

JSA CIVIL
Engineering | Planning | Management

Crash Champions

APN 501-44-993
Autoshow Drive
Surprise, Arizona

Water Report

PREPARED FOR

Crash Champions
601 Oakmont Lane, Suite 400
Westmont, IL 60559

PREPARED BY

JSA CIVIL
Engineering | Planning | Management

111 TUMWATER BLVD SE, SUITE B203
TUMWATER, WA 98501
CONTACT: CHARLIE SEVERS, PE
PHONE: 360|515|9600

SURPRISE APPROVAL

THIS REPORT HAS BEEN REVIEWED FOR COMPLIANCE WITH CITY REQUIREMENTS PRIOR TO ISSUANCE OF PERMITS. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. THIS COMPLIANCE APPROVAL SHALL NOT PREVENT THE CITY ENGINEER FROM REQUIRING CORRECTIONS OF ERRORS OR OMISSIONS IN REPORTS FOUND TO BE IN VIOLATION OF LAWS OR ORDINANCES.

CITY OF SURPRISE ENGINEER

DATE

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The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



Daniel Phillips

March 10, 2025

Prepared by Daniel Phillips

Date

Charlie Severs

March 10, 2025

Reviewed by Charlie Severs

Date

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Introduction

Crash Champions is proposing to a new commercial development on a 3.52 acre parcel, APN 501-44-993, on the south side of Autoshow Drive in the City of Surprise. The project is located in the Prasada PAD, Prasada Gateway Village 3 (PGV-3).

Project Description

Project Name and Address

The project site is located on the south side of Autoshow Drive and the address is not yet assigned. The parcel is APN 501-44-993, and is Lot 1C of the AEO Powersports subdivision.

Purpose

Crash Champions proposes to construct a ±21,000 square foot building that will house an autobody repair facility. A detached ±1,900 square foot covered car detailing and handwash station is proposed on the site also. The development proposes to connect to an existing 8-inch water line stubbed on to the parcel from the existing 10-inch water main located south of the centerline of Autoshow Drive.

Location and Topography

The site is within a portion of the southwest quarter of Section 13, Township 3 North, Range 2 West, Gila and Salt River Meridian, City of Surprise, Maricopa County Arizona. See Figure 1 for a vicinity map. The site is undeveloped and is historically farm field. To the north and east of the site there is commercial development. To the west and south of the site remains undeveloped farm fields. The land slopes from northwest to southeast gently at slopes of less than 1%. An existing ditch runs from north to south on the east side of the site, discharging to the parcel to the south.



Figure 1: Vicinity Map

Existing Conditions

The subject parcel has an 8-inch water line stubbed in from the existing 10-inch C900 PVC water main located south of the Autoshow Drive centerline. The existing water facilities are in EPCOR's water service area. The existing water infrastructure is included in the topographic survey, see Appendix 1.

Design Criteria

The water system is in EPCOR's water service area. The water system is designed to comply with EPCOR's 2020 Developer and Engineering Guide. The water system plans are included in Appendix 2. A water system analysis and design report has been prepared by Telgian Engineering and Consulting. The complete Telgian report is found in Appendix 3. Telgian's analysis complies with the International Building Code (IBC) and International Fire Code (IFC), including the City of Surprise amendments and the 2020 EPCOR Developer and Engineering Guide.

Water Demand Calculations

The water demand requirements for the project are tabulated in Telgian's report. The demand numbers are based on EPCOR's Design Criteria for Water Systems, found in their 2020 Developer and Engineering Guide. A commercial development uses a demand of 1,700 gpd/acre with max day peaking factor of 1.8 and peak hour peaking factor of 3.0. Telgian performed an analysis of the water system at average day demand, max day demand, and peak hour demand. In these scenarios the system pressure is maintained above EPCOR's minimum required pressure of 55 psi and 40 psi at peak hour demand and less than the maximum pressure of 80 psi above which a pressure reducing valve is required. The analysis is included in Telgian's report in Appendix 3.

Fire Flow Analysis

Telgian performed a fire hydrant flow test on March 7, 2025. The building is \pm 21,000 square feet, Type VB construction. Per Table B105.1(1) of the 2018 International Fire Code the required fire flow is 4,000 gpm. The building will be equipped with an automatic sprinkler system so the required fire flow may be reduced to 25% of the value in Table B105.1(1), but no less than 1,500 gpm. The fire flow demand based on the 2018 International Fire Code and the City of Surprise Ordinance 2019-31 (Local Amendments to the 2018 International Codes and the 2017 National Electrical Code) is 1,500 gallons per minute. The flow test results are documented in Telgian's report in Appendix 3.

The water system is able to provide the required fire flow of 1,500 gpm while maintaining a residual pressure greater than 20 psi. The total fire flow available at a residual pressure of 20 psi is 4,860 gpm, see Figure 2.

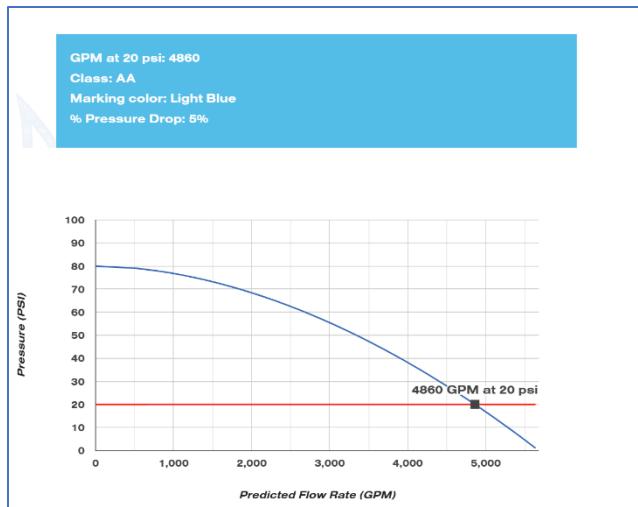


Figure 2: Predicted Fire Flow Rate @ 20 psi Residual Pressure

The proposed water system plans are enclosed in Appendix 2.

Summary and Conclusions

The proposed project has been designed in conformance with EPCOR's 2020 Developer and Engineering Guide, the 2018 International Fire Code and the City of Surprise's amendments to the 2018 International Fire Code.

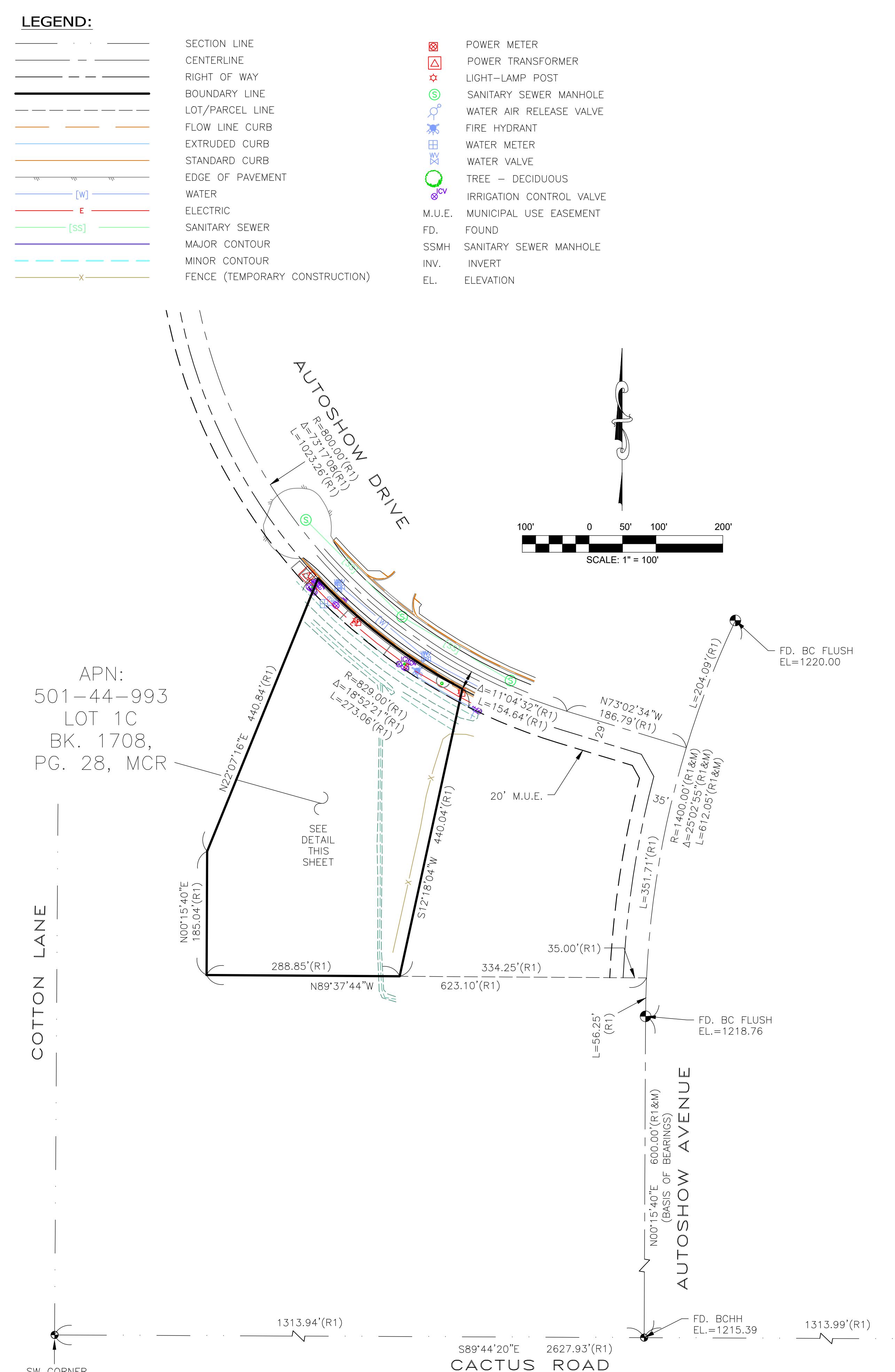
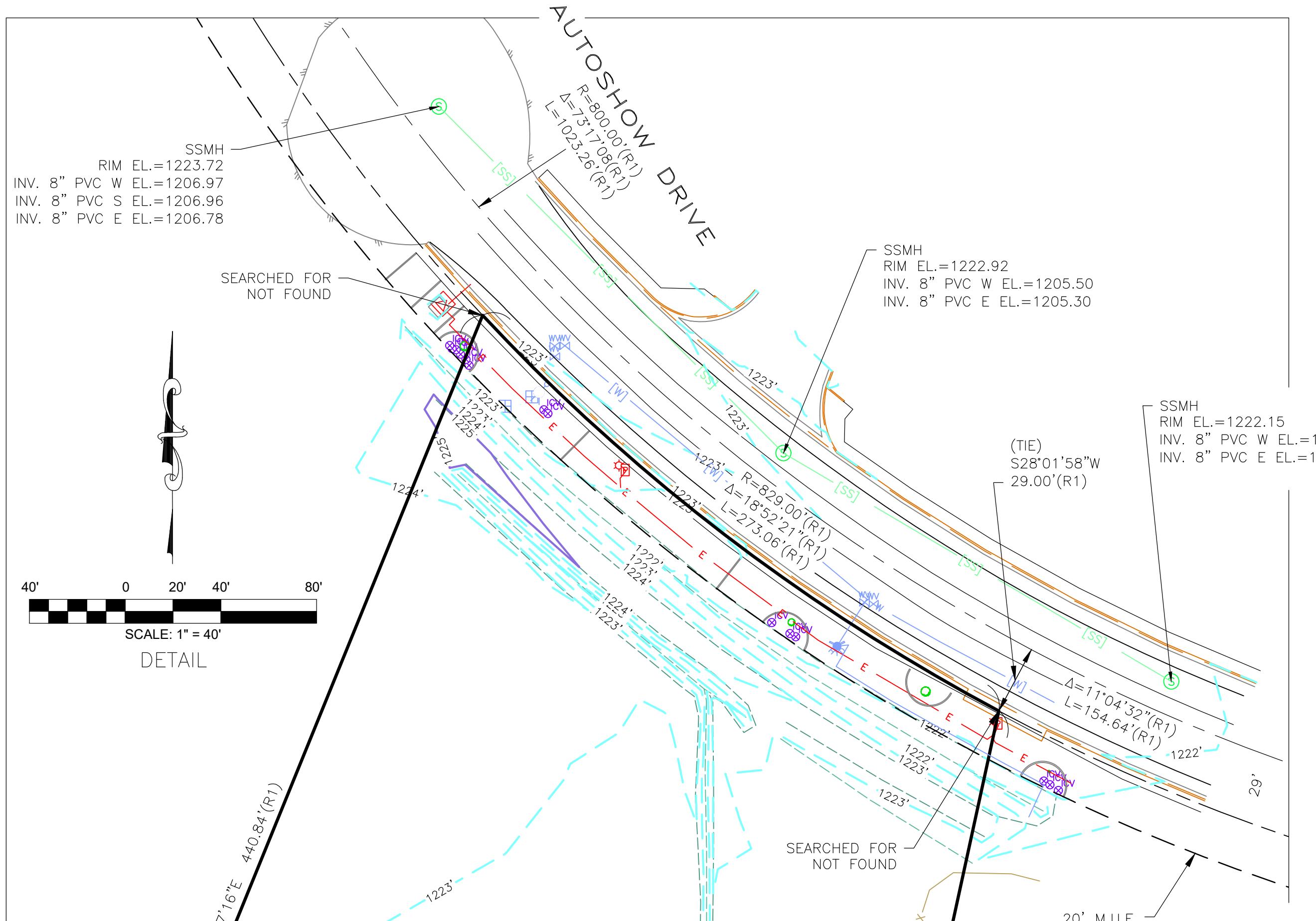
The water system can provide the required fire flow while maintaining a residual pressure in excess of 20 psi.

The water system can provide the domestic (non-fire) water demand at pressures that exceed EPCOR's minimum requirements and are less than 80 psi.

-End of Report-

Appendix 1
Topographic Survey

**RESULTS OF
TOPOGRAPHIC SURVEY
A PORTION OF THE
SOUTHWEST QUARTER,
SECTION 13, T3N, R2W,
GILA AND SALT RIVER
MERIDIAN
MARICOPA COUNTY,
ARIZONA**



- NOTES:**
- FIELD WORK WAS COMPLETED ON NOVEMBER 22, 2024.
 - SANITARY SEWER PIPE SIZES AND MATERIALS WERE DERIVED FROM THE FIELD SURVEY.
 - THE LOCATION OF EXISTING UNDERGROUND UTILITY FACILITIES SHOWN HEREON ARE BASED ON FIELD MEASUREMENTS BETWEEN UTILITY STRUCTURES AND LOCATE MARKS REQUESTED FOR THIS SURVEY PER ONE CALL PUBLIC LOCATE TICKET 2024111101604. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES BY THE RESPECTIVE UTILITY OWNERS/BUILDERS, NOR FOR THE EXISTENCE OF BURIED OBJECTS WHICH WERE NOT DELINEATED BY SAID UTILITY OWNERS/BUILDERS. PER S&F LAND SERVICES STANDARDS POLICIES, STAFF ARE PROHIBITED FROM ENTERING ANY CONFINED SPACES AS DEFINED BY OSHA, THUS, INFORMATION SHOWN HEREON IS SUBJECT TO AN UNCERTAINTY IN ACCURACY DEPENDING ON DEPTH, SIZE, FLOW, AND CONSTRUCTION OF MANHOLES. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITY LINES BETWEEN STRUCTURES. ALL UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.

SURVEY REFERENCES:
ALTA SURVEY BY KIMLEY HORN DATED 8-15-24 FOR EASEMENT LOCATIONS.
(R1) AEO POWERSPORTS PLAT (BOOK 1708, PAGE 28, MCR)

HORIZONTAL DATUM (BASIS OF BEARINGS):
ARIZONA STATE PLANE COORDINATE SYSTEM CENTRAL ZONE, NAD83 (2011), BASED ON GPS OBSERVATIONS. DISTANCES SHOWN HEREON ARE GROUND DISTANCES, INTERNATIONAL FEET, SCALED ABOUT CONTROL POINT NO 99. NORTHING=945755.435, EASTING=545446.345. TO CONVERT TO GRID DISTANCES MULTIPLY BY THE COMBINED FACTOR OF 0.9998735369.

