWER CLEANOUT PER I.P.C. STANDARDS. ADJUST RIM TO FINISHED GRADE.
- 22 INSTALL FIRE HYDRANT ASSEMBLY COMPLETE PER M.A.G. STD. DET. 360-1 & C.O.B. STD. DET. 31412, 31414 & 31420.
- 23 EXISTING WATER SERVICE TAP AND METER TO BE ABANDONED PER CITY STANDARDS AND SPECS.

**OFF-SITE STREET LIGHTING NOTES:**

- A INSTALL NEW STREET LIGHT POLE. PROVIDE 25-FOOT TALL GALVANIZED STREETLIGHT POLE WITH 6-FT LUMINAIRE ARM PER C.O.S. STD. DETS. 2171-1 & 2171-2 WITH SIGNIFY LUMEC RFS-35W16LED3K-G2-R2M LUMINAIRE WITH CITYTOUCH CONNECTOR NODE, MODEL 127-277-CTCN.

**ON-SITE / OFF-SITE UTILITY CONSTRUCTION NOTES:**

- B REMOVE EXISTING POWER POLE. UNDERGROUND EXISTING UTILITIES PER PRIVATE UTILITY COMPANY STANDARDS.
- C REMOVE AND RELOCATE EXISTING COMMUNICATION RISER PER PRIVATE UTILITY COMPANY STANDARDS.
- D EXISTING GAS LINE AND METER TO BE ABANDONED AND REMOVED PER PRIVATE UTILITY COMPANY STANDARDS.
- E INSTALL NEW 3/4" WATER METER, BOX & COVER PER C.O.M. STANDARDS AND SPECS BY CITY FORCES.

This model is a double check valve, not a reduced pressure principle backflow preventer..

Per Pg 3 of BOD, 1-1/2" service line required. DSPM 6-1.416.

Tapping sleeves shall not be used where the branch diameter is equivalent to the mainline diameter. DSPM 6-1.408.

Where on the utility plan is this note referencing?

Where on the utility plan are these notes referencing?

Refer to City of Scottsdale standards, not COB. See COS Supplements to MAG.

Pressure reducing valves are required on all metered water service lines, per DSPM 6-1.407.

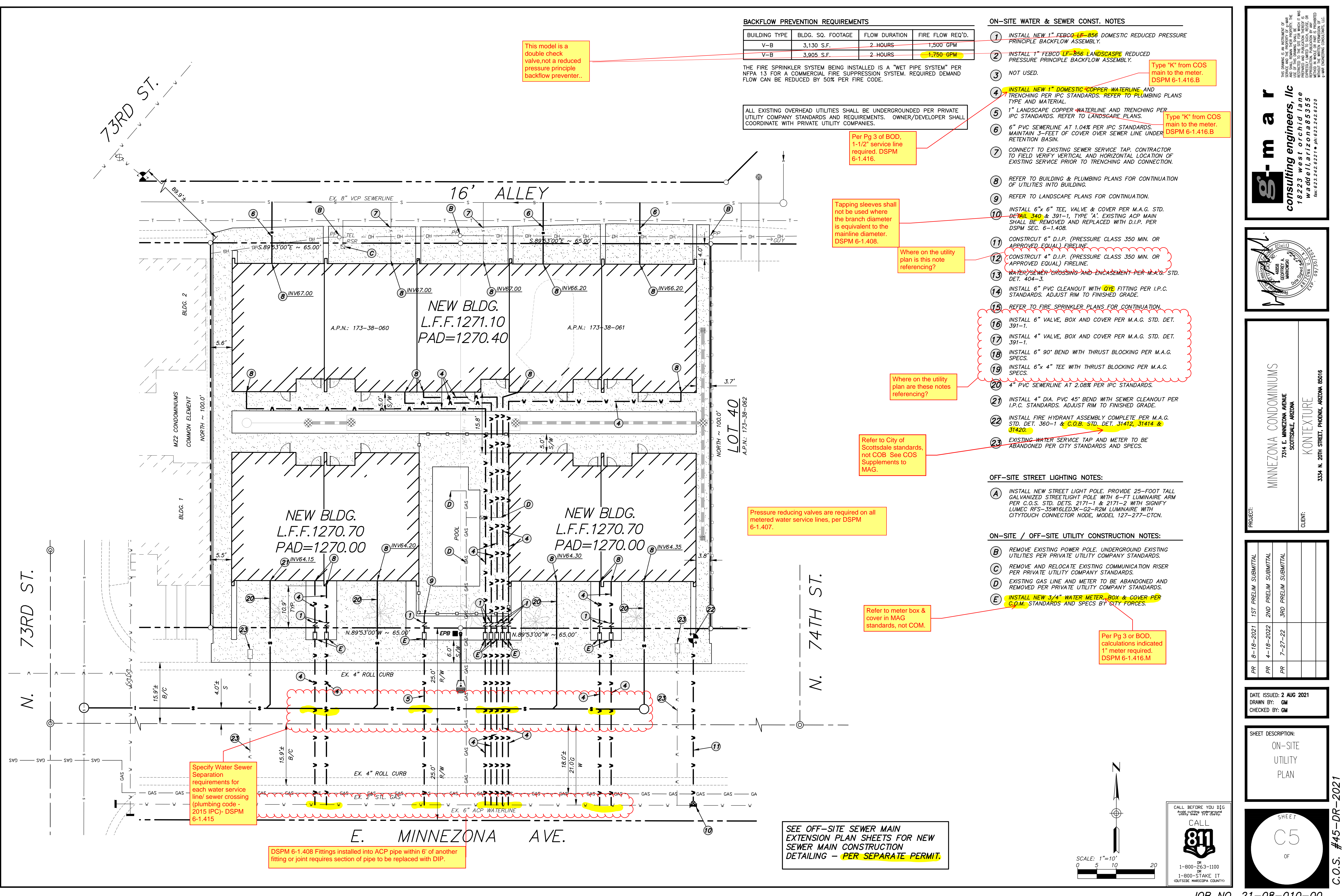
Refer to meter box & cover in MAG standards, not COM.

Per Pg 3 of BOD, calculations indicated 1" meter required. DSPM 6-1.416.M

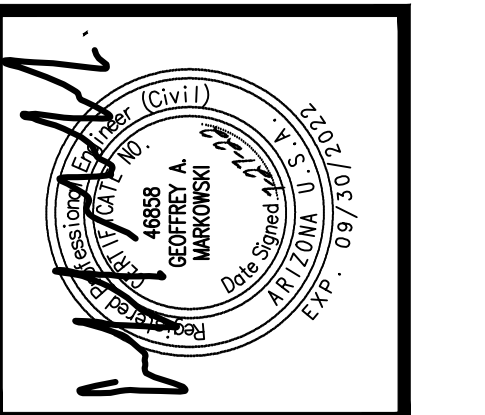
DSPM 6-1.408 Fittings installed into ACP pipe within 6' of another fitting or joint requires section of pipe to be replaced with D.I.P.