VERTICAL DATUM:
NAVD88 BASED ON STATIC GPS OBSERVATION
LOCAL BENCHMARKS SHOWN HEREON

SURVEYOR'S CERTIFICATE

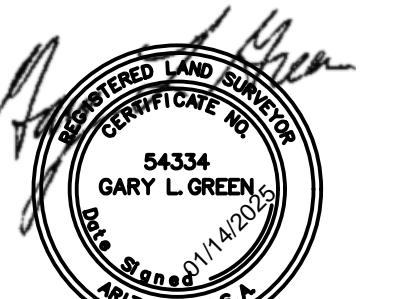
TO:
HILLSIDE ARCHITECTURE

I, GARY L. GREEN, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR IN THE STATE OF ARIZONA, THAT THE SURVEY SHOWN HEREON WAS COMPLETED UNDER MY DIRECT SUPERVISION DURING THE MONTH OF NOVEMBER, 2024, IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT THE MONUMENTS SHOWN ACTUALLY EXIST, AND THAT THIS SURVEY CAN BE RETRACED.

THE FIELDWORK WAS COMPLETED ON 11/22/2024.

GARY L. GREEN PLS #54334
S&F LAND SERVICES
2345 E. THOMAS ROAD, STE.150
PHOENIX, AZ 85016
480-717-8830
GARY.GREEN@SFLANDS.COM

NOTE: A.R.S. 32-151 STATES THAT THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A PERSON OR FIRM THAT IS REGISTERED OR CERTIFIED BY THE BOARD IS AN EXPRESSION OF PROFESSIONAL OPINION REGARDING FACTS OR FINDINGS THAT ARE THE SUBJECT OF THE CERTIFICATION AND DOES NOT CONSTITUTE AN EXPRESS OR IMPLIED WARRANTY OR GUARANTEE.



S&F Land Services

Land Surveying & Remote Sensing
2345 E. THOMAS ROAD STE. 150
PHOENIX, AZ 85016
(602) 805-8921

WWW.SFLANDS.COM

SURVEY FOR: HILLSIDE ARCHITECTURE
CRASH CHAMPIONS

A PORTION OF THE SOUTHWEST QUARTER,
OF SECTION 13, T3N, R2W
SALT AND GILA MERIDIAN
MARICOPA COUNTY, ARIZONA

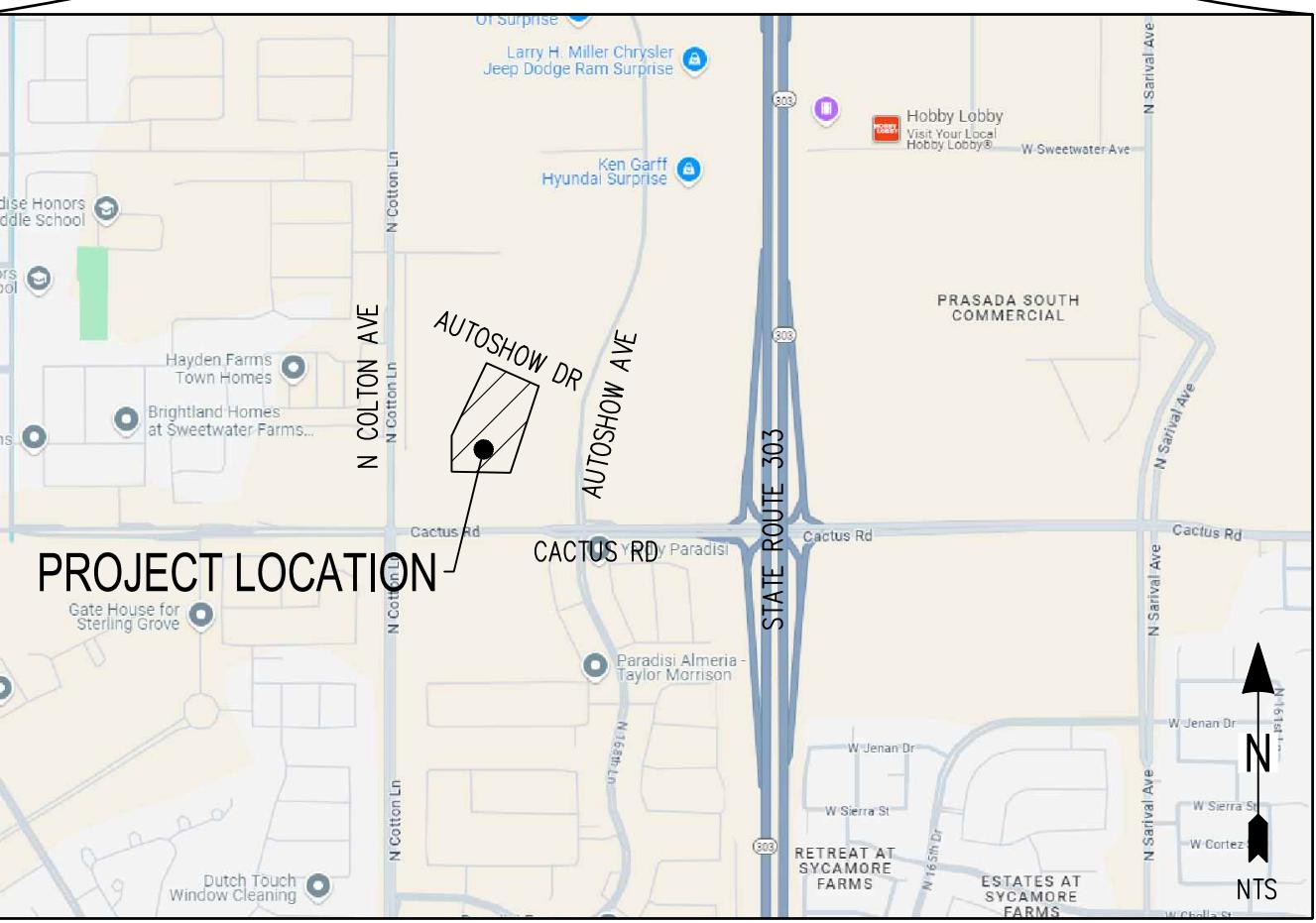
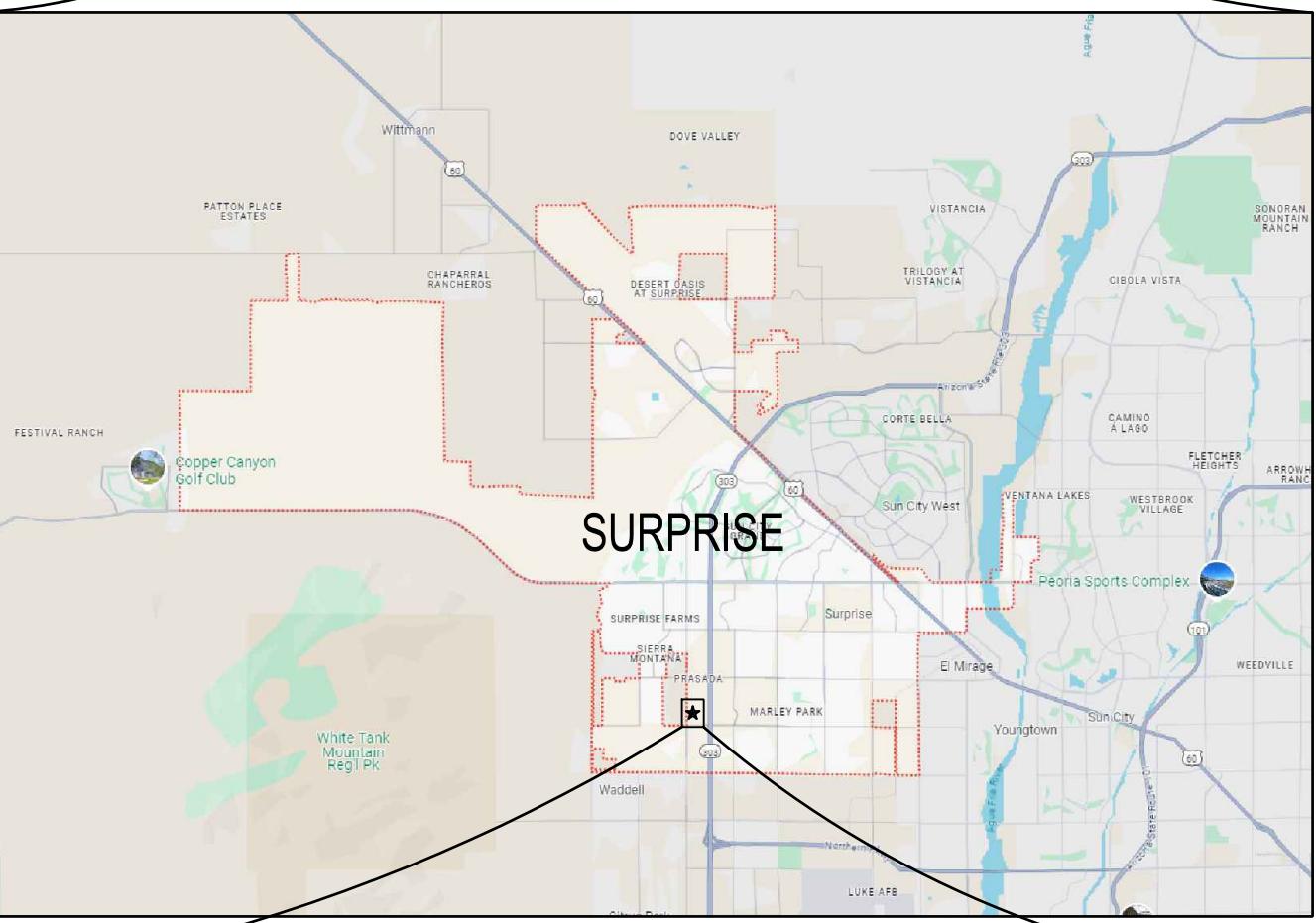
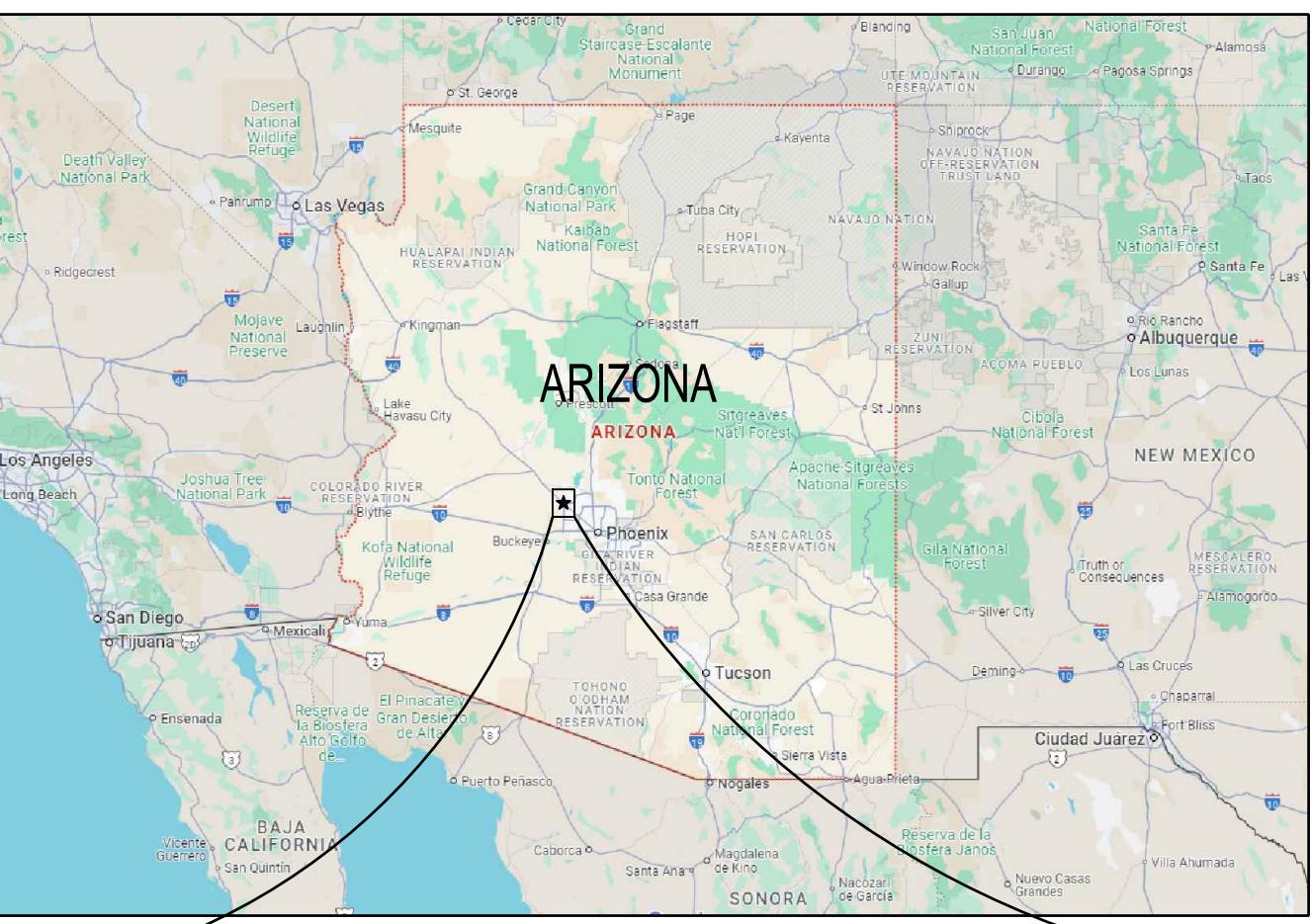
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Appendix 2
Water Plans

CRASH CHAMPIONS

CIVIL CONSTRUCTION DOCUMENTS

SURPRISE, ARIZONA

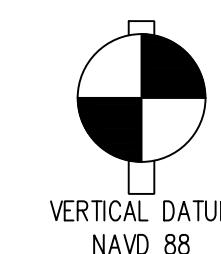


Rev. 10, 2025 1:50 12m User: CreaDahm N-2 - PROJECTS\121-HILLSIDE ARCHITECTURE\12104 CRASH CHAMPIONS SURPRISE, AZ\ACAD\12104 CV-01.DWG



CALL BEFORE YOU DIG

The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility locations prior to construction by calling the underground locate line at 811 a minimum of 48 hours prior to any excavation.

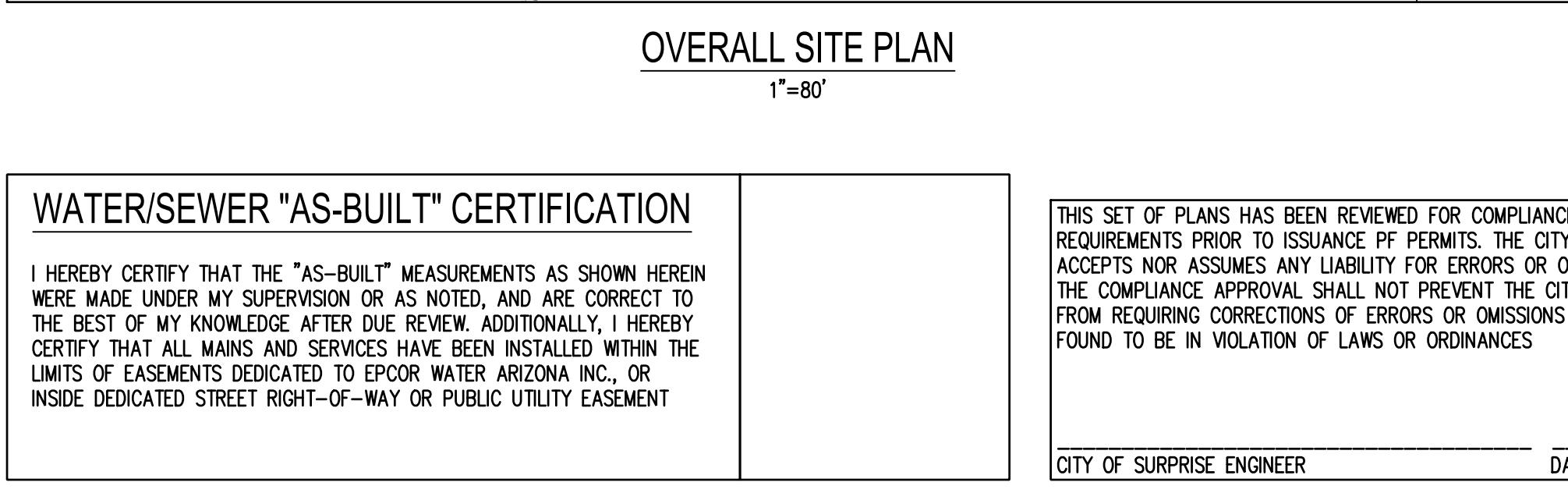


WATER/SEWER "AS-BUILT" CERTIFICATION

I HEREBY CERTIFY THAT THE "AS-BUILT" MEASUREMENTS AS SHOWN HEREIN WERE MADE UNDER MY SUPERVISION OR AS NOTED, AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AFTER DUE REVIEW. ADDITIONALLY, I HEREBY CERTIFY THAT ALL MAINS AND SERVICES HAVE BEEN INSTALLED WITHIN THE LIMITS OF EASEMENTS DEDICATED TO EPCOR WATER ARIZONA INC., OR INSIDE DEDICATED STREET RIGHT-OF-WAY OR PUBLIC UTILITY EASEMENT

THIS SET OF PLANS HAS BEEN REVIEWED FOR COMPLIANCE WITH CITY REQUIREMENTS PRIOR TO ISSUANCE OF PERMITS. THE CITY NEITHER ACCEPTS NOR ASSUMES ANY LIABILITY FOR ERRORS OR OMISSIONS. THE COMPLIANCE APPROVAL SHALL NOT PREVENT THE CITY ENGINEER FROM REQUIRING CORRECTIONS OF ERRORS OR OMISSIONS IN PLANS FOUND TO BE IN VIOLATION OF LAWS OR ORDINANCES

CITY OF SURPRISE ENGINEER DATE



OVERALL SITE PLAN
1'=80'

SITE INFORMATION
ADDRESS: 303 AUTOMOTIVE DR
SURPRISE, ARIZONA
PARCEL: 501-44-993
ACRES: ±3.52
ZONING: PRASADA PAD
PRASADA GATEWAY VILLAGE 3 (PGV-S)

LEGAL DESCRIPTION
LOT 1X, AEO POWERSPORTS, ACCORDING TO BOOK 1708 OF MAPS, PAGE 28, RECORDS OF MARICOPA COUNTY, ARIZONA
EXCEPT ALL MINERALS, COAL CARBONS, HYDROCARBONS, OIL, GAS, CHEMICAL ELEMENTS AND COMPOUNDS WHETHER IN SOIL, LIQUID OR GASEOUS FORM, ADD ALL STEAM AND OTHER FORMS OF THERMAL ENERGY ON, IN, OR UNDER THE LAND, AS RESERVED IN DEED RECORDED IN RECORDING NO. 20071019342, RECORDS OF MARICOPA COUNTY

HORIZONTAL DATUM
ARIZONA STATE PLANE COORDINATE SYSTEM CENTRAL ZONE NAD83 (2011), SEE TOPOGRAPHIC SURVEY

VERTICAL DATUM
NAVD88, SEE TOPOGRAPHIC SURVEY

BENCHMARKS
SEE TOPOGRAPHIC SURVEY

FEMA FLOOD ZONE

ZONE X
MAP NUMBER: 0413C1660L
EFFECTIVE DATE: OCTOBER 16, 2013

SHEET INDEX	
SHEET	TITLE
CV-01	COVER SHEET
GN-01	GENERAL NOTES & ABBREVIATIONS
GN-02	GENERAL NOTES
SV-01	TOPOGRAPHIC SURVEY
EC-01	EROSION CONTROL PLAN
EC-02	EROSION CONTROL NOTES & DETAILS
SP-01	SITE & PAVING PLAN
SP-02	HORIZONTAL CONTROL PLAN
SP-03	SITE & PAVING DETAILS
SP-04	SITE & PAVING DETAILS
SP-05	PUBLIC SAFETY SITE PLAN
CG-01	GRADING PLAN
CG-02	DETAILED GRADING PLAN
CG-03	GRADING DETAILS
UT-01	UTILITY PLAN
SD-01	STORMWATER PLAN
SD-02	STORMWATER DETAILS
SD-03	STORMWATER DETAILS
SD-04	STORMWATER DETAILS
WT-01	WATER PLAN
WT-02	WATER DETAILS
WT-03	WATER DETAILS
WT-04	WATER DETAILS
SS-01	SEWER PLAN
SS-02	SEWER DETAILS



03/10/2025

CRASH CHAMPIONS
COMMERCIAL DEVELOPMENT PROJECT
303 AUTOSHOW DRIVE
SURPRISE, ARIZONA

HillSide
architectureINC

SHEET TITLE
COVER SHEET
SHEET
CV-01
FSXX-XXXX

ADEQ NPDES GENERAL CONSTRUCTION PERMIT & SWPPP NOTE

A NOTICE OF INTENT (NOI) TO DISCHARGE STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES UNDER THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY'S 2020 CONSTRUCTION GENERAL PERMIT (CGP) SHALL BE SUBMITTED FOR AND SECURED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION ACTIVITIES. A PROJECT SPECIFIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PREPARED BY THE CONTRACTOR AND INCLUDED WITH THE NOI APPLICATION. THE CONTRACTOR IS REQUIRED TO PROVIDE A QUALIFIED EMPLOYEE(S) MEETING THE REQUIREMENTS OF THE CGP. THE CONTRACTOR SHALL NOTIFY ARIZONA DEQ TO ALL CHANGES/REVISIONS TO THE SWPPP THAT ARE COMPLETED BY THE CONTRACTOR. A COPY OF COVERAGE UNDER THE CGP AND SWPPP SHALL BE SUBMITTED TO THE CITY OF SURPRISE PRIOR TO START OF CONSTRUCTION ACTIVITIES BY THE CONTRACTOR. THE CONTRACTOR IS REQUIRED TO PREPARE AND SUBMIT ALL REQUIRED REPORTS TO THE DEQ AND SUBMIT FOR THE NOTICE OF TERMINATION (NOT) ONCE THE SITE IS FULLY STABILIZED.

DEWATERING NOTE

THE CONTRACTOR SHALL UTILIZE APPROPRIATE DEWATERING SYSTEMS AND TECHNIQUES TO MAINTAIN THE EXCAVATED AREA SUITABLY DRY FROM GROUNDWATER AND/OR SURFACE RUNOFF SO AS NOT TO ADVERSELY AFFECT CONSTRUCTION PROCEDURES OR CAUSE EXCESSIVE DISTURBANCE OF UNDERLYING NATURAL GROUND. THE CONTRACTOR SHALL REPAIR ANY DAMAGE RESULTING FROM THE FAILURE OF THE DEWATERING OPERATIONS OR FROM A FAILURE TO MAINTAIN ALL THE AREAS OF WORK IN A SUITABLE DRY CONDITION. UNLESS OTHERWISE SPECIFIED, CONTINUE DEWATERING UNINTERRUPTED UNTIL THE STRUCTURES, PIPES, AND APPURTENANCES TO BE BUILT HAVE BEEN PROPERLY INSTALLED, BACKFILLED, AND COMPACTED, WHERE SUBGRADE MATERIALS ARE UNABLE TO MEET THE SUBGRADE DENSITY REQUIREMENTS DUE TO IMPROPER DEWATERING TECHNIQUES, REMOVE AND REPLACE THE MATERIALS AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL NOTE

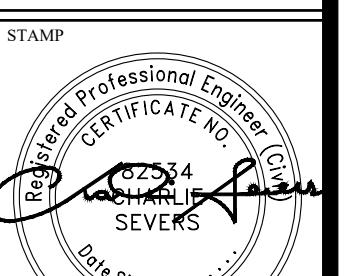
THE CONTRACTOR SHALL PROVIDE ALL FLAGGERS, SIGNS, AND OTHER TRAFFIC CONTROL DEVICES AS NECESSARY TO COMPLETE THE WORK. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL CONSTRUCTION SIGNS, WARNING SIGNS, DETOUR SIGNS, AND OTHER TRAFFIC CONTROL DEVICES NECESSARY TO WARN AND PROTECT THE PUBLIC AT ALL TIMES FROM INJURY OR DAMAGE AS A RESULT OF THE CONTRACTOR'S OPERATIONS THAT MAY OCCUR IN HIGHWAYS, ROADS, OR STREETS. NO WORK SHALL BE DONE ON OR ADJACENT TO THE ROADWAY UNTIL ALL NECESSARY SIGNS AND TRAFFIC CONTROL DEVICES ARE IN-PLACE. THE CONTRACTOR SHALL NOT CLOSE DOWN THROUGH TRAFFIC ON CITY/COUNTY/STATE ROADS. ACCESS FOR BOTH VEHICULAR AND PEDESTRIAN TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT WHERE THE CONTRACTOR OBTAINS PERMISSION TO TEMPORARILY CLOSE A SIDEWALK. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE CITY OF SURPRISE AND EPCOR FOR REVIEW AND APPROVAL PRIOR TO STARTING ANY WORK IN THE RIGHT-OF-WAY.

<p>GENERAL ENGINEERING NOTES:</p> <p>1. ALL CONSTRUCTION MUST CONFORM TO MARICOPA ASSOCIATION OF GOVERNMENT (MAG) SPECIFICATIONS AND DETAILS AND LATEST REVISIONS UNLESS OTHERWISE STATED ON PLANS.</p> <p>2. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND THEY WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.</p> <p>3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ALL OVERHEAD AND UNDERGROUND UTILITY LOCATIONS WHERE CONSTRUCTION OCCURS. SPECIAL CARE SHALL BE TAKEN TO ENSURE THAT ALL UTILITIES ARE AVOIDED. UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND NOT FOR CONSTRUCTION PURPOSES. EXISTING UTILITIES SHALL BE REPAIRED AND OR REPLACED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL COMPLY WITH ALL CURRENT ARIZONA UNDERGROUND FACILITIES LAWS (ARIZONA REVISED STATUTES TITLE 40, CHAPTER 2, ARTICLE 6.3, SECTION 40-360.21-32). CALL ARIZONA 811 FOR FIELD LOCATION BY DIAL 811.</p> <p>4. THE CITY OF SURPRISE ENGINEERING SERVICES OF PUBLIC WORKS SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION WORK AT 623-222-6150.</p> <p>5. THE ENGINEER AND APPLICABLE AGENCY MUST APPROVE, PRIOR TO CONSTRUCTION, ANY ALTERATION OR VARIATION FROM THESE PLANS. ANY VARIATION FROM THESE PLANS SHALL BE PROPOSED AND RESUBMITTED FOR REVIEW AND APPROVAL.</p> <p>6. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING UTILITIES ON THE SITE. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN OR NOT ON THE DRAWING, SHALL BE REPAIRED/REPLACED AT THE CONTRACTOR'S EXPENSE. EXISTING SURFACE FEATURES AND FENCING SHALL BE REPLACED IN KIND.</p> <p>7. ANY INSPECTION BY THE CITY, COUNTY, OR THE ENGINEER, SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN STRICT COMPLIANCE WITH THE APPLICABLE CODES AND AGENCY REQUIREMENTS.</p> <p>8. THE CONTRACTOR IS TO LOCATE ALL EXISTING LANDSCAPING, LANDSCAPING IRRIGATION LINES, PROPERTY MONUMENTS, FENCING OR SURFACE FEATURES PRIOR TO CONSTRUCTION. ANYTHING DISTURBED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.</p> <p>9. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.</p> <p>10. ALL CONSTRUCTION WATER USED WITHIN THE CITY OF SURPRISE WATER SERVICE AREA REQUIRES APPROVAL BY THE CITY OF SURPRISE PUBLIC WORKS DEPARTMENT AND MAY BE SUBJECT TO VOLUME AND TIME RESTRICTIONS. PLEASE SEE THE CITY OF SURPRISE CONSTRUCTION WATER GUIDELINES FOR ADDITIONAL INFORMATION. THE GUIDELINES CAN BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT AT 623-222-7000.</p> <p>11. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH MAG SPECIFICATION 401, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND THE "TEMPORARY WORK ZONE TRAFFIC MANAGEMENT POLICY" (LATEST EDITION).</p> <p>12. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE DEVELOPER/CONTRACTOR WILL BE REQUIRED TO CLEAN AND REPAIR ADJACENT (OFF-PROJECT) ROADWAYS USED OR DAMAGED DURING THE COURSE OF CONSTRUCTION.</p>												<p>GENERAL ENGINEERING NOTES (CONTINUED):</p> <p>13. EMERGENCY VEHICLE ACCESS (E.V.A.) MUST BE PROVIDED BY THE DEVELOPER/CONTRACTOR THROUGHOUT THE PROJECT SITE. E.V.A. ROADS AND SIGNAGE SHALL BE MAINTAINED BY THE DEVELOPER/CONTRACTOR AT ALL TIMES. SIGNAGE SHALL BE POSTED AT THE POINT OF ENTRY TO THE SITE AND AT ALL LOCATIONS WHERE A CHANGE IN DIRECTION OCCURS.</p> <p>14. THE PLANS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT'S ACCESSIBILITY GUIDELINES, AS PUBLISHED IN THE FEDERAL REGISTER ON SEPTEMBER 15, 2010.</p>			<p>GENERAL TEMPORARY TRAFFIC CONTROL NOTES:</p> <p>1. TEMPORARY TRAFFIC CONTROL SHALL BE PLACED AND MAINTAINED BY A COMPANY CERTIFIED BY THE CITY OF SURPRISE FOR TEMPORARY TRAFFIC CONTROL. ALL TEMPORARY TRAFFIC CONTROL SHALL BE PLACED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT REVISION OF THE CITY OF SURPRISE TEMPORARY WORK ZONE TRAFFIC MANAGEMENT POLICY OR AS DIRECTED BY THE CITY TRAFFIC ENGINEER OR DESIGNEE.</p> <p>2. WHERE LANES ARE RESTRICTED, RESTRICTION OF THE LANES SHALL BE ACCOMPLISHED BY USING REFLECTIVE VERTICAL PANELS. CONES SHALL NOT BE CONSIDERED ACCEPTABLE DEVICES FOR TRAFFIC DELINEATION ON ARTERIAL OR COLLECTOR STREETS.</p> <p>3. ALL TRAFFIC CONTROL SIGNS SHALL BE VIP DIAMOND GRADE SHEETING (TYPE IX) OR APPROVED EQUAL WHEN IN USE DURING NIGHTTIME HOURS.</p> <p>4. ADJUSTMENTS TO THE DETAILS OF THESE TRAFFIC CONTROL PLANS AND REQUIREMENTS MAY BE NECESSARY DUE TO CONSTRUCTION ACTIVITIES. ALL ADJUSTMENTS SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER OR DESIGNEE PRIOR TO IMPLEMENTATION.</p> <p>5. THE ROADWAY SURFACE SHALL BE SWEEPED, AND CLEANED BY AIR-JET BLOWING, IMMEDIATELY PRIOR TO PLACEMENT OF TEMPORARY MARKINGS.</p> <p>6. WHEN TRAFFIC CONTROL DEVICES ARE NOT IN USE, THEY SHALL BE MOVED AT LEAST THIRTY (30) FEET FROM THE EDGE OF TRAVEL WAY AND TURNED AWAY SO THE LEGENDS ARE NOT VISIBLE TO THE TRAVELING MOTORISTS. WHERE A THIRTY (30) FOOT DISTANCE CANNOT BE ACHIEVED, THE DEVICES SHALL BE MOVED AWAY AS FAR AS POSSIBLE WITHOUT INTERFERING WITH THE SIDEWALK, DRIVEWAYS OR OTHER FACILITIES. NO TRAFFIC CONTROL DEVICES SHALL BE LEFT IN THE MEDIAN.</p> <p>7. SPEED LIMIT REDUCTION SIGNING IS SUBJECT TO REVIEW AND CHANGE BY THE CITY TRAFFIC ENGINEER OR DESIGNEE AS DICTATED BY FIELD CONDITIONS.</p>			<p>REVISIONS</p> <table border="1"> <tr><td>PROJECT NO.</td><td>121,044</td></tr> <tr><td>DRAWN</td><td>C. DAHM</td></tr> <tr><td>CHECKED</td><td>D. PHILLIPS</td></tr> <tr><td>SUBMITTED DATES</td><td></td></tr> <tr><td>OTB DATE</td><td>-</td></tr> </table> <p>JSA CIVIL Engineering Planning Management 111 TUMWATER BLVD SE, SUITE B203 TUMWATER, WA 98512</p>			PROJECT NO.	121,044	DRAWN	C. DAHM	CHECKED	D. PHILLIPS	SUBMITTED DATES		OTB DATE	-
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OTB DATE	-																													
DATE REVISED: 1/2022		GENERAL ENGINEERING NOTES	DETAIL NO: 2-04 SHEET 1 OF 2	DATE REVISED: 1/2022		GENERAL ENGINEERING NOTES	DETAIL NO: 2-04 SHEET 2 OF 2	DATE REVISED: 1/2022		GENERAL TEMPORARY TRAFFIC CONTROL NOTES	DETAIL NO: 2-12																			
<p>GENERAL GRADING NOTES:</p> <p>1. CONTRACTOR TO FOLLOW RECOMMENDATIONS LISTED IN THE PROJECT SPECIFIC GEOTECHNICAL REPORT. SHOULD ANY CONFLICTS ARISE BETWEEN THE SOILS INVESTIGATION REPORT AND THESE GRADING PLANS, THE CIVIL ENGINEER SHALL BE CONTACTED FOR CLARIFICATION.</p> <p>2. THE ENGINEER MAKES NO REPRESENTATION OR GUARANTEE REGARDING EARTHWORK QUANTITIES OR THAT THE EARTHWORK FOR THIS PROJECT WILL BALANCE DUE TO UNFORESEEN FIELD CONDITIONS.</p> <p>3. THE ENGINEER WILL PERFORM FIELD SURVEYS FOR PAD ELEVATION CERTIFICATIONS, UPON NOTIFICATION BY THE GRADING CONTRACTOR, THAT THE PADS ARE COMPLETE AND READY FOR CERTIFICATION. IT IS UNDERSTOOD THAT THE CERTIFICATION PROVIDES ONLY A REPRESENTATIVE ELEVATION OF THE AVERAGE GRADE OF EACH LOT, BUILDINGS, OR UNIT PAD, AND SHALL NOT BE CONSTRUED TO INCLUDE YARD AND STREET SUBGRADE CERTIFICATION OR CERTIFICATION THAT THE ENTIRE PAD IS LEVEL, THAT IT WAS CONSTRUCTED IN THE DESIGNED LOCATION OR WAS GRADED TO THE CROSS-SECTION SET FORTH ON THE PLANS OR AS DESIGNATED IN THE SOILS REPORT.</p> <p>4. AN APPROVED GRADING AND DRAINAGE PLAN MUST BE ON THE JOB SITE AT ALL TIMES. DEVIATIONS FROM THIS PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION.</p> <p>5. ALL DRAINAGE FACILITIES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, BARRIER WALLS, CONCRETE CHANNELS, OR OTHER MEASURES DESIGNED TO PROTECT BUILDINGS FROM STORM RUNOFF MUST BE CONSTRUCTED PRIOR TO CONSTRUCTION OF ANY BUILDINGS.</p> <p>6. A GRADING PERMIT IS REQUIRED. BEFORE A GRADING PERMIT IS ISSUED BY THE CITY OF SURPRISE ENGINEERING SERVICES, THE CONTRACTOR MUST FIRST OBTAIN A DUST CONTROL PERMIT FROM MARICOPA COUNTY ENVIRONMENTAL SERVICES-AIR QUALITY DIVISION.</p> <p>7. HAUL PERMITS, WHEN REQUIRED, MUST BE OBTAINED PRIOR TO OR CONCURRENTLY WITH THE GRADING AND DRAINAGE PERMIT.</p> <p>8. A SEPARATE PERMIT IS NECESSARY FOR ANY OFFSITE CONSTRUCTION.</p> <p>9. CONTRACTOR SHALL PROVIDE LEVEL BOTTOM IN ALL RETENTION BASINS AT ELEVATIONS AS SHOWN ON THE PLANS. SIDE SLOPES IN ALL RETENTION BASINS SHALL NOT EXCEED 4:1 UNLESS NOTED OTHERWISE ON THE PLANS.</p> <p>10. DRYWELLS, WHEN REQUIRED, MUST BE DRILLED A MINIMUM OF TEN (10) FEET INTO PERMEABLE POROUS STRATA OR PERCOLATION TESTS WILL BE REQUIRED. THE CIVIL INSPECTOR MUST BE PRESENT BEFORE BACKFILL OR WELL PIPES ARE PLACED WITHIN ANY DRYWELLS.</p> <p>THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR REGISTERING THE DRYWELLS SHOWN ON THE PLAN WITH THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ).</p> <p>11. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR MAINTENANCE OF DRYWELLS SHOWN ON THE PLAN.</p> <p>12. ACCESS BARRIERS/TRASH RACKS ARE REQUIRED ON THE EXPOSED ENDS OF ALL STORM DRAINS EIGHTEEN (18) INCHES IN DIAMETER AND GREATER. SEE DETAILS 5-04A, 5-04B, AND 5-04C. REFER TO MAG DETAILS 502-1 AND 502-2 FOR PIPES LESS THAN THIRTY (30) INCHES IN DIAMETER.</p> <p>13. SOIL COMPACTION TEST RESULTS MUST BE SUBMITTED TO THE CITY OF SURPRISE ENGINEERING SERVICES FOR BUILDING PADS THAT HAVE ONE (1) FOOT OR MORE OF FILL MATERIAL INDICATED.</p>																														
DATE REVISED: 1/2022		GENERAL GRADING NOTES	DETAIL NO: 2-05 SHEET 1 OF 2	DATE REVISED: 1/2022		GENERAL GRADING NOTES	DETAIL NO: 2-05 SHEET 2 OF 2	<p>GENERAL GRADING NOTES (CONTINUED):</p> <p>14. A PAD CERTIFICATION LETTER FOR EACH PHASE OR PARCEL MUST BE SUBMITTED TO THE CITY OF SURPRISE ENGINEERING SERVICES BY THE DEVELOPER STATING THAT EACH PAD HAS BEEN BUILT IN ACCORDANCE WITH THE SOILS INVESTIGATIVE REPORT AND CITY OF SURPRISE REQUIREMENTS.</p> <p>15. APPROVAL OF THESE PLANS SHALL NOT PREVENT THE CITY FROM REQUIRING THE CORRECTION OF ERRORS IN THE PLANS WHERE SUCH ERRORS ARE SUBSEQUENTLY FOUND TO BE IN VIOLATION OF ANY LAW OR ORDINANCE.</p> <p>16. ALL CONSTRUCTION SITES WITH DISTurbed AREAS OF ONE (1) ACRE OR GREATER SHALL HAVE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ALL ASSOCIATED DOCUMENTS (SEE ENGINEERING AND PERMITTING APPLICATION PACKET).</p> <p>CAUTION REGARDING STORM DRAIN PIPES: CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE PIPE FROM DAMAGE DURING THE CONSTRUCTION STAGE. THE COVER ON THE DRAINAGE PIPE IS DESIGNED FOR FINAL GRADE; THEREFORE, EXTRA CARE MUST BE EXERCISED DURING THE CONSTRUCTION PHASE TO MAINTAIN COVER OVER PIPES.</p> <p>NOTE REGARDING CMU AND RETAINING WALLS: THE CITY OF SURPRISE REQUIRES ALL WALLS BE APPROVED BY THE COMMUNITY DEVELOPMENT DEPARTMENT (623-222-3000). BUILDING PERMITS AND INSPECTIONS ARE REQUIRED PER THE INTERNATIONAL BUILDING CODE.</p>				STAMP  03/10/2025																		
<p>GENERAL NOTES:</p> <p>Mar 10, 2025 1:59:49pm - User: CreaDerm - PROJECT:121,044 CRASH CHAMPIONS SURPRISE, AZ, MAG:121,044 GN-01.DWG N:2 - PROJECT:121,044 CRASH CHAMPIONS SURPRISE, AZ, MAG:121,044 GN-01.DWG</p> <p>CRASH CHAMPIONS COMMERCIAL DEVELOPMENT PROJECT 303 AUTOSHOW DRIVE SURPRISE, ARIZONA</p> <p>HillSide architecture</p> <p>SHEET TITLE GENERAL NOTES SHEET GN-02</p> <p>FSXX-XXXX</p>																														