Specify Water Sewer Separation requirements for each water service line/ sewer crossing (plumbing code - 2015 IPC) - DSPM 6-1.415

SEE OFF-SITE SEWER MAIN EXTENSION PLAN SHEETS FOR NEW SEWER MAIN CONSTRUCTION DETAILING - PER SEPARATE PERMIT.



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 © MARK ENGINEERING CONSULTANTS, LLC



MINNEZONA CONDOMINIUMS  
 7314 E. MINNEZONA AVENUE  
 SCOTTSDALE, ARIZONA  
 CLIENT: KONTEXTURE  
 3334 N. 20TH STREET, PHOENIX, ARIZONA 85016

PR	8-18-2021	1ST PRELIM SUBMITTAL
PR	4-18-2022	2ND PRELIM SUBMITTAL
PR	7-27-22	3RD PRELIM SUBMITTAL

DATE ISSUED: 2 AUG 2021  
 DRAWN BY: GM  
 CHECKED BY: GM

SHEET DESCRIPTION:  
 ON-SITE  
 UTILITY  
 PLAN

SHEET 7  
 C5  
 OF

CALL BEFORE YOU DIG  
 811  
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 1-800-STAKE IT  
 OUTSIDE MARICOPA COUNTY

**CITY OF SCOTTSDALE:  
GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION**

- ALL IMPROVEMENT CONSTRUCTION SHALL COMPLY WITH THE LATEST MARICOPA COUNTY ASSOCIATION OF GOVERNMENTS STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND DETAILS AND THE DS&PM. IF THERE IS A CONFLICT, THE LATTER SHALL APPLY. ALL FACILITIES CONSTRUCTION SHALL COMPLY WITH THE 2003 IBC, 1994 UPC, 2003 IMC, 2003 IFC AND THE 1999 NEC.
- THE ENGINEERING DESIGNS ON THESE PLANS ARE APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
- APPROVAL OF THE PLANS BY THE CITY IS VALID FOR 6 MONTHS. IF A PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS OF REVIEW, THE PLANS SHALL BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
- A CITY CAPITAL PROJECTS INSPECTOR WILL INSPECT ALL WORK WITHIN THE CITY RIGHTS-OF-WAY, EASEMENTS AND FACILITIES.
- WHEREVER EXCAVATION IS DONE CONTACT THE BLUE STAKE CENTER AT 602-263-1100, 2 WORKING DAYS BEFORE EXCAVATION IS TO BEGIN. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL COLLECT IF NECESSARY.
- CITY ENCROACHMENT AND BUILDING PERMITS ARE REQUIRED FOR WORK IN PUBLIC RIGHTS-OF-WAY. EASEMENTS GRANTED FOR PUBLIC PURPOSES AND FACILITIES. PERMITS WILL BE ISSUED BY THE CITY'S ONE STOP SHOP. COPIES OF ALL PERMITS SHALL BE RETAINED ON-SITE AND SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE WORK STOPPAGE UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
- ALL EXCAVATION AND GRADING WHICH IS NOT IN PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC PURPOSES MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE 2003 EDITION OF THE INTERNATIONAL BUILDING CODE PREPARED BY THE INTERNATIONAL CODE COUNCIL. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY.
- THRUST RESTRAINT, WHERE REQUIRED, ON ALL CITY WATER LINES SHALL BE PROVIDED USING MEGALUG MECHANICAL JOINT RESTRAINTS OR CITY APPROVED EQUAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR SALVAGING PROTECTED NATIVE PLANTS PRIOR TO THE START OF CONSTRUCTION.
- ANY ASPHALT MIX DESIGN USED ON ALL CITY OF SCOTTSDALE PROJECTS SHALL HAVE BEEN APPROVED FOR THAT USE AND APPEAR ON THE "APPROVED LIST OF ASPHALT MIXES" AS DISTRIBUTED BY THE EAST VALLEY ASPHALT COMMITTEE (EVAC).
- SITE LINES SHALL BE SHOWN AT ALL INTERSECTION, ALLEY AND DRIVEWAY LOCATIONS.
- ANY DEVIATION FROM THE APPROVED PLANS SHALL BE REVIEWED AND APPROVED BY THE CITY OF SCOTTSDALE PRIOR TO THAT CHANGE BEING INCORPORATED INTO THE PROJECT.
- ANY SPECIAL INSPECTION REQUIRED SHALL BE IN ADDITION TO ANY ROUTINE INSPECTION BY THE CITY OF SCOTTSDALE.
- BASED ON THE INFORMATION SUBMITTED ON THE PLANS AND ASSOCIATED DOCUMENTS, THE CITY OF SCOTTSDALE HAS REVIEWED AND FOUND THEM TO BE IN ACCORDANCE WITH THE CITY OF SCOTTSDALE MUNICIPAL CODE AND ARE ACCEPTABLE FOR PERMIT ISSUANCE. THIS ACCEPTANCE BY THE CITY OF SCOTTSDALE DOES NOT AUTHORIZE VIOLATIONS OF ANY APPLICABLE CODE, ORDINANCE OR STANDARD AS ADOPTED BY THE MUNICIPAL CODE.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE AND REPLACE, AT THEIR COST, ANY AND ALL DAMAGED PAVEMENT, SIDEWALK, CURB AND GUTTER OUTSIDE THE PAY LIMIT, DAMAGED DUE TO THEIR ACTIVITIES ON THE PROJECT. THIS INCLUDES, BUT IS NOT LIMITED TO, THE REMOVAL AND REPLACEMENT OF NEWLY CRACKED, THE REMOVAL AND REPLACEMENT OF EXISTING CRACKS WHERE THE CRACKS HAVE BEEN ENLARGED DUE TO THE CONTRACTORS OPERATIONS, THE REMOVAL AND REPLACEMENT OF DEFORMED PAVEMENT, CURB AND GUTTER, SIDEWALK, ETC.. ALL SAW CUTS USED FOR THE REMOVAL OF THESE ITEMS SHALL BE PERPENDICULAR AND PARALLEL TO THE CENTERLINE CONTROLLING THAT ITEM, OR AT THE DISCRETION OF THE COS INSPECTOR.