REVISIONS

PROJECT NO.
121044
DRAWN
C. DAHM
CHECKED
D. PHILLIPS
SUBMITTAL DATES
OTB DATE
-

JSA CIVIL
Engineering | Planning | Management
111 TUMWATER BLVD SE, SUITE B203
TUMWATER, WA 98512

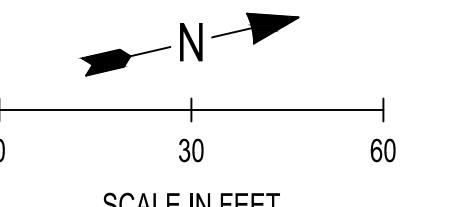


03/10/2025

CRASH CHAMPIONS
COMMERCIAL DEVELOPMENT PROJECT
303 AUTOSHOW DRIVE
SURPRISE, ARIZONA

HillSide
architectureINC

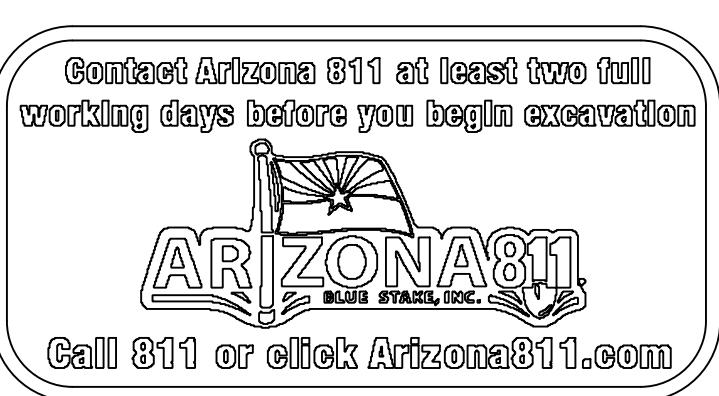
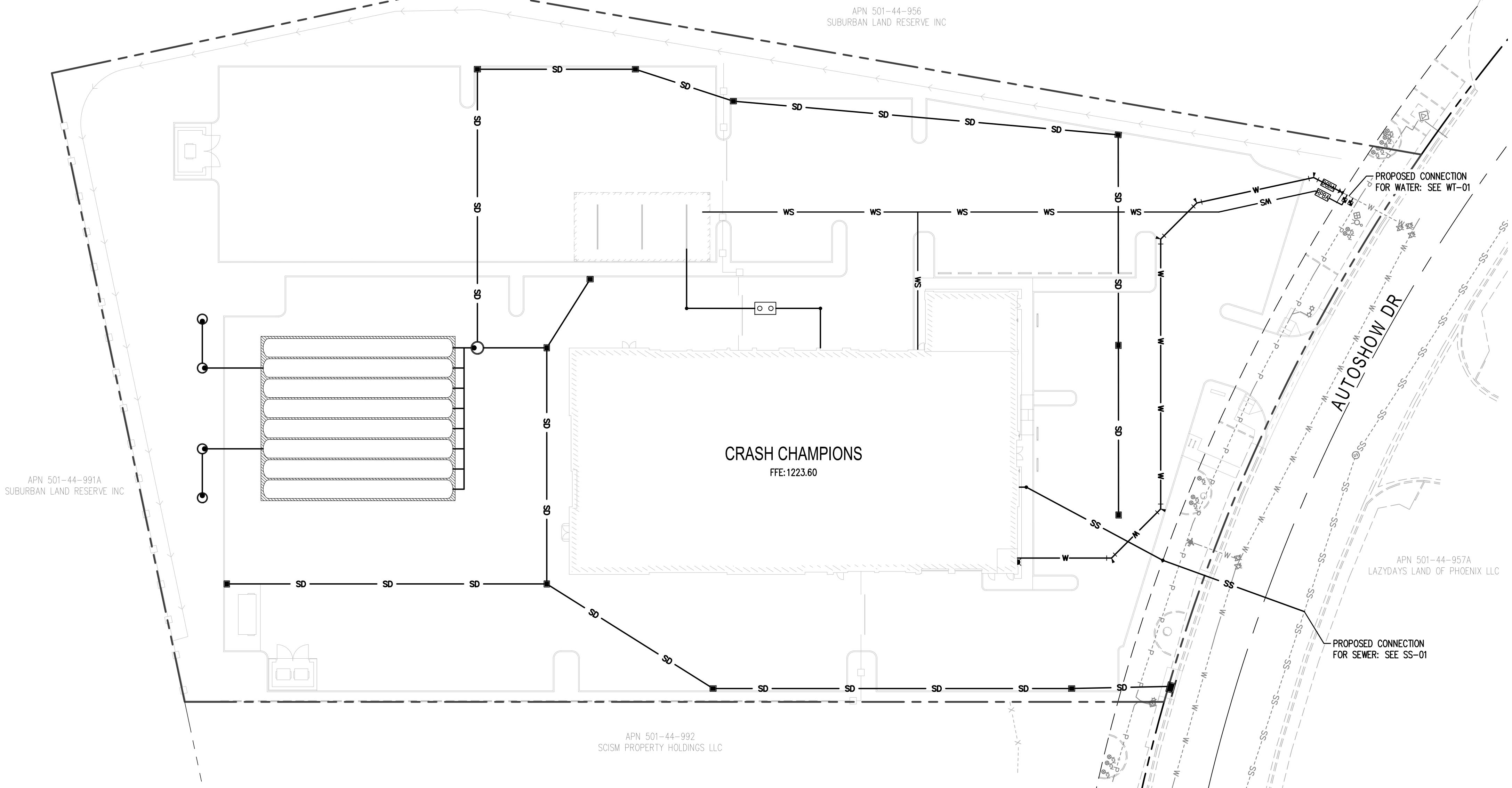
SHEET TITLE
UTILITY PLAN
SHEET
UT-01
FSXX-XXXX



SCALE IN FEET

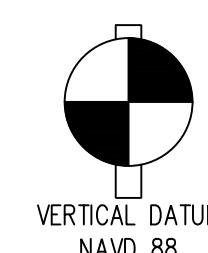
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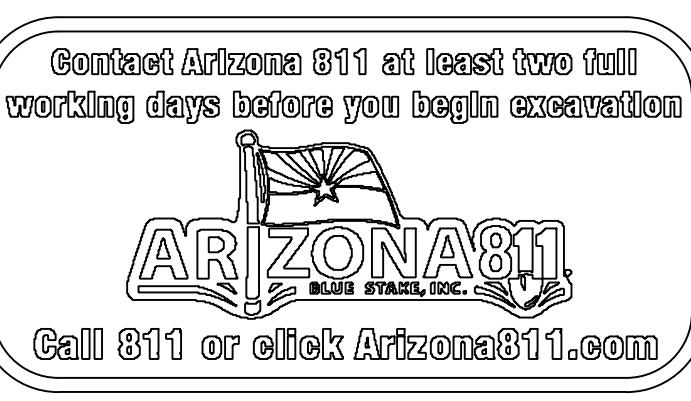
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- ==== EXISTING CURB & GUTTER
- - - - EXISTING WATER LINE
- - - - EXISTING POWER LINE
- - - - EXISTING SEWER LINE
- ◎ CV EXISTING IRRIGATION CONTROL VALVE
- * EXISTING FIRE HYDRANT
- 田 EXISTING WATER METER
- ◎ EXISTING MANHOLE
- EXISTING LUMINAIRE
- △ EXISTING TRANSFORMER
- |||| PROPOSED BUILDING
- CCCC CEMENT CONCRETE BARRIER CURB
- SD STORM LINE
- W WATER LINE
- WS WATER SERVICE LINE
- SS SEWER LINE



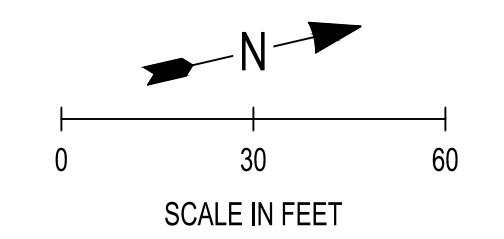
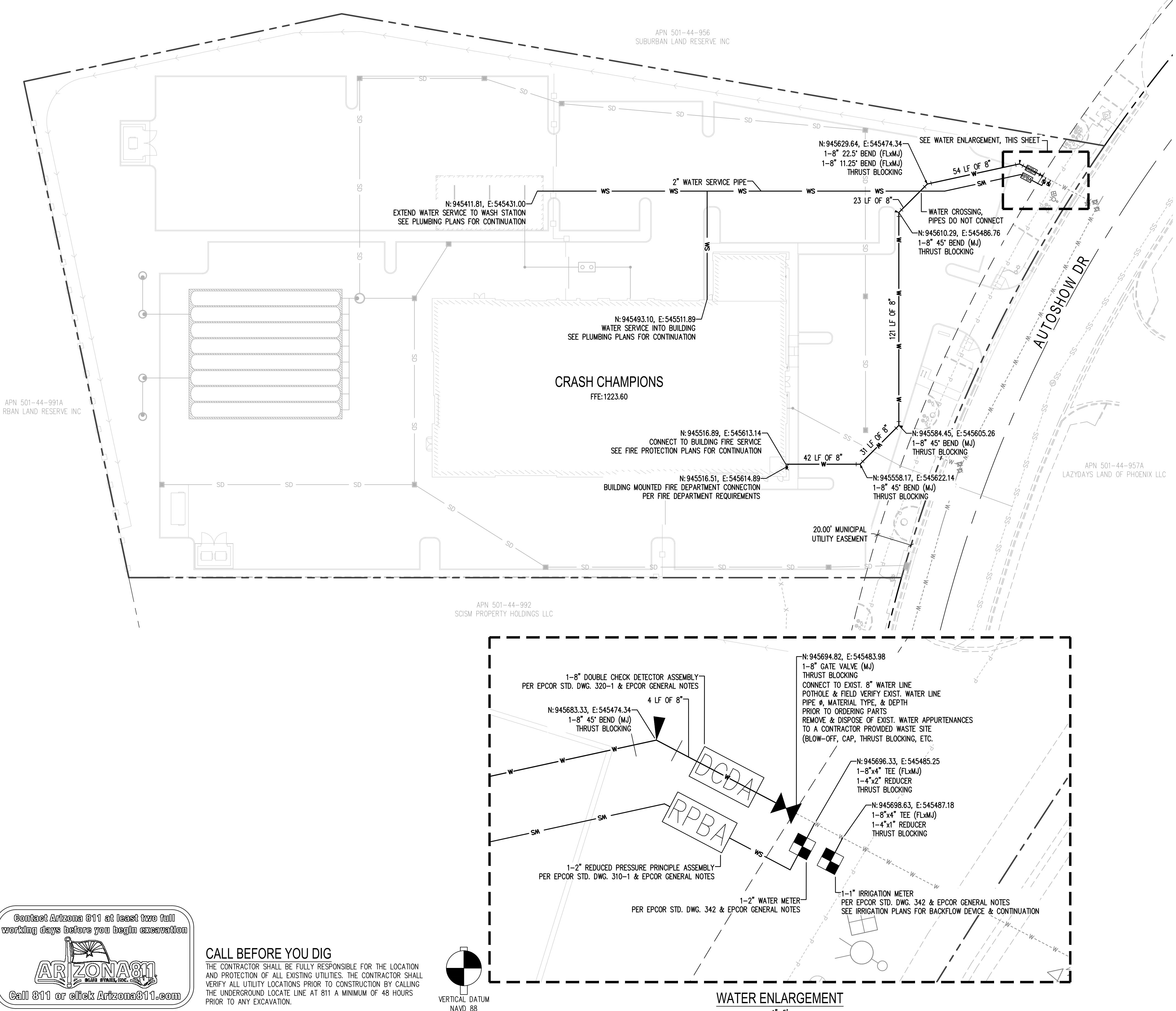
CALL BEFORE YOU DIG

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.