**WATER & SEWER GENERAL NOTES (ON-SITE)**

- MATERIALS:**
- WATER PIPE MATERIAL SHALL CONFORM TO 2003 INTERNATIONAL PLUMBING CODE (IPC) 605 (CIP/DIP, GALVANIZED, COPPER, POLYETHYLENE PIPE) OR EQUAL.
  - PRIVATE SEWER LINES SHALL BE CONSTRUCTED PER THE IPC. PUBLIC SEWER LINES WHICH LAY WITHIN PUBLIC RIGHTS-OF-WAY AND EASEMENTS SHALL BE CONSTRUCTED PER M.A.G. ON-SITE SEWER PIPE MATERIAL SHALL BE PVC PIPE (SDR 35).
  - FIRELINE PIPE MATERIAL AND FITTINGS (4 IN. AND LARGER) SHALL CONFORM TO MWMA C900 CLASS 150 AND MAG SPEC. 750.2 (DUCTILE IRON PIPE) AND 750.4 (DUCTILE FITTINGS). (FOR PIPE 3 IN. AND SMALLER, SEE NOTE #1 ABOVE.)
  - IN ACCORDANCE WITH AAC R18-4-213, ALL MATERIALS WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61. THE WATER, SEWER AND FIRE SPRINKLER SERVICE LINE CONNECTION POINT(S).
- INSTALLATION:**
- THE CONTRACTOR SHALL VERIFY CIVIL PLANS AND PLUMBING PLANS FOR HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO CONSTRUCTION OF THE WATER, SEWER AND FIRE SPRINKLER SERVICE LINE CONNECTION POINT(S).
  - ALL ON-SITE WATER AND SEWER CROSSINGS SHALL CONFORM TO UPC 720.0.
  - ALL WATER AND SEWER LINES CROSSING GAS LINE MUST HAVE A MINIMUM OF 12" CLEARANCE. CONTRACTOR MUST COMPLY WITH G&A GENERAL NOTE #7 AND MUST HAND DIG CAREFULLY AT MARKED CROSSING LOCATION UNTIL GAS LINE IS FOUND AND EXPOSED.
  - SEWER CLEANOUTS SHALL CONFORM TO IPC 708.
  - SEWER BACKFLOW PREVENTION DEVICES SHALL CONFORM TO IPC 715.
- BACKFILL:**
- ALL ON-SITE TRENCHES SHALL REMAIN OPEN FOR CITY INSPECTION AND UNTIL AS-BUILT INFORMATION IS COMPLETED.
  - A NO. 12 BARE COPPER WIRE WILL BE INSTALLED FOR TRACING ALONG WITH THE MARKING TAPE SUCH THAT IT CAN BE DETECTED WITH STANDARD SURVEY TYPE METAL DETECTORS OR UTILITY LOCATORS TO A DEPTH OF 6 FEET. IT WILL TERMINATE AT EACH VALVE BOX COVER, MANHOLE OR CLEANOUT. CONTINUITY MUST BE CHECKED IN THE PRESENCE OF THE INSPECTOR AND AFTER BACKFILL IS COMPLETED.
  - DURING BACKFILL OPERATIONS THE CONTRACTOR WILL INSTALL MARKING TAPE A MAXIMUM DISTANCE OF 12 INCHES ABOVE THE PIPE CROWN. THE TAPE SHALL BE 3 INCHES WIDTH, ACID ALKALI RESISTANT, REINFORCED WITH A 100 LB. TENSILE STRENGTH MATERIAL, COLORED CODED - BLUE FOR WATER AND GREEN FOR SEWER - IMPRINTED WITH THE WORDING "CAUTION" AT 2 FOOT INTERVALS (MAXIMUM) AND ALSO IDENTIFYING THE UTILITY LINE IT IS PROTECTING.

**CIVIL ENGINEERING GENERAL NOTES**

- IF THE CONTRACTOR FINDS ANY DISCREPANCY OR OMISSION, THE ENGINEER SHALL BE NOTIFIED BEFORE ANY INTERPRETATION IS MADE.
- QUANTITIES SHOWN ARE FOR PERMIT PURPOSES ONLY AND ARE NOT FOR BIDDING OR CONTRACTING PURPOSES. THE CONTRACTOR IS RESPONSIBLE FOR BIDDING HIS OWN QUANTITY TAKE-OFF.
- THE BUILDING MATERIALS CONTAINING ASBESTOS WILL NOT BE USED ON THIS PROJECT.
- THE CONTRACTOR SHALL MAKE NO CLAIM FOR QUANTITY ADJUSTMENT UNLESS ALL CONSTRUCTION SURVEY STAKES ARE MAINTAINED FOR VERIFICATION.
- NOTHING IN THE CONTRACT DOCUMENTS SHALL CREATE ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR THE ENGINEER AND THE SUBCONTRACTOR.
- THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION OR SAFETY MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES UTILIZED IN CONNECTION BY THE CONTRACTOR OR SUBCONTRACTORS.
- CHANGE ORDERS SHALL BE EXECUTED IN WRITING BY THE OWNER OR HIS REPRESENTATIVE. VERBAL CHANGES WILL NOT BE HONORED.
- SEE ARCHITECTURAL DRAWINGS FOR ALL ON-SITE:
  - HORIZONTAL CONTROL & BUILDING LOCATIONS.
  - DETAILS AND HORIZONTAL LOCATION OF CURBS AND SIDEWALKS.
  - PARKING LOT LAYOUT.
- IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL EXISTING UNDERGROUND UTILITY FACILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION AND TAKE ALL NECESSARY PRECAUTIONS TO AVOID ANY DAMAGE TO EXISTING UNDERGROUND FACILITIES. CALL BLUE STAKE CENTER (602) 263-1100 OR A PRIVATE UNDERGROUND UTILITY LOCATION COMPANY 48 HOURS PRIOR TO EXCAVATING. THE ENGINEER AND/OR OWNER CANNOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS.
- UNDERGROUND INFORMATION AND UTILITIES SHOWN HAVE BEEN OBTAINED FROM INFORMATION PROVIDED ON QUARTER SECTION MAPS FROM THE UTILITY COMPANIES LOCATED WITHIN THE AREA. THUS, UNDERGROUND INFORMATION MUST BE FIELD VERIFIED BEFORE CONSTRUCTION.
- UTILITY COMPANIES SERVING THIS AREA ARE:
  - WATER: CITY OF SCOTTSDALE
  - SEWER: CITY OF SCOTTSDALE
  - TELEPHONE: CENTURYLINK
  - ELECTRIC: ARIZONA PUBLIC SERVICE
  - GAS: SOUTHWEST GAS
  - CABLE TV: COX COMMUNICATIONS
- LOCATION OF THE IRRIGATION SYSTEM IS THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGES AT HIS COST.
- THE TOPOGRAPHIC INFORMATION SHOWN ON THIS DRAWING WAS OBTAINED FROM A TOPOGRAPHIC SURVEY PREPARED BY G-MAR, LLC, DATED, AUGUST 6, 2021 AND UPDATED, APRIL 27, 2022. PH: 602-524-7877.
- BOUNDARY INFORMATION SHOWN ON THIS PLAN WAS OBTAINED FROM A CONDOMINIUM PLAT PREPARED BY OUTER LIMITS LAND SURVEYING, PROJECT NO. 21123, DATED, 11-15-2021. BOUNDARY INFORMATION SHOWN ON THIS DRAWING IS NOT CERTIFIED BY THE ENGINEER OF RECORD. CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD PRIOR TO LAYING OUT NEW CONSTRUCTION IF DISCREPANCIES ARE FOUND IN THE FIELD.
- THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY THE SITE SURVEY INFORMATION AND OBSERVE ANY CHANGES.

**GENERAL PAVING NOTES**

- THE FOLLOWING MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) SPECIFICATION SHALL APPLY TO THE GRADING & DRAINAGE PLANS UNLESS OTHERWISE NOTED:
  - ASPHALTIC PAVEMENT PER MAG SPEC. 321, 710, & 711 (R19 MM OR C-3/4 MIX DESIGN).
  - BITUMINOUS TACK COAT PER MAG SPEC. 321.4.
  - CONCRETE PAVEMENT PER MAG SPEC. 725.
  - BASE COURSE PER MAG SPEC. 310 & 702.2 (A25MM).
  - SAWCUT AND REMOVAL PER MAG SPEC. 336.
  - JOINT SEALANT PER MAG SPEC. 729.
  - ASPHALT CONCRETE OVERLAY PER MAG SPEC. 322.
  - BITUMINOUS PRIME COAT PER MAG SPEC. 315.
  - FOG SEAL COAT PER MAG SPEC. 333.
- RELOCATE ITEMS PER MAG SPEC. 350. CONTRACTOR RESPONSIBLE FOR FEES AND RELOCATION COSTS.
- THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADJUSTMENT TO FINISH GRADE OF ALL UTILITY VALVE COVERS, CLEANOUTS AND MANHOLE CASTINGS.
- PAVEMENT SEALANT SPECIFICATIONS:
  - SWEEP AND CLEAN SURFACE.
  - TREAT OIL SPOTS WITH PETRO SEAL OR APPROVED EQUAL.
  - CLEAN AND FILL CRACKS WITH BREWER FLEX OR APPROVED EQUAL.
  - FURNISH AND APPLY TWO COATS OF HUNTSEAL OR APPROVED EQUAL.
- PAVEMENT MARKING MATERIALS SHALL BE FED. SPEC. TT-P-115 WITHOUT GLASS SPHERES; WHITE OR YELLOW AS INDICATED ON DRAWINGS. APPLICATION SHALL BE AS FOLLOWS:
  - APPLY PAINT WHERE INDICATED TO A 15 MIL WET THICKNESS x 4 INCHES WIDE AND TO DIMENSIONS SHOWN ON DRAWINGS. LINES TO BE STRAIGHT AND TRUE TO LINE WITH SHARP, CLEAN EDGES. INCLUDE ALL STRIPING, DIRECTIONAL ARROWS, CROSSWALKS, LETTERING, HANDICAP DESIGNATIONS AND ALL OTHER TRAFFIC CONTROL MARKINGS SHOWN OR REQUIRED.
- EQUIPMENT: SPECIFICALLY DESIGNED AND MANUFACTURED TO APPLY PAVEMENT PAINT.

**PUBLIC SEWER MAIN  
EXTENSION PLAN  
FOR  
7314 E. MINNEZONA  
SCOTTSDALE, ARIZONA 85251**

**LEGAL DESCRIPTION**

LOT 38 AND 39 OF THE FINAL PLAT OF "DARYL ESTATES - UNIT TWO" AS RECORDED IN BOOK 61 OF MAPS, PAGE 48, RECORDS OF MARICOPA COUNTY, ARIZONA.

**PROJECT DESCRIPTION**

DEMOLITION OF EXISTING STRUCTURES AND POOL. CONSTRUCTION OF A NEW MULTI-FAMILY BUILDING STRUCTURES ALONG WITH NEW LANDSCAPING, WALKWAYS, PATIOS, POOL AND GRADING AND DRAINAGE IMPROVEMENTS. NEW STRUCTURES WILL BE PLACED SO THAT THE FINISHED FLOOR IS FREE FROM ANY INUNDATION FROM THE 100-YEAR DESIGN STORM EVENT AND AT LEAST 12-INCHES ABOVE NEAREST ADJACENT EXISTING GRADE. ALL GRADING AROUND THE FOUNDATION OF THE NEW STRUCTURE WILL ALLOW DRAINAGE TO FLOW AWAY FROM THE FOUNDATION. NO OTHER ON-SITE GRADING IMPROVEMENTS REQUIRED.

**SHEET INDEX:**

SHEET	NO.	TITLE:
WR1	1	PUBLIC SEWER MAIN COVER SHEET
WR2	2	PUBLIC SEWER MAIN EXTENSION PLAN

**OFF-SITE QUANTITIES FOR SEWER TAP:**

6" SEWER TAP:	3 EA.
6" PVC SEWER LINE:	84 L.F.
A.C. SAWCUT, REMOVAL, REPLACEMENT:	133 S.Y.
4" VERT. CURB & GUTTER SAWCUT, REMOVAL, REPLACEMENT:	4 L.F.
6" SEWER CLEANOUT:	4 EA.
8" PVC SRD 35 SEWER MAIN:	286 L.F.
48" DIA. SEWER MANHOLE:	2 EA.

NOTE: QUANTITIES ARE FOR PERMIT PURPOSES ONLY. CONTRACTOR SHALL MAKE THEIR OWN TAKE-OFFS FOR CONSTRUCTION AND BIDDING.

**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	DATE
REGISTRATION NUMBER	

Comments on sewer BOD.

**NO CONFLICT SIGNATURE BLOCK**

Utility Company	Representative	Date Sent	Date Signed
ARIZONA PUBLIC SERVICE COMPANY	CCWCONTROLDESK@APSC.COM	-	3-21-2021
COX COMMUNICATIONS	PHX.TMC@COX.COM	-	N/A
CENTURYLINK	MAPS@CENTURYLINK.COM	-	N/A
SOUTHWEST GAS CORPORATION	VALERIE GALLARDO	-	N/A
EL PASO NATURAL GAS. CO.	JENNIFER ANGELES	-	N/A
CITY OF SCOTTSDALE, WATER	-	-	-
CITY OF SCOTTSDALE, SEWER	-	-	-

Engineer's Certification  
I, **GEOFFREY MARKOWSKI**, being the person responsible for designing the facilities necessary to serve this development, hereby certify that all of the utility companies listed above, have reviewed this project proposal. Conflict Forms have been obtained from each utility company and are not included with this submittal. I also certify that all on site transformers, cable boxes and any other public/private utility appurtenances are placed such that they do not impact the use or intended use of any dedicated easements or facilities developed with this project including but not limited to stormwater storage basins, sight distance easements and NAOS or other open space easements.