CALL BEFORE YOU DIG
THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 811 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.



LEGEND

- - - PROPERTY LINE
- - - - EXISTING CURB & GUTTER
- - - - - EXISTING WATER LINE
- * EXISTING FIRE HYDRANT
- 田 EXISTING WATER METER
- / PROPOSED BUILDING
- ||||| CEMENT CONCRETE BARRIER CURB
- SD STORM LINE
- SS SEWER LINE
- W AWWA C900 DR14 PVC WATER LINE UNLESS OTHERWISE NOTED
- WS TYPE "K" COPPER WATER SERVICE LINE UNLESS OTHERWISE NOTED
- DKDA DOUBLE CHECK DETECTOR ASSEMBLY
- RPPBA REDUCED PRESSURE BACKFLOW ASSEMBLY
- FD CONNECTION FIRE DEPARTMENT CONNECTION
- WMATER WATER METER
- GATE VALVE
- FITTINGS

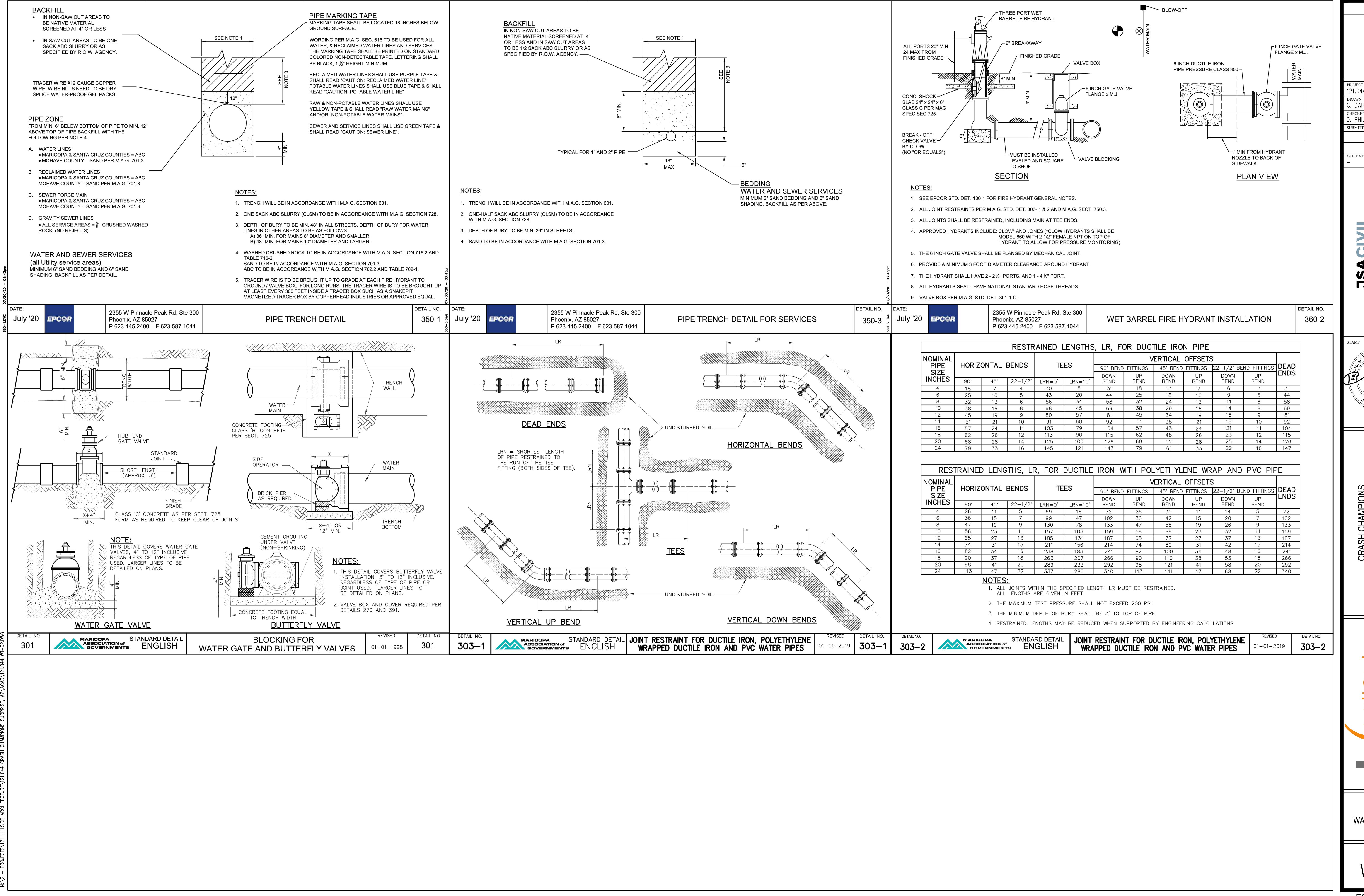
REVISIONS	
PROJECT NO.	121044
DRAWN	C. DAHM
CHECKED	D. PHILLIPS
SUBMITTED DATES	
OTD DATE	-
STAMP	Registered Professional Engineer (C.P.E.) CAROLYN A. SEVERS P.O. Box 122364 AZ 85252-12364 U.S.A. 03/10/2025

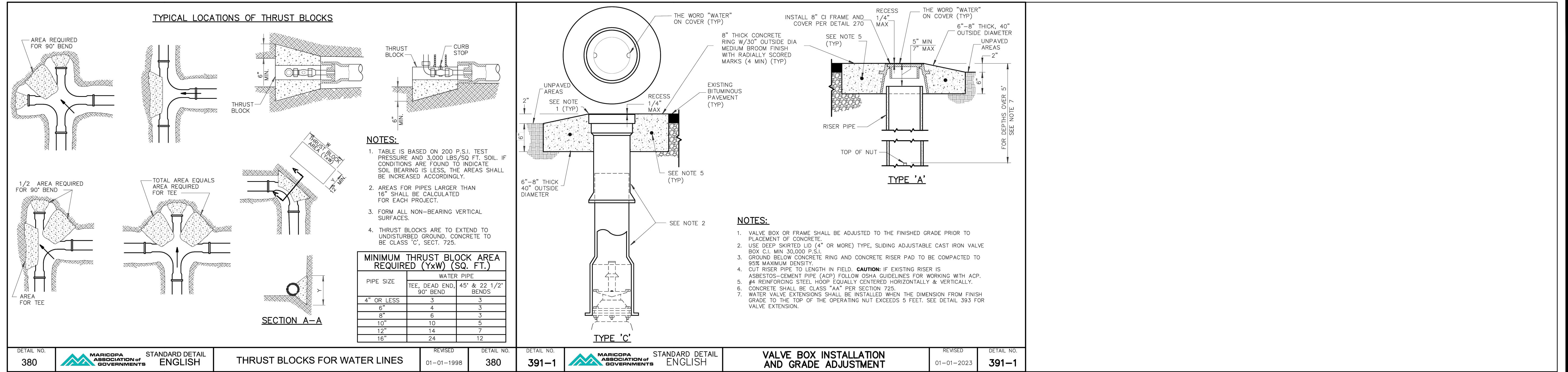
JSA CIVIL
Engineering | Planning | Management
111 TUMWATER BLVD SE SUITE B203
TUMWATER, WA 98512

CRASH CHAMPIONS COMMERCIAL DEVELOPMENT PROJECT
303 AUTOSHOW DRIVE
SURPRISE, ARIZONA

HillSide architectureINC

SHEET TITLE
WATER PLAN
SHEET
WT-01
FSXX-XXXX

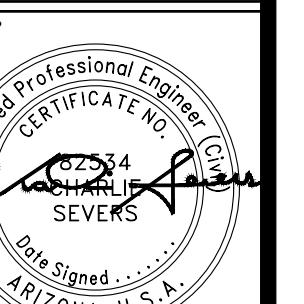




REVISIONS

PROJECT NO. 121044
DRAWN C. DAHM
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SUBMITTAL DATES
OTD DATE -

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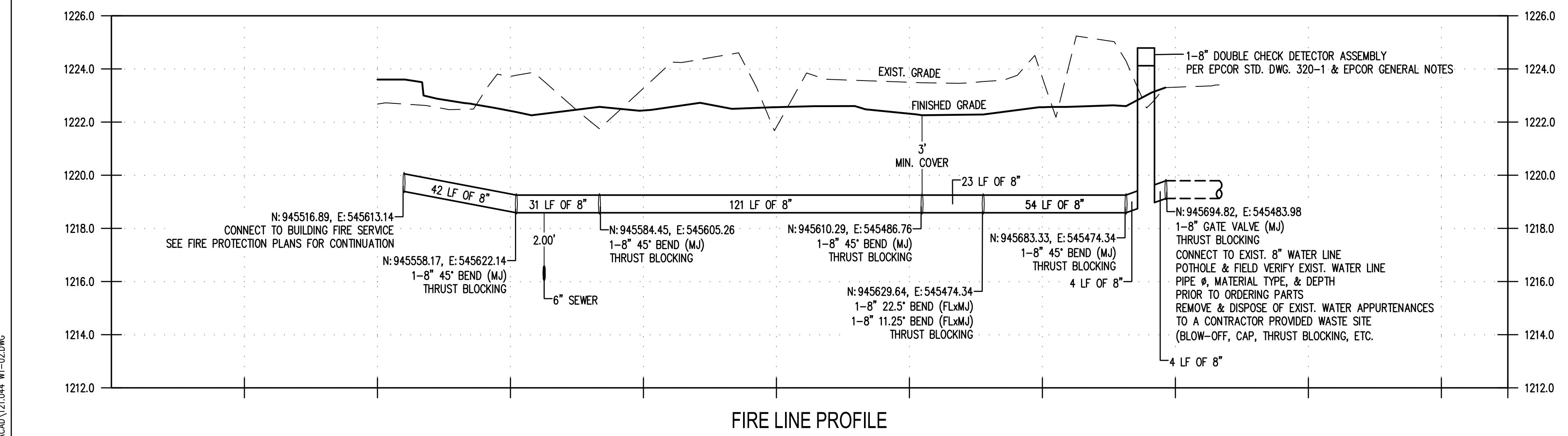


03/10/2025

CRASH CHAMPIONS
COMMERCIAL DEVELOPMENT PROJECT
303 AUTOSHOW DRIVE
SURPRISE, ARIZONA



SHEET TITLE
WATER DETAILS
SHEET
WT-04
FSXX-XXXX



Appendix 3
Telgian Engineering and Consulting Water Design Report

PRELIMINARY WATER DESIGN REPORT

PREPARED FOR



**Crash Champions
Lot 1C W. Autoshow Dr,
Surprise, AZ**



Telgian Project No. 0032057.200.100

**PREPARED BY:
Victoria Rodrigues
Assistant Regional Practice Leader
Telgian Engineering and Consulting**

**REVIEWED BY:
Alexander Gonzales, PE
Consulting Team Lead
Telgian Engineering and Consulting**

Issue Date: March 7, 2025



Digitally signed by
Alexander Gonzales
DN: C=US,
E=agonzales@telgian.com,
O=Telgian Engineering &
Consulting, CN=Alexander
Gonzales
Date: 2025.03.07
17:20:56-07'00'

Contents

1.0 Introduction.....	2
 1.1 Project Description	2
1.1.1 Project Name and Address.....	2
1.1.2 Location and Topography	2
1.1.3 Purpose.....	2
2.0 Existing Conditions.....	2
3.0 Design Criteria	2
 3.1 Design Methodology.....	3
4.0 Calculations	3
 4.1 Flow Test.....	3
 4.2 Calculation Setup	3
 4.3 Calculation Summary.....	4
6.0 Summary.....	4
7.0 References.....	5

LOCATIONS WORLDWIDE

1.0 Introduction

1.1 Project Description

This preliminary water system analysis plan was completed under contract with JSA Civil Engineers. The proposed project is approximately 139,392 sq.ft., an overall project acreage of 3.2 acres. The proposed improvements to this development include new building construction, mass grading, sanitary sewer main service, water main service, fire main service, and paving. See Attachment #3 – Site Plan.

The project includes approximately 224 linear feet of a new watermain interior to the site in addition to stubs to provide domestic/irrigation and fire protection. The watermain installation was modeled using HydraCAD. A description of the model, assumptions made, and results are summarized in this report.

1.1.1 Project Name and Address

The project name is Crash Champions, and the specific address of the project is Lot 1C W. Autoshow Drive, Surprise, AZ 85388. The site is at the southwest corner of the intersection of Autoshow Avenue and Autoshow Drive.

1.1.2 Location and Topography

The proposed Crash Champions is situated within Lot 1C in the southwest quarter of Section 13, Township 3 North, Range 2 West of the Gila and Salt River Base and Meridian, City of Surprise, County of Maricopa, State of Arizona. The project is bordered by Autoshow Avenue to the east and Autoshow Drive to the north.

1.1.3 Purpose

The purpose of this water report is to calculate the fire flow requirements for the proposed project and analyze the proposed domestic services to confirm they are sized correctly to convey the required fire flow.

2.0 Existing Conditions

The project is proposed to be serviced from one existing 8-inch water line stub constructed during the development of the Autoshow Avenue and Autoshow Drive projects. There is an 8-inch stub along Autoshow Drive located north of the site. The existing and proposed water mains are displayed in Attachment #2 – Site Utility

3.0 Design Criteria

This analysis complies with the International Building Code (IBC) and International Fire Code (IFC), including the City of Surprise amendments and the 2020 EPCOR Developer and Engineering Guide. Per Table 1 from the 2020 EPCOR Developer and Engineering Guide, the building is classified as commercial with an acreage of 3.2, which results in the demand requirements outlined in Table 3.0 Minimum Water Requirements. The required fire flow is determined according to the IFC Appendix B Table B105.1(2) and the City of Surprise amendments Table B105.2. The construction type of the building is V-B, with a building footprint of 21,000 sq. ft., leading to a minimum fire flow of 1,500 gpm at 20 psi.

Table 3.0 Minimum Water Requirements

Description	Requirement
Average Day Water Demands	5,440 gpd or 3.78 gpm
Max. Day Water Demands	9,792 gpd or 6.81 gpm
Peak Hour Demands	16,320 gpd or 11.34 gpm
Required Fire Flow	1,500 gpm + 6.81 gpm
Min. Fire Flow Residual Pressure	20 psi

3.1 Design Methodology

The project's fire protection capabilities were evaluated by constructing a water model in HydraCAD. The water model developed for this report encompasses information concerning this development and the existing infrastructure around the site.

4.0 Calculations

4.1 Flow Test

The hydrant flow test was conducted by Victoria Rodrigues with Telgian Engineering and Consulting (619.871.9213) and witnessed by Garren Willey with EPCOR on March 7th 2025, at 7:15 A.M. Flow for the flow test was made utilizing a hydrant 78-ft north of the proposed building. Static and residual pressures were taken from a second hydrant located 500-ft east of the proposed building, approximately 435-ft southeast of the flow hydrant. One 2.5-inch outlet equipped with a Pollard diffuser was utilized for the test. A pitot reading of 45 psi was observed with a discharge coefficient of 0.9, which resulted in a flow of 1,126 gpm with a residual pressure of 76 psi. Static pressure before and after the test was recorded to be 80 psi. This test is effective at the 6-in connection for the static/residual hydrant for friction loss purposes. Please see Attachment #4, Flow Test provided by Telgian Engineering & Consulting, and Attachment #5, Fire Flow Analysis.