*Geoffrey Markowski*      2-25-2021  
Signature      Date

**OWNER/DEVELOPER**

SCOTT GRADEN  
8144 E. DEL BAROJERO DR.  
SCOTTSDALE, ARIZONA 85258  
PH: 602-875-6221  
CONTACT: SCOTT GRADEN

**ARCHITECT/DESIGNER**

KONTEXTURE  
3334 N. 20TH STREET  
PHOENIX, ARIZONA 85016  
PH: 602-875-6221  
CONTACT: DANIEL ISTRATE

**DATUM**

ADD 1200 TO SPOT ELEVATIONS SHOWN ON PLAN (NAVD '88 DATUM).

**BENCHMARK**

GDAC UNIQUE PID: 24574-1

DESCRIPTION: FOUND 3" CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE, 0.8' DOWN AT THE INTERSECTION OF CAMELBACK AND SCOTTSDALE ROAD WITH AN ELEVATION OF 1277.516' (NAVD '88)

**ZONING: R-5**

A.P.N.: 173-38-060 & 173-38-061  
NET LOT AREA: 13,000 S.F. (0.298 AC)  
O.S. #18-45

SETBACKS: FRONT = 3'  
REAR = 3'  
LEFT = 3'  
RIGHT = 3'

TOTAL DISTURBED AREA: ±13,000 S.F.

**ABBREVIATIONS**

(SOME ABBREVIATIONS MAY NOT APPLY TO THESE DRAWINGS)

BOTT.	BOTTOM
B/C	BACK OF CURB
C.F.	CUBIC FEET
CLF	CHAIN LINK FENCE
KONTEXTURE	KONTEXTURE
CONC.	CONCRETE
C.Y.	CUBIC YARD
D.E.	DRAINAGE EASEMENT
D/W	DRIVEWAY
ESMT.	EASEMENT
EXIST.	EXISTING
F.F.	FINISHED FLOOR
FND.	FOUND
FT.	FEET
MAS.	MASONRY
M	MONUMENT LINE
N.T.S.	NOT TO SCALE
PVMT.	PAVEMENT
P	PROPERTY LINE
PROP.	PROPOSED
P.U.E.	PUBLIC UTILITY EASEMENT
R/W	RIGHT OF WAY
S/W	SIDEWALK
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE

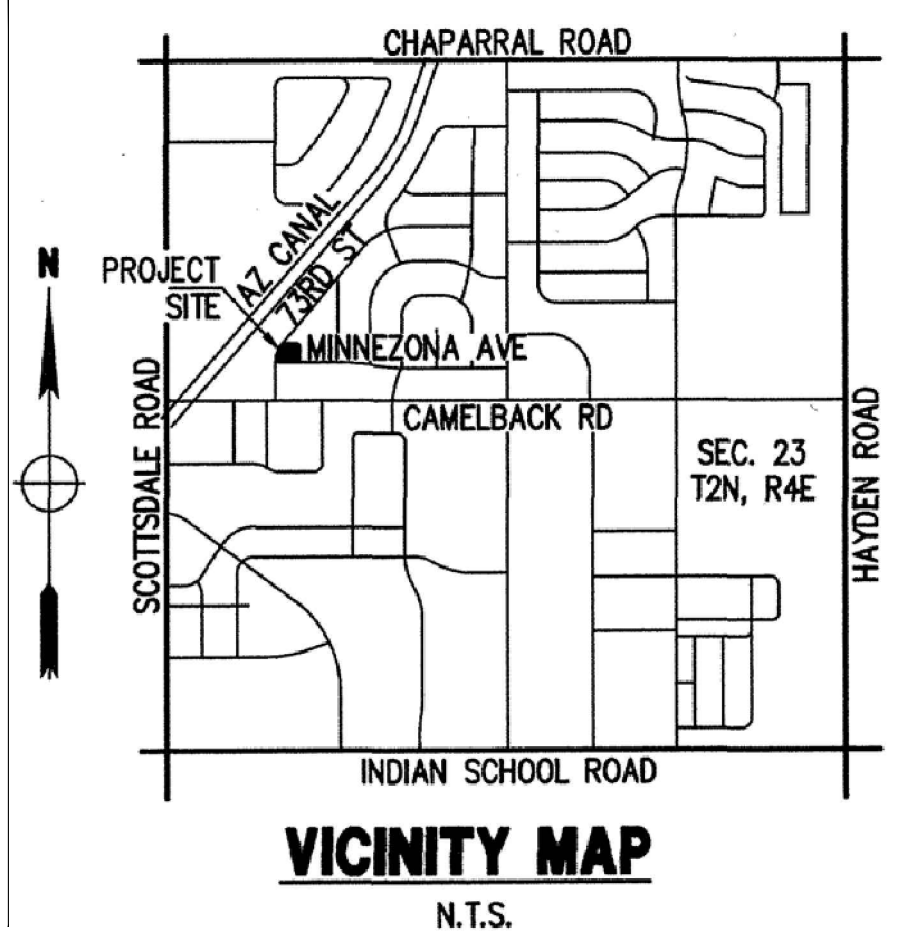
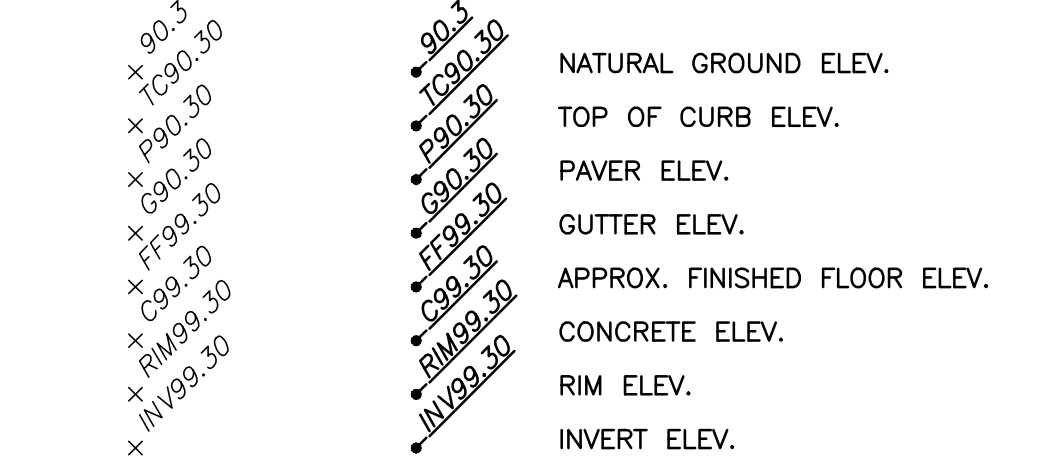
**LEGEND**

(SOME ITEMS MAY NOT APPLY TO THESE DRAWINGS)

	BOUNDARY LINE
	MONUMENT LINE
	PROPERTY CORNER
	EASEMENT LINE
	PROPOSED NAOS BOUNDARY

EXISTING	PROPOSED	
		MAS. FENCE
		VERT. CURB & GUTTER
		CONCRETE CURB
		BUILDING
		CONCRETE
		BRASSCAP IN HANDHOLE
		BRASSCAP FLUSH
		SIGN
		GAS METER
		TELEPHONE RISER
		CABLE RISER
		POWER POLE
		ELECTRICAL GUY DOWN
		STREET LIGHT OR LIGHT POLE
		WATER METER
		BACK FLOW PREVENTION ASSEMBLY
		DRYWELL/CATCH BASIN
		SPRINKLER CONTROL BOX
		WATER VALVE
		FIRE HYDRANT
		WATER
		UNDERGROUND CABLE TV
		OVERHEAD TELEPHONE
		UNDERGROUND TELEPHONE
		OVERHEAD ELECTRICAL
		UNDERGROUND ELECTRICAL
		SANITARY SEWER
		GAS
		STORM DRAIN
		FIRE LINE

	NATURAL GROUND ELEV.
	TOP OF CURB ELEV.
	PAVER ELEV.
	GUTTER ELEV.
	APPROX. FINISHED FLOOR ELEV.
	CONCRETE ELEV.
	RIM ELEV.
	INVERT ELEV.



**VICINITY MAP**

N.T.S.

**g-mar consulting engineers, llc**  
18223 west orchid lane  
waddell, arizona 85355  
fax: 602.242.6221 • ph: 602.242.6220  
P. MARK ENGINEERING CONSULTANTS, LLC



PROJECT: MINNEZONA CONDOMINIUMS  
7314 E. MINNEZONA AVENUE  
SCOTTSDALE, ARIZONA  
CLIENT: KONTEXTURE  
3334 N. 20TH STREET, PHOENIX, ARIZONA 85016

REV	DATE	DESCRIPTION
1ST	08-25-2021	1ST PRELIM SUBMITTAL
2ND	08-25-2021	2ND PRELIM SUBMITTAL
3RD	08-25-2021	3RD PRELIM SUBMITTAL

DATE ISSUED: 2 AUG 2021  
DRAWN BY: GM  
CHECKED BY: GM

SHEET DESCRIPTION:  
PUBLIC SEWER MAIN  
EXTENSION  
PLAN

SHEET 7  
WR1  
OF

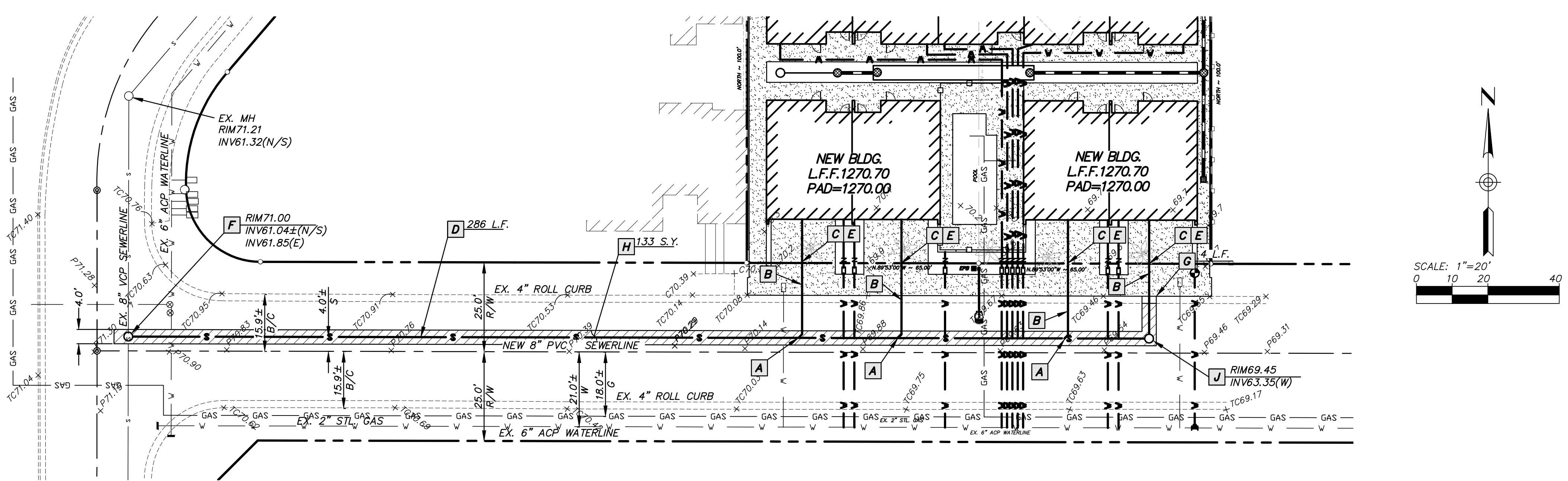
CALL BEFORE YOU DIG  
CALL 811  
1-800-OR-CALL-IT  
1-800-STAKE IT  
OUTSIDE MARICOPA COUNTY

APPROVED FOR: WWR-22-000--  
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPT.