4.2 Calculation Setup

The hydraulic calculation was set up to simulate the required fire flow at the fire hydrant closest to the proposed building. The effective point of the flow test was set as the connection to the static/residual hydrant to the main east of the proposed building along N Autoshow Ave. Per the 2020 EPCOR Developer and Engineering Guide, a Hazen-Williams coefficient of 150 was used for all city underground piping per the City of Surprise requirements.

4.3 Calculation Summary

Utilizing the flow test dated March 7th, 2025, the flow hydrant is the closest hydrant to the proposed building at 78-ft north. As seen in Attachment #5, Fire Flow Demands has a required pressure of 26.635 psi while flowing 1,506.81 gpm and a max velocity of 16.21 ft/s throughout the calculation. Attachment #6, Average Day Water Demand, has a pressure-demand of 1.672 psi and a maximum pipe velocity of 1.47 ft/s. Attachment #7, Max. Day Water Demands has a pressure-demand of 4.114 psi and a maximum pipe velocity of 2.65 ft/s. Attachment #8, Peak Hour Demand, has a pressure-demand of 9.887 psi and a maximum pipe velocity of 4.41 ft/s. No pump or storage tanks will be needed for this proposed building.

6.0 Summary

The analysis for this proposed building meets the IBC and IFC with the City of Surprise amendments and the 2020 edition of EPCOR Developer and Engineering Guide.

7.0 References

(ICC), I. C. C. (n.d.). *2018 International Fire Code (IFC): ICC Digital Codes*. 2018 INTERNATIONAL FIRE CODE (IFC) | ICC DIGITAL CODES.

<https://codes.iccsafe.org/content/IFC2021P1/appendix-b-fire-flow-requirements-for-buildings>

City of Surprise. (n.d.). *Currently adopted building codes and amendments*. Currently Adopted Building Codes | Surprise, AZ - Official Website.

<https://surpriseaz.gov/206/Currently-Adopted-Building-Codes>

EPCOR Water Arizona Inc. Engineering Department. (2020, May). *2020 Developer & Engineering Guide*. EPCOR.

https://www.epcor.com/content/dam/epcor/documents/supporting-documents/2020_developer-engineering-guide.pdf



Attachments

Attachment #1 – Site Vicinity

Attachment #2 – Site Utility

Attachment #3 – Site Plan

Attachment #4 – Flow Test

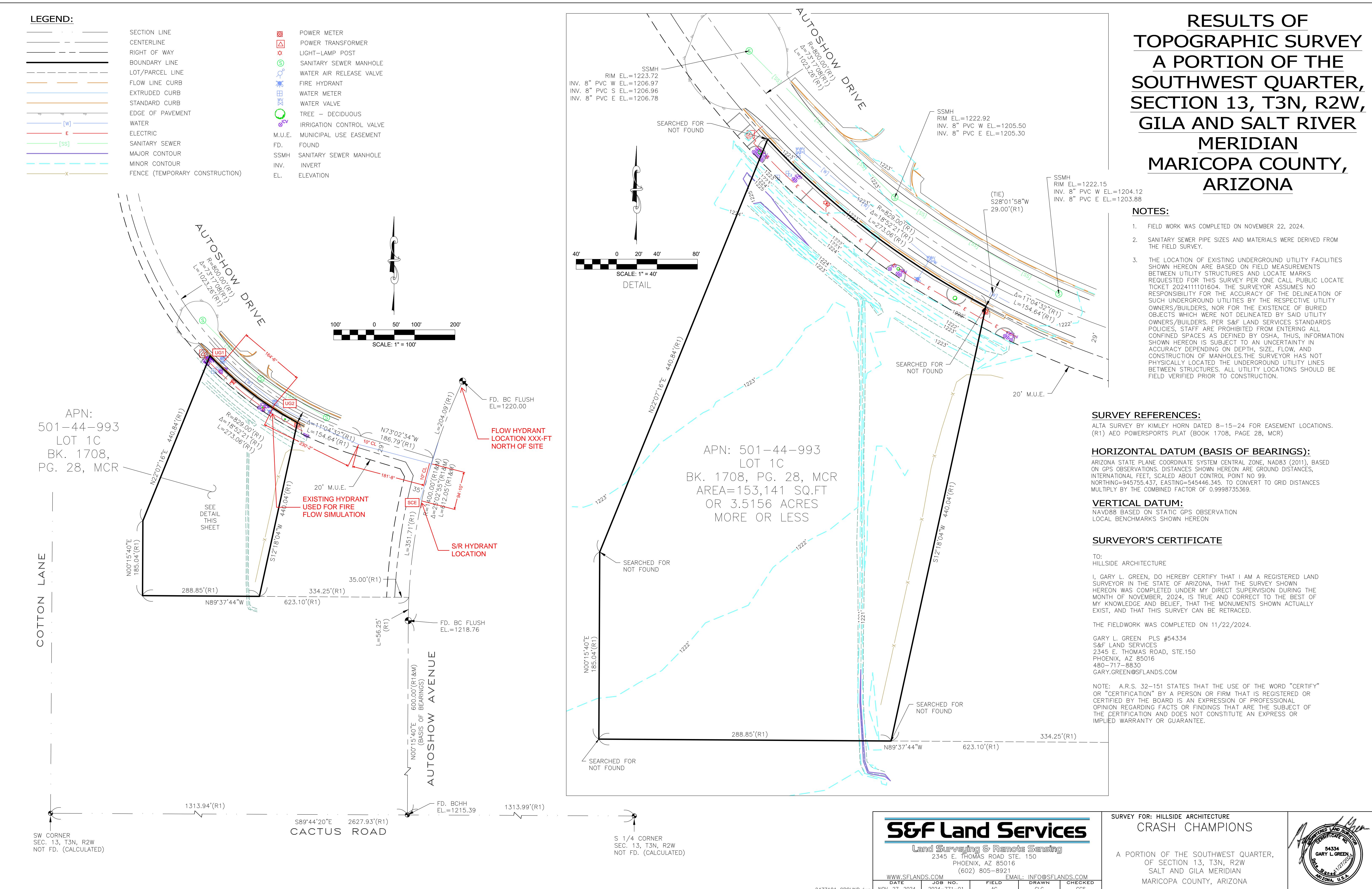
Attachment #5 – Fire Flow Demands

Attachment #6 – Average Day Water Demands

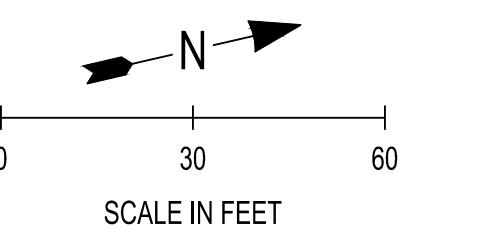
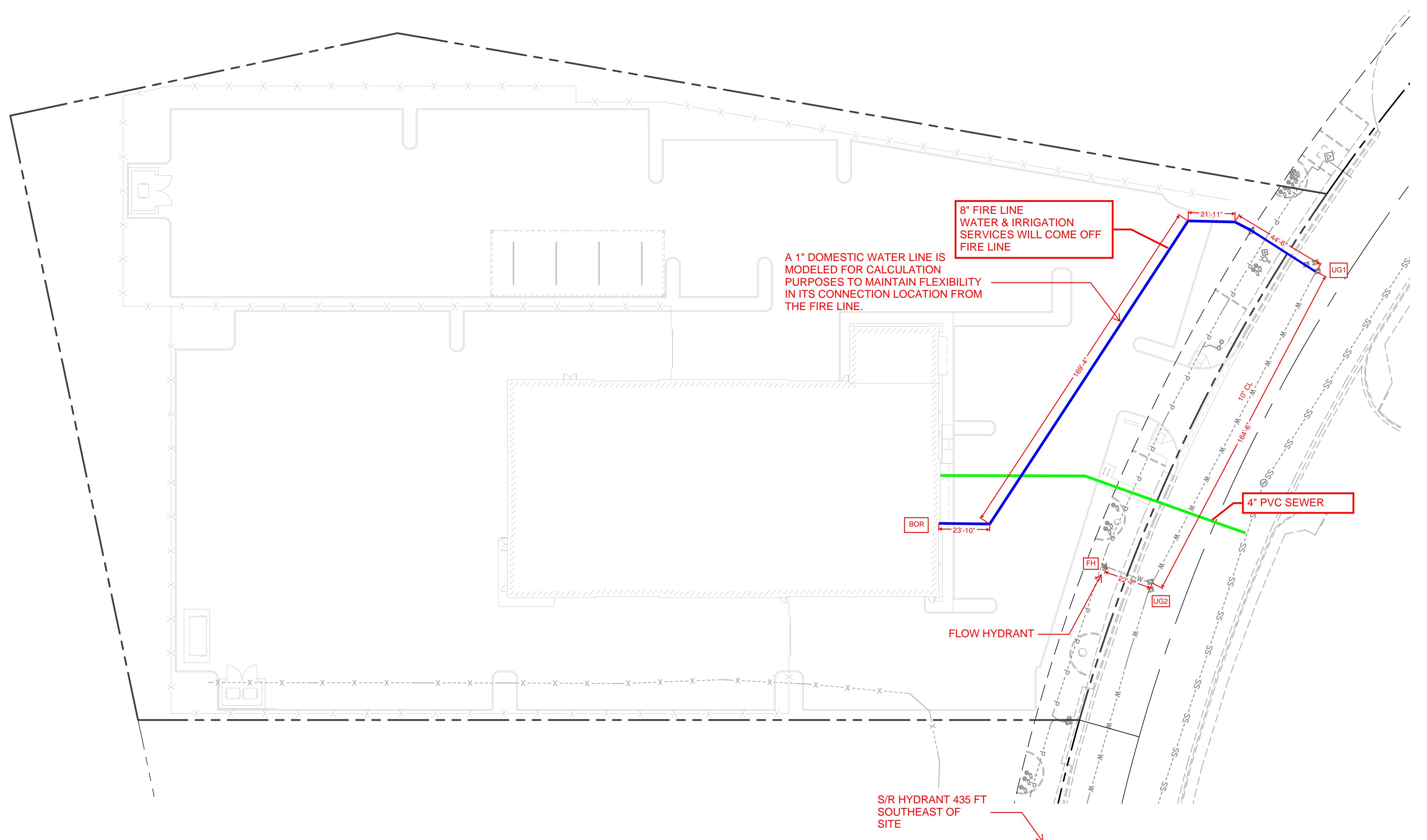
Attachment #7 – Max Day Water Demands

Attachment #8 – Peak Hour Water Demands

ATTACHMENT #1 - SITE VICINITY



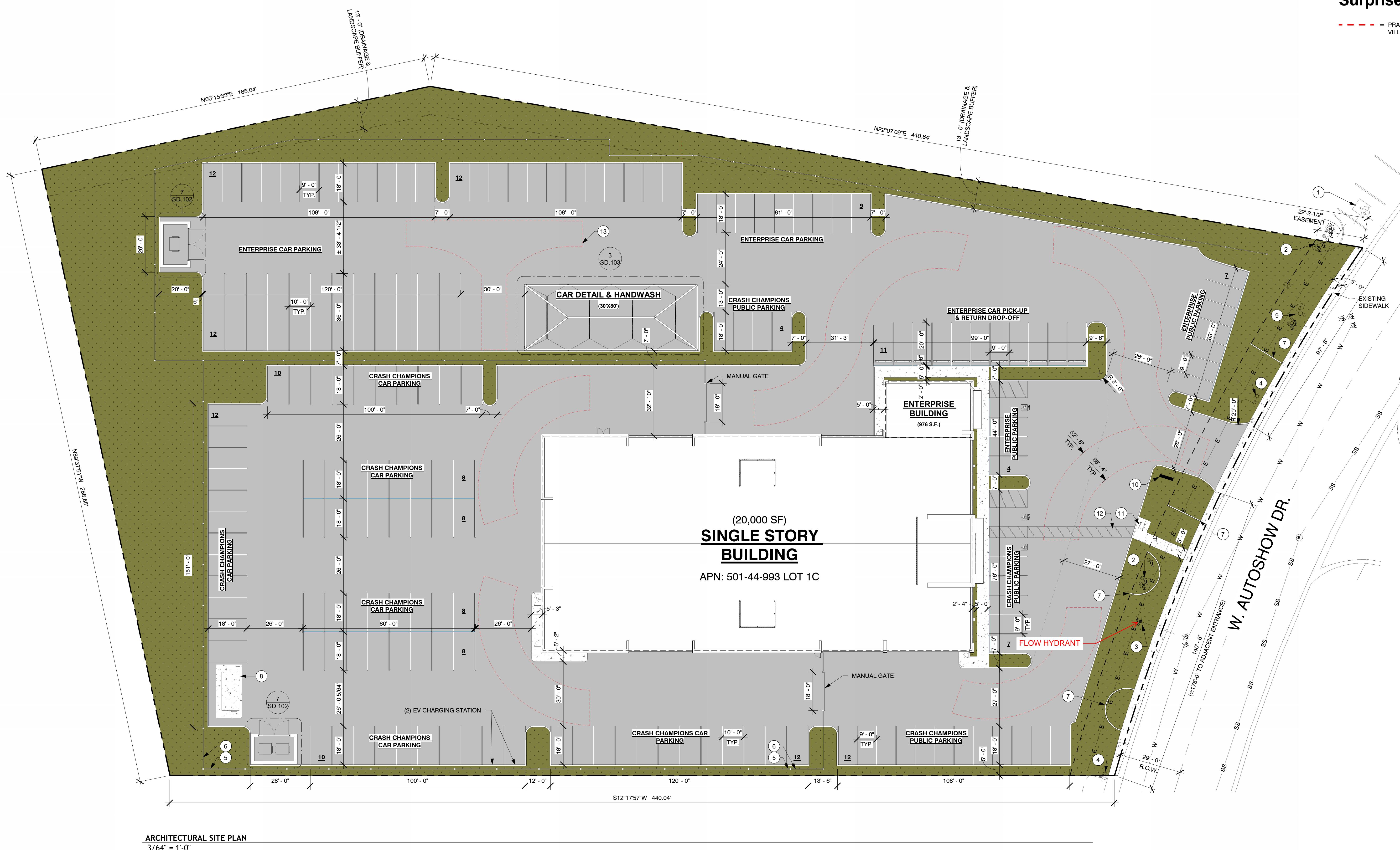
ATTACHMENT #2 - SITE UTILITY



LEGEND

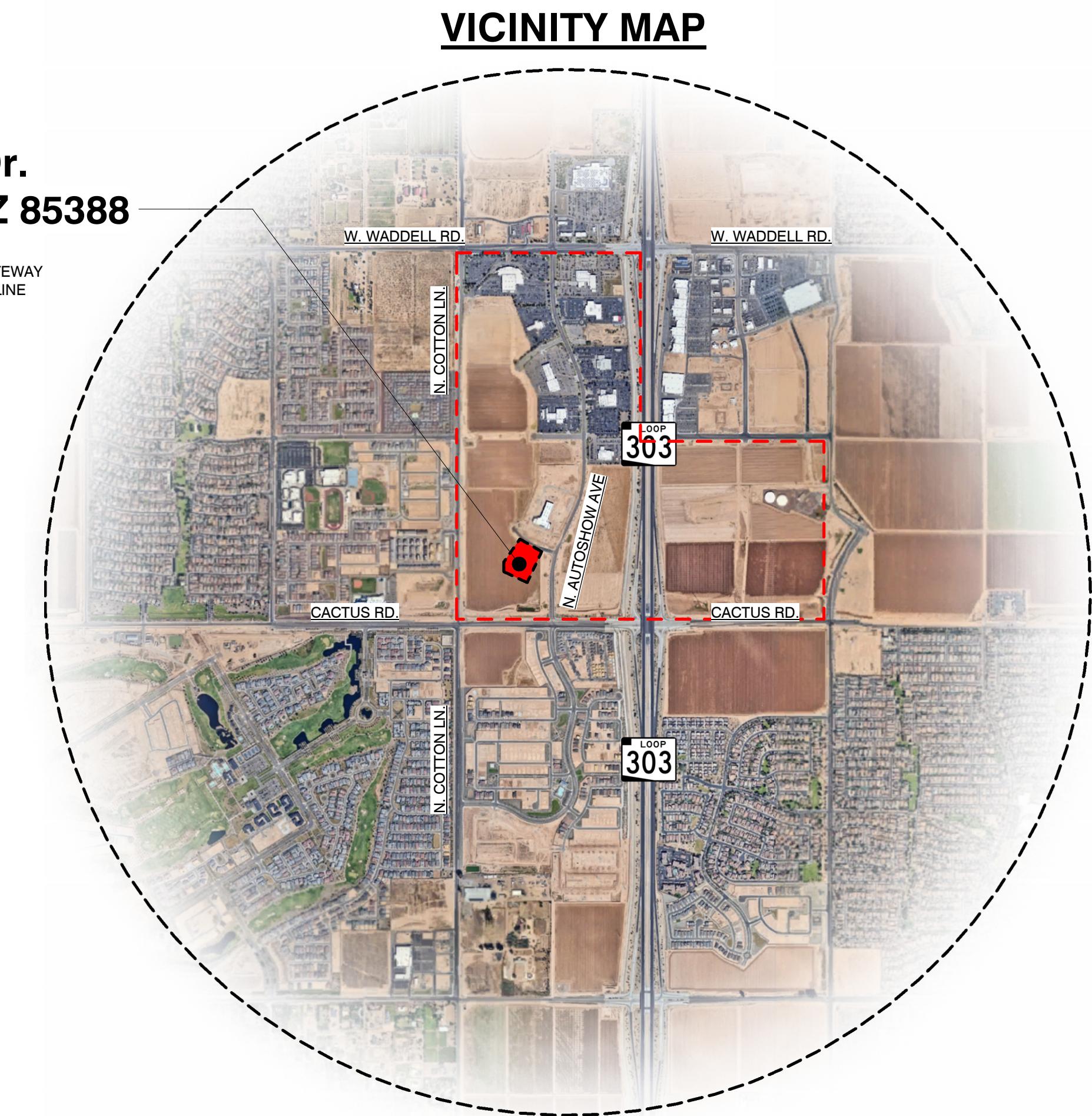
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- EXISTING UTILITY LINES-
- EXISTING UTILITY SYMBOLS-
- PROPOSED BUILDING
- CEMENT CONCRETE CURB & GUTTER
- SD** STORM LINE
- W** WATER LINE
- WS** WATER SERVICE LINE
- SS** SEWER LINE

REVISIONS	
PROJECT NO. 121.044	
DRAWN C. DAHM	
CHECKED C. SEVERS	
SUBMITTAL DATES	
OTB DATE	
JSACIVIL	
Engineering Planning Management	
111 TUWATER BLVD SE, SUITE B203	
TUWATER, WA 98312	
STAMP	
<p>Registered Professional Engineer C.E.P.TIFICATE NO. 82554 CHARLIE SEVERS Date Signed JUNE 2012 ARIZONA, U.S.A.</p>	
CRASH CHAMPS COMMERCIAL DEVELOPMENT PROJECT SURPRISE, ARIZONA	
<p>HillSide architecture LLC</p>	
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UTILITY PLAN	
SHEET	
UT-01	



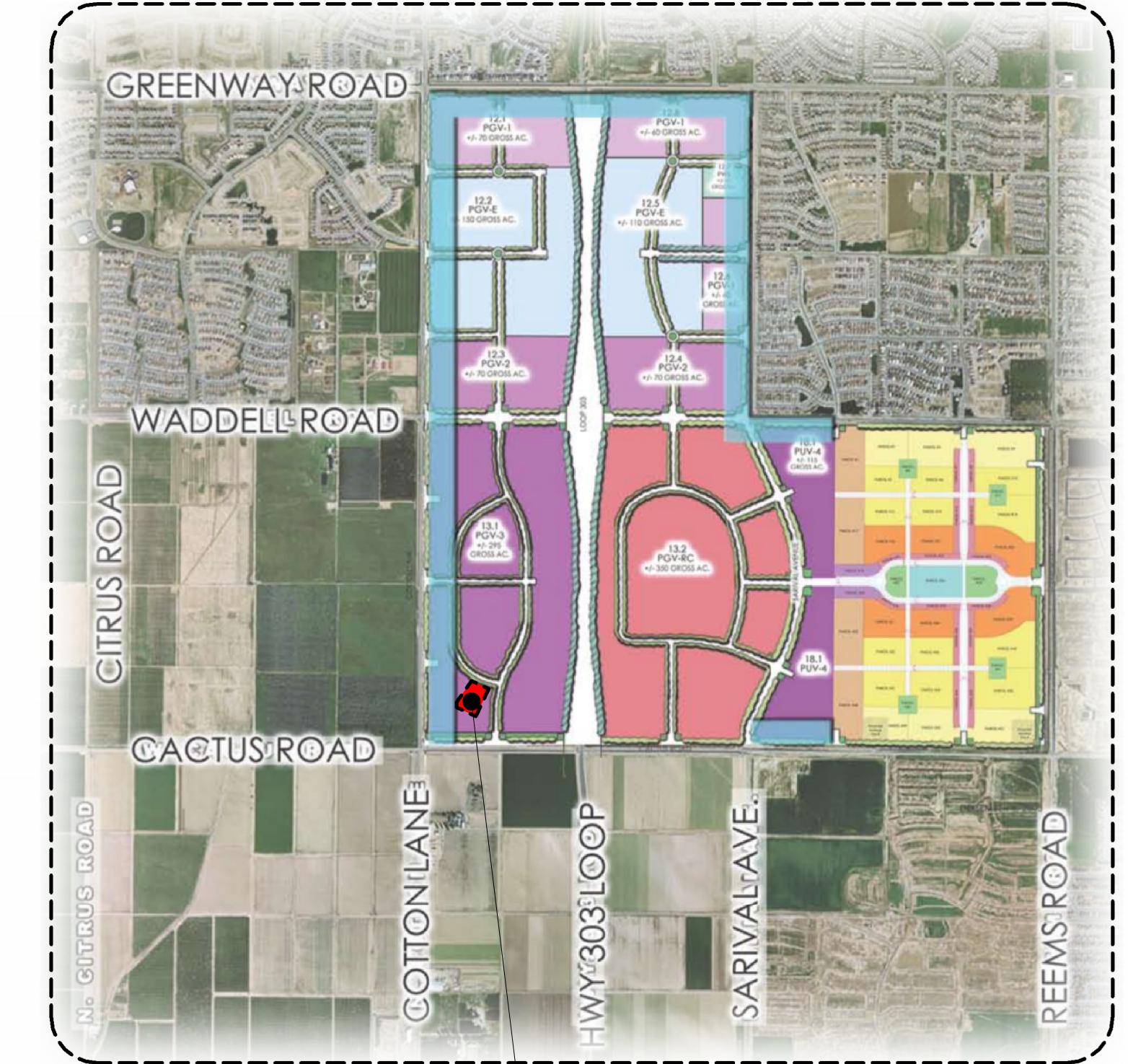
Autoshow Dr.
Surprise, AZ 85388

- - - = PRASADA GATEWAY VILLAGE OUTLINE



PRASADA GATEWAY VILLAGE (PGV) LAND USE MAP

13.1 - PGV-3: WILL PROVIDE HIGH INTENSITY REGIONAL COMMERCIAL DEVELOPMENT WHICH MAY INCLUDE AUTO DEALERSHIPS IN AN AUTO PARK SETTING ALONG WITH ASSOCIATED AUTOMOTIVE USES, EMPLOYMENT, RETAIL, AND COMMERCIAL USES AS WELL AS HOSPITALITY AND HIGH DENSITY RESIDENTIAL DEVELOPMENT.



Autoshow Dr.
Surprise, AZ 85388

KEYNOTE SCHEDULE - SITE PLAN

- 1 EXISTING ELECTRICAL TRANSFORMER
- 2 EXISTING IRRIGATION CONTROLS. SEE LANDSCAPE PLANS FOR MORE INFORMATION.
- 3 EXISTING HYDRANT TO REMAIN.
- 4 EXISTING UTILITY POLE. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION.
- 5 EXISTING TYPE 3 WALL BY OTHERS.
- 6 NEW EXTERIOR WALL PER LEGEND.
- 7 EXISTING CONCRETE WALL TO REMAIN.
- 8 CONCRETE PAD FOR ROLL-OFF DUMPSTER
- 9 EXISTING WATER UTILITY. SEE PLUMBING AND CIVIL DRAWINGS FOR MORE INFORMATION.
- 10 MONUMENT SIGN LOCATION WITH STUBBED UNDERGROUND CONDUIT.
- 11 BIKE PARKING LOCATON.
- 12 BROOM FINISH AT PED CROSSING.
- 13 GARBAGE TRUCK T-TURN CLEARANCE

KEYNOTE SCHEDULE - SITE PLAN

- 1 PROPERTY LINE
- 2 SITE EASEMENT
- 3 TYPE 2 WALL. SEE SITE DETAILS FOR WALL TYPE
- 4 CONCRETE PAVEMENT
- 5 CONCRETE SIDEWALK
- 6 LANDSCAPE AREA. SEE LANDSCAPE DRAWINGS.

SITE PLAN LEGEND

	PROPERTY LINE
	SITE EASEMENT
	TYPE 2 WALL. SEE SITE DETAILS FOR WALL TYPE
	CONCRETE PAVEMENT
	CONCRETE SIDEWALK
	LANDSCAPE AREA. SEE LANDSCAPE DRAWINGS.

SITE ANALYSIS:

SITE AREA:	139,392 S.F.
Hardscape/Pavement Area:	93,760 S.F. ($\pm 68\%$)
Open Space/Landscape Area:	22,915 S.F. ($\pm 16\%$)
OFFICE:	
REQUIRED:	1 SPACE PER 250 S.F. GROSS FLOOR AREA ($\pm 2,000 S.F. / 250 = 11$ REQUIRED)
PROVIDED:	11 PROVIDED
VEHICLE SERVICE REPAIR MAJOR & MINOR:	
REQUIRED:	1 SPACE PER 500 S.F. GROSS FLOOR AREA ($\pm 16,000 / 500 = 32$ REQUIRED)
PROVIDED:	33 PROVIDED (TO TECH BAYS TO ACCOUNT TOWARDS PUBLIC PARKING REQUIREMENTS)
ADA PARKING SPACES REQUIRED:	2
ADA PARKING SPACES PROVIDED:	3
BIKE PARKING REQUIRED:	1 SPACE FOR EVERY 20 VEHICLE PARKING SPACES (3 MIN.)
BIKE PARKING PROVIDED:	4



FLOW TEST WAS COMPLETED BY VICTORIA RODRIGUES WITH TELGIAN ENGINEERING AND CONSULTING ON MARCH 7TH, 2025 AT 7:15 AM. TEST WAS WITNESSED BY GARREN WILLEY WITH EPCOR.

FLOW HYDRANT

PITOT: 45 PSI

FLOW: 1,126 GPM

ONE 2.5" 0.9 OUTLET





Engineering & Consulting

ENGINEERS | CONSULTANTS | ANALYSTS | ASSESSORS

Telgian E & C
10230 50th Place
Suite 100
Phoenix, AZ 85044
619.871.9213

Job Name :
Building :
Location :
System :
Contract :
Data File : fire flow.WXF

Water Supply Curve

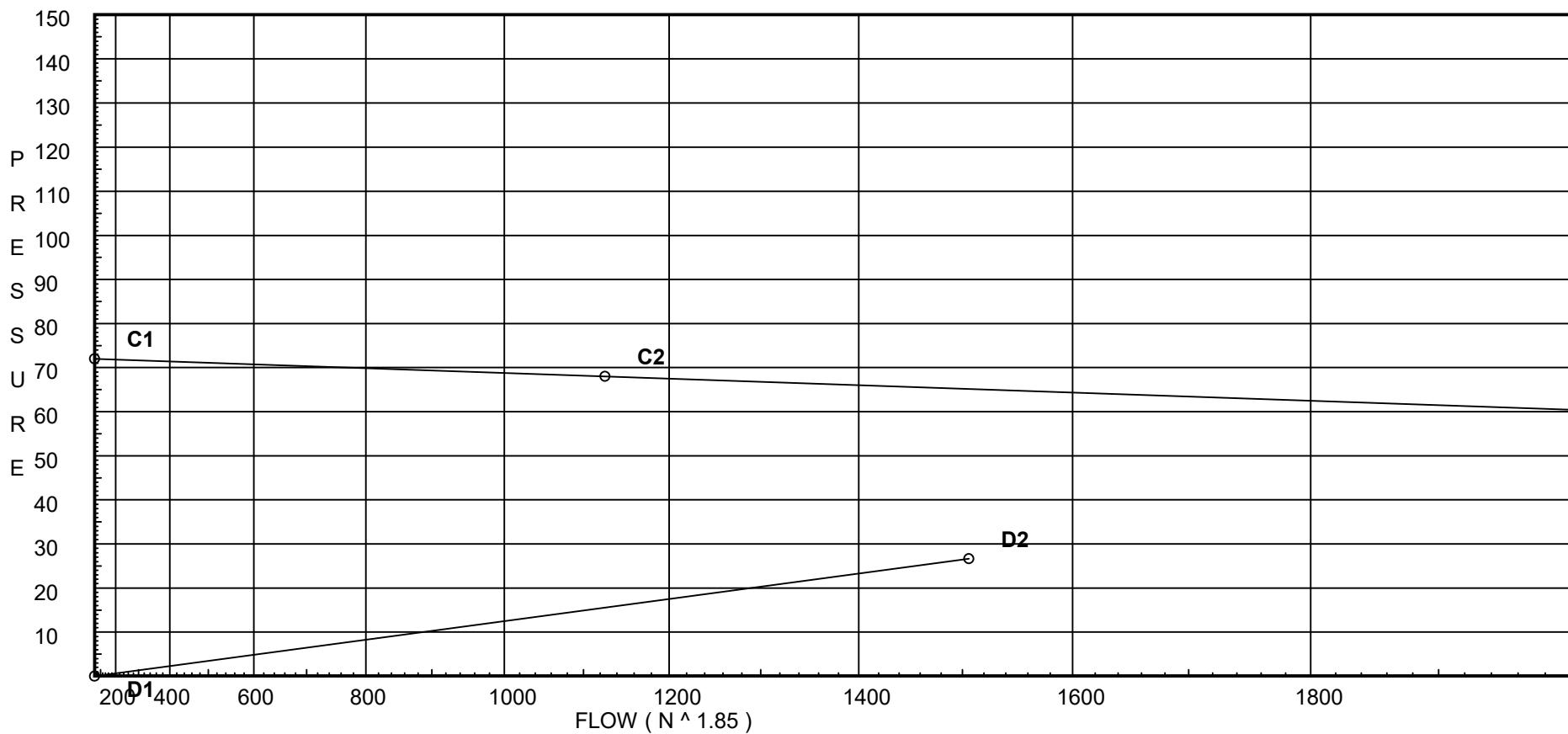
Telgian E & C

Page 1

Date

City Water Supply:
C1 - Static Pressure : 72
C2 - Residual Pressure: 68
C2 - Residual Flow : 1126

Demand:
D1 - Elevation :
D2 - System Flow : 1506
D2 - System Pressure : 26.635
Hose (Demand) :
D3 - System Demand : 1506
Safety Margin : 38.515



Fittings Used Summary

Telgian E & C

Page 2
Date

Fitting Legend

Abbrev. Name

		$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10	12	14	16	18	20	24
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121

Units Summary

Diameter Units

Inches

Length Units

Feet

Flow Units

US Gallons per Minute

Pressure Units

Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Flow Summary - NFPA

Telgian E & C

Page 3
Date

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
SCE	72.0	68	1126.0	65.15	1506.0	26.635

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
FH	371.0		20.0	1506.81	
UG2	371.0		24.57		
SCE	371.0		26.64		

Final Calculations : Hazen-Williams

Telgian E & C

Page 4
Date

Node1 to Node2	Elev1	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
FH to UG2	371	+1506.81	1506.00	6	E T	22.818 48.896	22.583 76.603	150	20.000 0.0			
UG2 to SCE	371		1506.0	6.16	G	4.89	99.186	0.0460	4.566	Vel = 16.21		
UG2 to SCE	371		0.0	10	E	37.661	506.667 37.660	150	24.566 0.0			
SCE	371		1506.0	10.28			544.327	0.0038	2.069	Vel = 5.82		
						0.0				26.635	K Factor = 291.81	
						1506.00						



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Job Name :
Building :
Location :
System :
Contract :
Data File : ave day.WXF