COUNTY HEALTH DELEGATE \_\_\_\_\_ DATE \_\_\_\_\_

OFF-SITE SEWER CONNECTION NOTES:

- A** INSTALL NEW SEWER CONNECTION PER M.A.G. STD. DET. 440-3 TYPE 'C'. CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING SEWER STUB PRIOR TO TRENCHING.
- B** 6" PVC (SDR 35) SEWERLINE @ 2.08% TRENCH & CONST. PER IPC STANDARDS. OFF-SITE TRENCHING IN RIGHT-OF-WAY PER C.O.S. STD. DET. 2201.
- C** INSTALL 6" SEWER CLEANOUT AND CAP AT RIGHT-OF-WAY LINE PER M.A.G. STD. DET. 441. INSTALL 6" BACKWATER VALVE AT RIGHT-OF-WAY PER I.R.C. SECTION 300B.1.
- D** 8" PVC (SDR 35) SEWERLINE @ 0.52% OFF-SITE TRENCHING IN RIGHT-OF-WAY PER C.O.S. STD. DET. 2201.
- E** REFER TO GRADING AND DRAINAGE PLANS FOR CONTINUATION ON-SITE.
- F** INSTALL 48" DIA. SANITARY SEWER MANHOLE PER M.A.G. STD. DETAILS 420-1 AND 420-2 WITH FRAME AND LID PER M.A.G. STD. DET. 423-3. SAWCUT AND TAP EXISTING SEWER MAIN AT INVERT PER PLAN. CONTRACTOR TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING MANHOLE AND MAIN PRIOR TO TRENCHING AND TAPPING. SEE PLAN FOR RIM AND INVERT ELEVATIONS. ADJUST RIM TO FINISHED GRADE.
- G** SAWCUT, REMOVE & REPLACE EXIST. 4" VERT. CURB AND GUTTER PER M.A.G. STD. DET. 220-1 TYPE 'C'. REMOVE AND REPLACE TO NEAREST CONTROL JOINTS.
- H** SAWCUT, REMOVE AND REPLACE EXISTING ASPHALT PAVEMENT PER C.O.S. STD. DET. 2200. MATCH INTO EXISTING PAVEMENT.
- J** INSTALL 48" DIA. SANITARY SEWER MANHOLE PER M.A.G. STD. DETAILS 420-1 AND 420-2 WITH FRAME AND LID PER M.A.G. STD. DET. 423-3. SEE PLAN FOR RIM AND INVERT ELEVATIONS. ADJUST RIM TO FINISHED GRADE. ADJUST RIM TO FINISHED GRADE.



E. MINNEZONA

C.O.S. INSPECTOR SHALL DETERMINE THE LIMITS OF SAWCUT FOR NEW SEWER MAIN AND TAP.

TWO (2) BEDROOM, ONE OFFICE, ONE GARAGE UNITS: 9 UNITS TOTAL

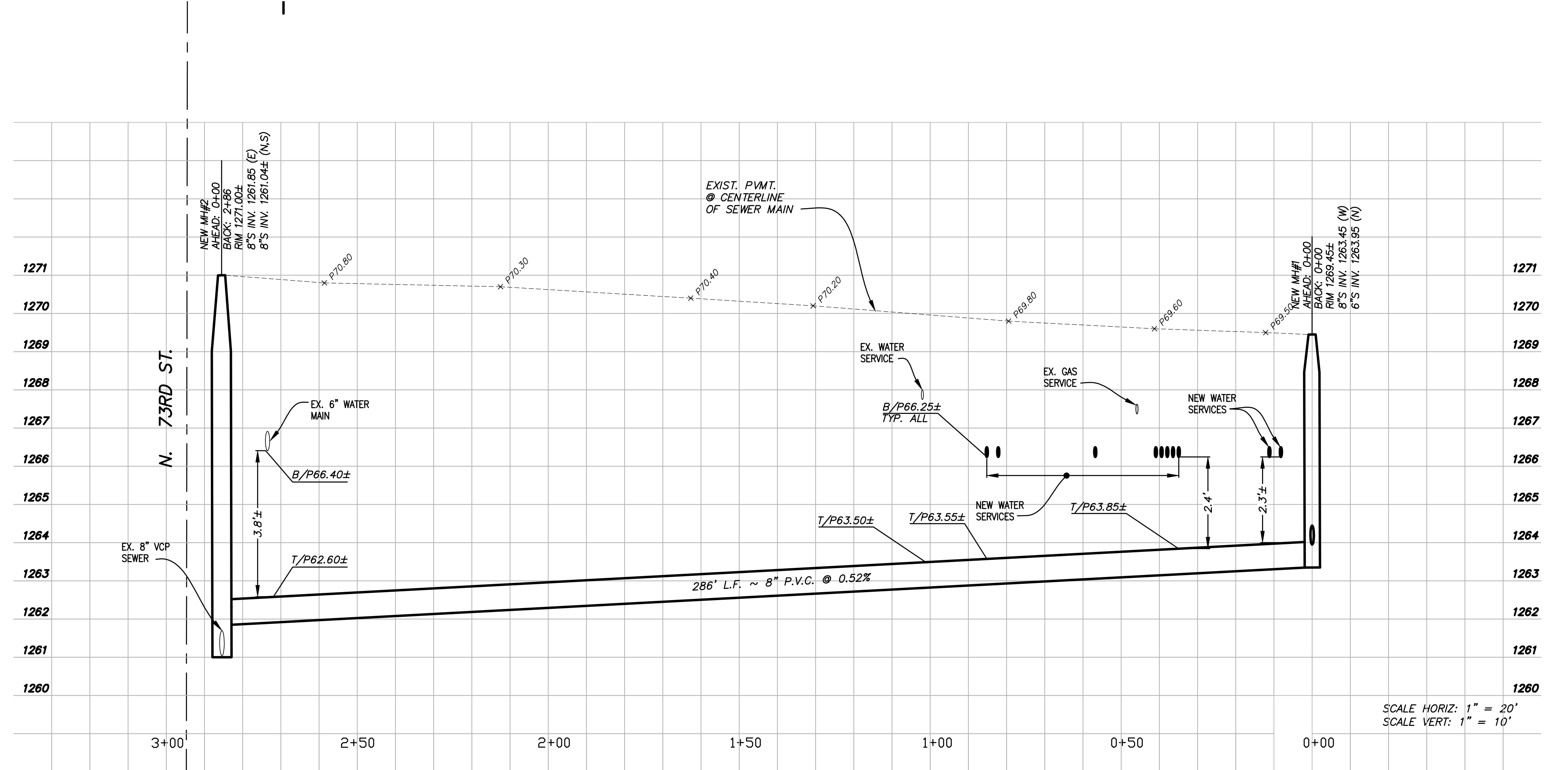
BUILDING AREA:  
 2ND FLOOR GFA: 7934 S.F.  
 3RD FLOOR GFA: 7426 S.F.  
 CORNER UNIT AREA (TO CENTERLINE OF SHARED WALL):  
 1ST FLOOR GFA: 788 S.F.  
 2ND FLOOR GFA: 889 S.F.  
 3RD FLOOR GFA: 893 S.F.  
 INTERIOR UNIT AREA (TO CENTERLINE OF SHARED WALL):  
 1ST FLOOR GFA: 788 S.F.  
 2ND FLOOR GFA: 866 S.F.  
 3RD FLOOR GFA: 770 S.F.