Water Supply Curve

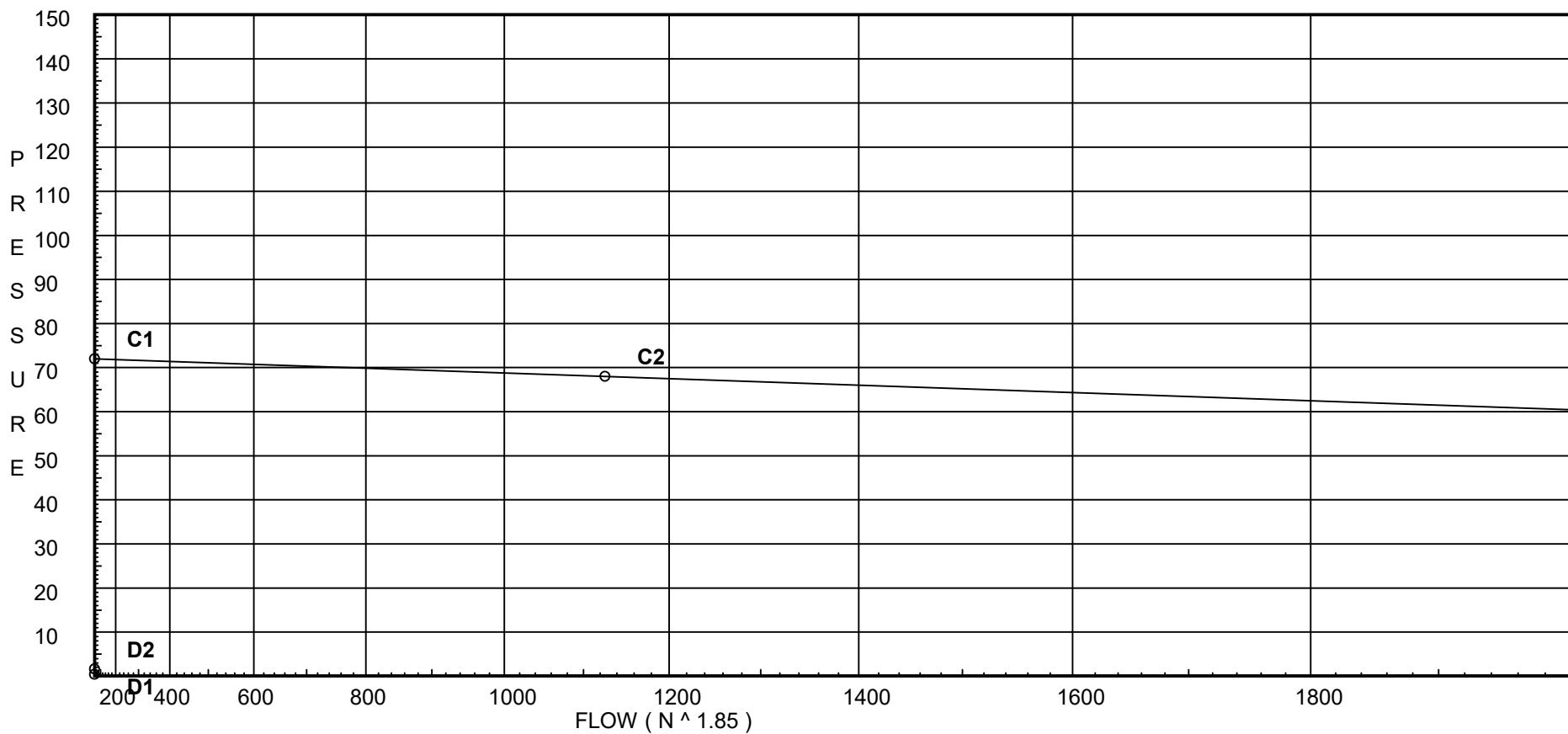
Telgian E & C

Page 1

Date

City Water Supply:
C1 - Static Pressure : 72
C2 - Residual Pressure: 68
C2 - Residual Flow : 1126

Demand:
D1 - Elevation : 0.433
D2 - System Flow : 3.78
D2 - System Pressure : 1.672
Hose (Demand) :
D3 - System Demand : 3.78
Safety Margin : 70.328



Fittings Used Summary

Telgian E & C

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Date

Fitting Legend

Abbrev. Name

		$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10	12	14	16	18	20	24
Ball	B Ball Milw BB-SC100			2.25	2	2.5	2.25	10													
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121

Units Summary

Diameter Units Inches

Length Units Feet

Flow Units US Gallons per Minute

Pressure Units Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters.
 Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors
 of 120 except as noted with *. The fittings marked with a * show equivalent lengths values
 supplied by manufacturers based on specific pipe diameters and CFactors and they require no
 adjustment. All values for fittings not marked with a * will be adjusted in the calculation
 for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
SCE	72.0	68	1126.0	72.0	3.78	1.672

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
BOR	372.0		0.0	3.78	
UG1	372.0		1.24		
UG2	371.0		1.67		
SCE	371.0		1.67		

Final Calculations : Hazen-Williams

Telgian E & C

Page 4
Date

Node1 to Node2	Elev1	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
BOR	372	+ 3.78	3.78	1	4E T	10.8 6.75	259.583 20.588	150	0.0 0.0			
to UG1	372		3.78	1.025	Ball	3.037	280.171	0.0044	1.239	Vel = 1.47		
UG1	372		0.0	10	3E T	112.982 85.592	164.500 207.132	150	1.239 0.433			
to UG2	371		3.78	10.28	G	8.559	371.632	0	0.0	Vel = 0.01		
UG2	371		0.0	10	E	37.661	506.667 37.660	150	1.672 0.0			
to SCE	371		3.78	10.28			544.327	0	0.0	Vel = 0.01		
			0.0									
SCE			3.78							1.672	K Factor = 2.92	



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Location :
System :
Contract :
Data File : max day.WXF

Water Supply Curve

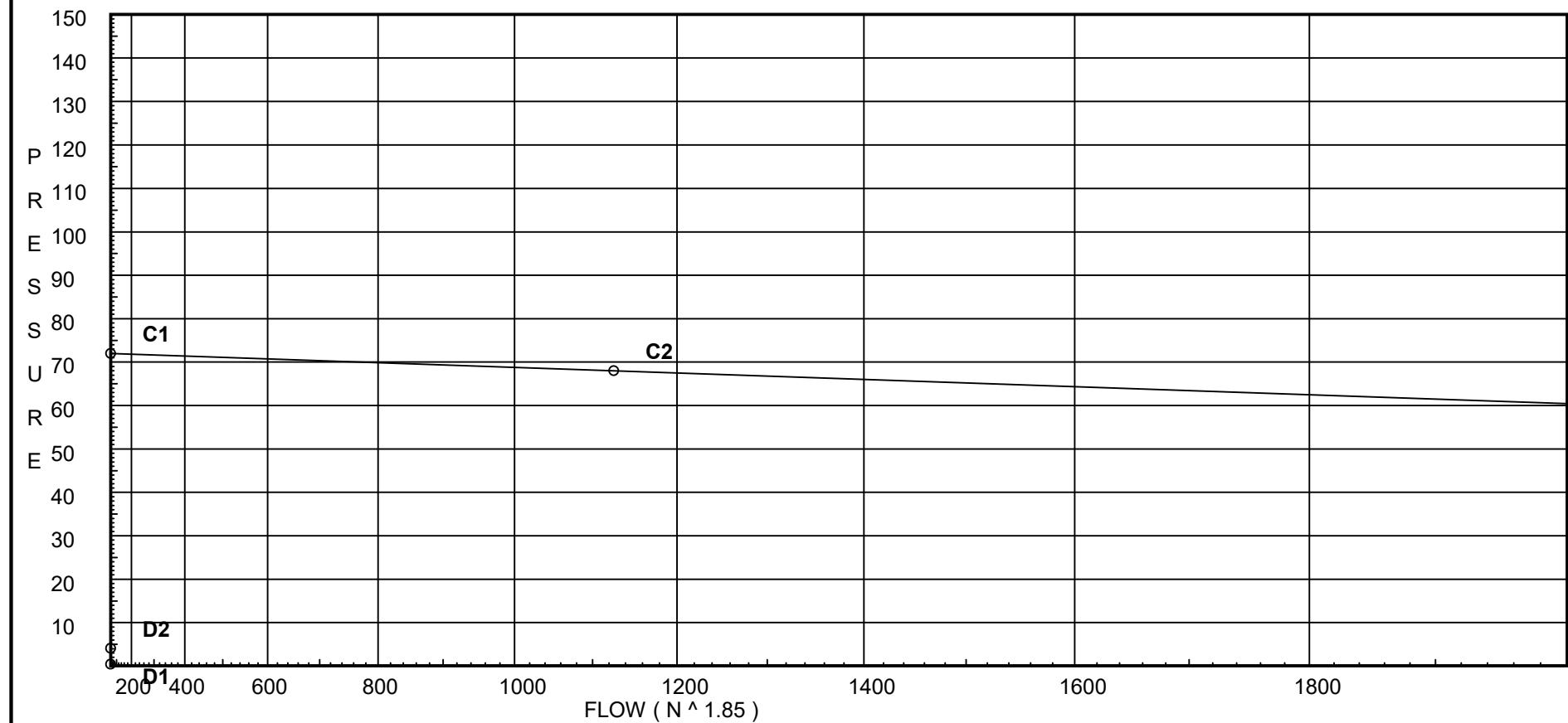
Telgian E & C

Page 1

Date

City Water Supply:
C1 - Static Pressure : 72
C2 - Residual Pressure: 68
C2 - Residual Flow : 1126

Demand:
D1 - Elevation : 0.433
D2 - System Flow : 6.81
D2 - System Pressure : 4.114
Hose (Demand) :
D3 - System Demand : 6.81
Safety Margin : 67.886



Fittings Used Summary

Telgian E & C

Page 2
Date

Fitting Legend

Abbrev. Name

		$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10	12	14	16	18	20	24
Ball	B Ball Milw BB-SC100			2.25	2	2.5	2.25	10													
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121

Units Summary

Diameter Units Inches
 Length Units Feet
 Flow Units US Gallons per Minute
 Pressure Units Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters.
 Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors
 of 120 except as noted with *. The fittings marked with a * show equivalent lengths values
 supplied by manufacturers based on specific pipe diameters and CFactors and they require no
 adjustment. All values for fittings not marked with a * will be adjusted in the calculation
 for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Flow Summary - NFPA

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Page 3
Date

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
SCE	72.0	68	1126.0	72.0	6.81	4.114

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
BOR	372.0		0.0	6.81	
UG1	372.0		3.68		
UG2	371.0		4.11		
SCE	371.0		4.11		

Final Calculations : Hazen-Williams

Telgian E & C

Page 4
Date

Node1 to Node2	Elev1	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
BOR	372	+ 6.81	6.81	1	4E T	10.8 6.75	259.583 20.588	150	0.0 0.0			
to UG1	372		6.81	1.025	Ball	3.037	280.171	0.0131	3.680	Vel = 2.65		
UG1	372		0.0	10	3E T	112.982 85.592	164.500 207.132	150	3.680 0.433			
to UG2	371		6.81	10.28	G	8.559	371.632	0	0.001	Vel = 0.03		
UG2	371		0.0	10	E	37.661	506.667 37.660	150	4.114 0.0			
to SCE	371		6.81	10.28			544.327	0	0.0	Vel = 0.03		
			0.0									
SCE			6.81							4.114	K Factor = 3.36	



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Location :
System :
Contract :
Data File : peak hour.WXF

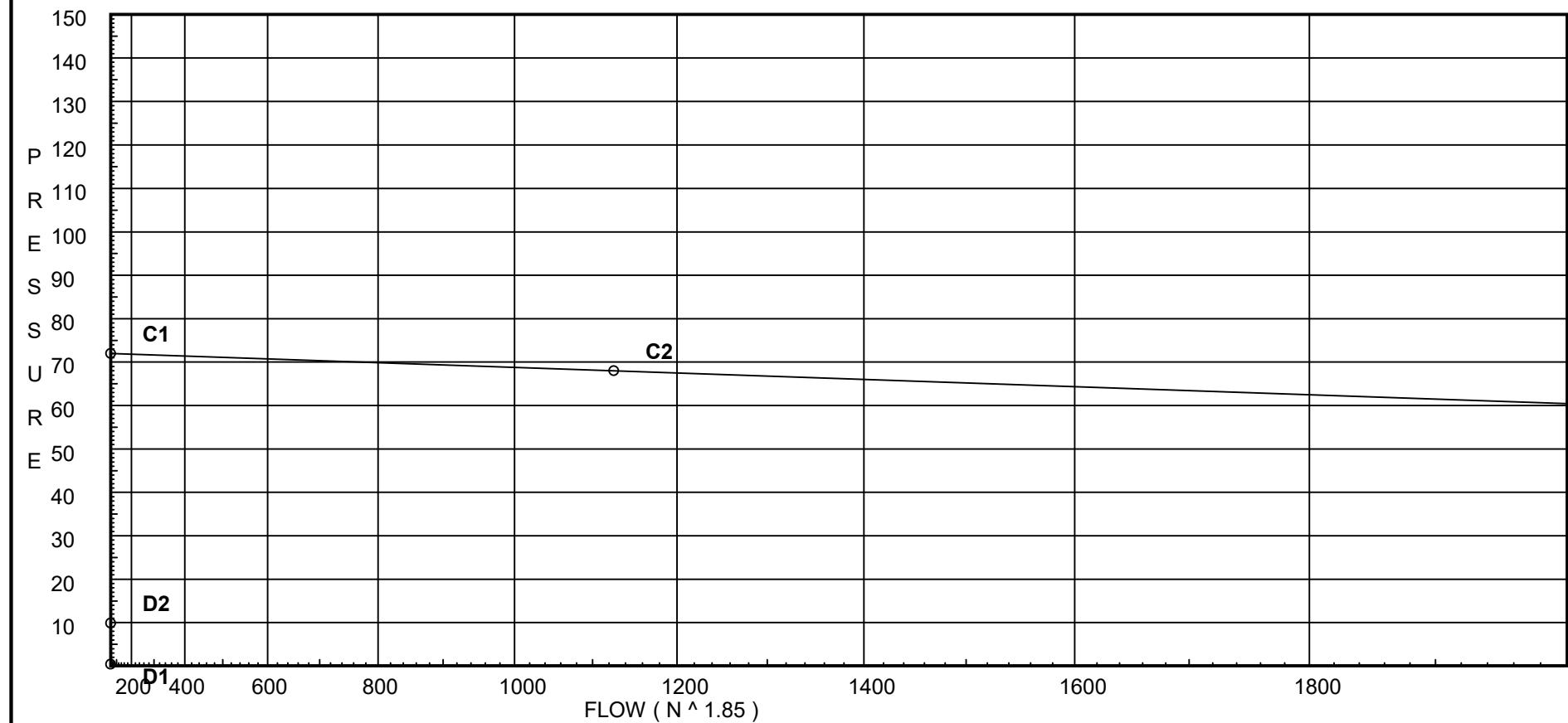
Water Supply Curve

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Page 1
Date

City Water Supply:
C1 - Static Pressure : 72
C2 - Residual Pressure: 68
C2 - Residual Flow : 1126

Demand:
D1 - Elevation : 0.433
D2 - System Flow : 11.34
D2 - System Pressure : 9.887
Hose (Demand) :
D3 - System Demand : 11.34
Safety Margin : 62.112



Fittings Used Summary

Telgian E & C

Page 2
Date

Fitting Legend

Abbrev. Name

		$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10	12	14	16	18	20	24
Ball	B Ball Milw BB-SC100			2.25	2	2.5	2.25	10													
E	NFPA 13 90' Standard Elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
T	NFPA 13 90' Flow thru Tee	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121

Units Summary

Diameter Units Inches
 Length Units Feet
 Flow Units US Gallons per Minute
 Pressure Units Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters.
 Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors
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 supplied by manufacturers based on specific pipe diameters and CFactors and they require no
 adjustment. All values for fittings not marked with a * will be adjusted in the calculation
 for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

SUPPLY ANALYSIS

Node at Source	Static Pressure	Residual Pressure	Flow	Available Pressure	Total Demand	Required Pressure
SCE	72.0	68	1126.0	71.999	11.34	9.887

NODE ANALYSIS

Node Tag	Elevation	Node Type	Pressure at Node	Discharge at Node	Notes
BOR	372.0		0.0	11.34	
UG1	372.0		9.45		
UG2	371.0		9.89		
SCE	371.0		9.89		

Final Calculations : Hazen-Williams

Telgian E & C

Page 4
Date

Node1 to Node2	Elev1	K Fact	Qa Qt	Nom Act	Fitting or Equiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
BOR	372	+ 11.34	11.34	1	4E T	10.8 6.75	259.583 20.588	150	0.0 0.0			
to UG1	372		11.34	1.025	Ball	3.037	280.171	0.0337	9.454	Vel = 4.41		
UG1	372		0.0	10	3E T	112.982 85.592	164.500 207.132	150	9.454 0.433			
to UG2	371		11.34	10.28	G	8.559	371.632	0	0.0	Vel = 0.04		
UG2	371		0.0	10	E	37.661	506.667 37.660	150	9.887 0.0			
to SCE	371		11.34	10.28			544.327	0	0.0	Vel = 0.04		
SCE			0.0						9.887	K Factor = 3.61		
			11.34									