REQUIRED OPEN SPACE:  
 FRONTAGE OPEN SPACE: 2600 S.F. (20 S.F. PER LINEAR FOOT OF FRONTAGE)  
 REMAINDER: 260 S.F. (22% TOTAL OPEN SPACE MINUS FRONTAGE OPEN SPACE)

TOTAL: 2860 S.F. MINIMUM  
 REQUIRED PRIVATE OUTDOOR LIVING SPACE:  
 1ST FLOOR UNITS: 704 S.F. (1 X S.F. OF GFA)  
 2ND - 3RD FLOOR UNITS: 766 S.F. (.05 X S.F. OF GFA)  
 TOTAL: 1470 S.F. MINIMUM

LOT AREA:  
 PROPERTY AREA: 12,789 S.F.  
 POOL AREA: 365 S.F.  
 TRASH ENCLOSURE: 160 S.F.  
 PAVING/HARDSCAPE AREA: 4112 S.F. (NOT INCLUDING BUILDING FOOTPRINT OR POOL AREA)  
 PERVIOUS/SOFTSCAPE AREA: 2085 S.F. (GROUND LEVEL ONLY)

SITE INFORMATION:  
 APN: 173-38-060, 173-38-061 (REPLAT IN PROGRESS)  
 ZONING: R-5 (R-2 ALLOWED ON SITE)  
 LOT SIZE: 12,789 SQ. FT. @ 0.29 AC.  
 SECTION TOWN RANGE: 23 2N 4E  
 PUC: 0335  
 SUBDIVISION: DARYL ESTATES 2



**g-m a r**  
 consulting engineers, llc  
 18223 west orchid lane  
 waddell, arizona 85355  
 fax: 623.242.6221 • ph: 623.242.6220  
THIS DRAWING IS AN INSTRUMENT OF SERVICE. IT IS THE PROPERTY OF G-MAR CONSULTING ENGINEERS, LLC. NO PART OF THIS DRAWING SHALL BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF G-MAR CONSULTING ENGINEERS, LLC.



MINNEZONA CONDOMINIUMS  
 7314 E. MINNEZONA AVENUE  
 SCOTTSDALE, ARIZONA  
 CLIENT: KONTEXTURE  
 3334 N. 20TH STREET, PHOENIX, ARIZONA 85016

PR	8-18-0021	1-BSE-PRELIM ISUBMITTALS/UNIT
PR	4-18-0022	2-AND-PRELIM/2008/01/24/UNIT
PR	7-27-22	3RD PRELIM SUBMITTAL

DATE ISSUED: 2 AUG 2021  
 DRAWN BY: GM  
 CHECKED BY: GM

SHEET DESCRIPTION:  
 SEWER MAIN  
 EXTENSION  
 PLAN

SHEET  
 WR2  
 OF

CALL BEFORE YOU DIG  
 811  
 OR  
 1-800-263-1100  
 OR  
 1-800-STAKE IT  
(OUTSIDE MARICOPA COUNTY)

## APPENDIX C

# Arizona Flow Testing LLC

## HYDRANT FLOW TEST REPORT

BOD narrative states there are 2 hydrant tests. Only one is included in the BOD report.

Project Name: Minnezona Condominiums  
Project Address: 7314 East Minnezona Avenue, Scottsdale, Arizona, 85251  
Client Project No.: Not Provided  
Arizona Flow Testing Project No.: 21586  
Flow Test Permit No.: C66638  
Date and time flow test conducted: November 4, 2021 at 8:10 AM  
Data is current and reliable until: **May 4, 2022**  
Conducted by: Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)  
Witnessed by: Ray Padilla – City of Scottsdale-Inspector (602-541-0586)

### Raw Test Data

Static Pressure: **100.0 PSI**  
(Measured in pounds per square inch)

Residual Pressure: **42.0 PSI**  
(Measured in pounds per square inch)

Pitot Pressure: **17.0 PSI**  
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch Pollard Diffuser  
(Measured in inches)

Coefficient of Diffuser: .9

Flowing GPM: **1,772 GPM**  
(Measured in gallons per minute)

GPM @ 20 PSI: **2,108 GPM**

### Data with 28 PSI Safety Factor

Static Pressure: **72.0 PSI**  
(Measured in pounds per square inch)

Residual Pressure: **14.0 PSI**  
(Measured in pounds per square inch)

Distance between hydrants: Approx.: 580 Feet

Main size: Not Provided

Flowing GPM: **1,772 GPM**

GPM @ 20 PSI: **1,670 GPM**

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

### Flow Test Location

North ↑



## APPENDIX D

**TABLE B105.1  
MINIMUM REQUIRED FIRE-FLOW AND FLOW DURATION FOR BUILDINGS**

FIRE-FLOW CALCULATION AREA (square feet)					FIRE-FLOW (gallons per minute) <sup>b</sup>	FLOW DURATION (hours)
Type IA and IB <sup>a</sup>	Type IIA and IIIA <sup>a</sup>	Type IV and V-A <sup>a</sup>	Type IIB and IIIB <sup>a</sup>	Type V-B <sup>a</sup>		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	3
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the *International Building Code*.

b. Measured at 20 psi residual pressure.

# Pressure Drop Online-Calculator

---

## Calculation output

Flow medium: Water 20 °C / liquid  
Volume flow:: 1750 gal/min  
Weight density: 62.4 lb./cu.ft.  
Dynamic Viscosity: 1.00161 mPa s  
Element of pipe: circular  
Dimensions of element: Diameter of pipe D: 6 in.  
Length of pipe L: 51 ft.

Velocity of flow: 19.86 ft./s  
Reynolds number: 920516  
Velocity of flow 2: -  
Reynolds number 2: -  
Flow: turbulent  
Absolute roughness: .024 in.  
Pipe friction number: 0.03  
Resistance coefficient: 2.91  
Resist.coeff.branching pipe: -  
Press.drop branch.pipe: -  
Pressure drop: 1111.61 lbw./sq.ft.  
7.72 psi

---

Note: The pressure drop was calculated by the online calculator of [www.pressure-drop.com](http://www.pressure-drop.com). We can not warrant the correctness of this software. The software is produced carefully. But no computer software is without bugs. Therefore the calculations are your own risk.

\*\*\*\*\*

**Important notice: The new version of the Online-Calculator is available: [www.pressure-drop.online](http://www.pressure-drop.online)**

\*\*\*\*\*

**Do you know our software SF Pressure Drop 10.x for Excel?**

**Information: [www.pressure-drop.com](http://www.pressure-drop.com)**

\*\*\*\*\*

## APPENDIX E







