

FINAL Basis of Design Report

APPROVED

APPROVED AS NOTED

REVISE AND RESUBMIT



Disclaimer: If approved, the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY Idillon DATE 1/30/2020

Address comments below and herein on plans:

- 1) Because of higher potential for odors and corrosion with lower velocities we'll want all of the new onsite manholes on the public main (10" line and 15" line) to either be polymer concrete manholes or be epoxy coated per City standards. DS&PM 7-1.405 part D
- 2) Plans herein are not approved in detail
- 3) Polymer manhole, pool backwash equalization plans, and jack and bore casing and carrier pipe design elements will require special review and approval from the Water Resources department
- 4) Lower slope than minimum required per DS&PM is allowed on the new public sewer line sewer since no reasonable alternative exists.
- 5) Sewer conveying new development flows shall be called out as private onsite sewer as shown in the plans herein.

January 28, 2020

Scottsdale Entrada

64th Street and McDowell Road

Final Basis of Design Report

Scottsdale, Arizona

Prepared for:

Banyan Residential

2411 3rd Street

Santa Monica, CA 90405

Contact: Ben Brosseau

858.220.2975

Prepared by:

Coe and Van Loo II L.L.C.

4550 N 12th Street

Phoenix, AZ 85014

Contact: Fred Renn, PE

602.264.6831



Job # 1.14.0254309



WASTEWATER

January 28, 2020

Mr. Levi Dillon, PE
Sr. Water Resources Engineer
City of Scottsdale
9379 E Salvador Dr
Scottsdale, AZ 85258

Re: Scottsdale Entrada Basis of Design Reports - Comment Response Letter

Dear Mr. Dillon,

The following is a summary and response to the comments provided as a part of the review for the above referenced project:

Water Basis of Design Report

1. Modeling needs to be updated based on the adjusted flow test results where static pressure is 68 psi and test flow and pressure are 54.5 psi and 2,049 gpm respectively.

Response: Model has been revised to use the adjusted results.

2. System should be modeled as a single reservoir and pump (refer to utility plan) or a reservoir of varying HGL corresponding to flow test. As-is 2 pumps would need to total to all points on the single supply curve and I cannot tell this is the case with the information being provided.

Response: Model has been revised to include a single reservoir and pump.

3. On Utility Plan:
 - Provide clearances between water and sewer
 - Call out all meters (domestic and landscape) and initial sizes proposed (and any vaults required). Meters will ultimately be sized used both IPC and DS&PM.
 - Call out all easements and widths (14ft min for onsite public water up to 12”).
 - Clarify why backflows are shown separate from meters
 - Call out sprinkler fire lines and riser room location
 - All public main branches must have isolation valve on the number of branches minus 1 with the open branch coming from the primary source direction.
 - Call out replacement of ACP with City standard DIP segment and installation of full diameter tee and iso valves for the McDowell and 64th Street main connections.

~~**Response: The above comments are being addressed as part of the final design. A draft of the final water plan is attached for reference.**~~

4. Technically, per DS&PM 6-1.407 all services must have a PRV.

~~**Response: Noted. The report was revised to note this requirement.**~~

Wastewater Basis of Design Report

1. All (public) manholes on 15" or greater line or with rim to invert greater than 10 feet shall be 5ft diameter manholes per City Standards.

Response: The report and plans were revised to note this requirement. Additionally, all of the manholes on the on-site public sewer are noted as 5 feet in diameter as requested. Private manholes with 10 feet or greater of cover are also noted to be 5 feet in diameter as requested. ✓

2. Polymer manhole shall follow specifications approved by Water Resources. Submit specification, submittal and drawing to Water Resources.

Response: The proposed manhole at the intersection of Scottsdale and McDowell Roads is specified as ARMOROCK or equal. An ARMOROCK spec is attached.

3. All service lines shall be min 6" and per MAG 440-3 with cleanout.

Response: The report and plans were revised to note this requirement. ✓

thank you, spec and details to be finalized during plan review

4. Address minor calc errors in hydraulic analysis table herein

Response: The calculations have been corrected as requested. ✓

5. Clarify why 120gpm was used for 12-inch line and not measured peak of 165 gpm. I believe it is 200 gpm actual peak minus 80 measured on McDowell. If so, ok.

Response: The rational for the 120 gpm is clarified in the report. ✓

6. Special protection needed for SD crossing less than 2ft above new 15" sewer. Refer to utility plan comment herein.

Response: Special protection for the crossing is noted in the report and the plans. ✓

7. Pools do not pump straight to sewer line. Indicate backwash equalization basin and pump on plans.

Response: The pool buildings are noted on the plans as requested. ✓

8. Indicate required clear separation between water and sewer of 6ft on utility plans.

ADEQ

Re: SR 238 16" Waterline Extension - Comment Response Letter

August 30, 2019

Page 3 of 3

Response: This requirement is noted on the plans as requested. ✓

9. Indicate on utility plan that sewer shall be private up until confluence with public line/flows

Response: This requirement is noted on the plans as requested. ✓

Should you have questions or concerns, please contact me directly at (602) 264-6831 or at frenn@cvlci.com

Respectfully,

COE & VAN LOO
Consultants, Inc.

Fred Renn, P.E.
Project Manager



Fred Renn, P.E.
Project Manager

FR:

spec and details to be
finalized during plan
review

STANDARD SPECIFICATION

POLYMER CONCRETE MANHOLES

POLYMER CONCRETE MANHOLES

PART 1 GENERAL

1.01 SCOPE

This specification covers polymer concrete manholes intended for use in sanitary sewers, storm sewers and water lines where corrosion resistance is required.

1.02 REFERENCES

ASTM C 478 (most current) Standard Specification for Precast Reinforced Concrete Manhole Sections.

ASTM C 579 (most current) Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic, Surfacing, and Polymer Concretes

ASTM C 443 (most current) Standard Specification for Joints for Concrete Pipe and Manholes Using Rubber Gaskets

ASTM C 580 (most current) Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes

ASTM C 857 (most current) Standard Practice for Minimum Structural Design Loading for Underground Utility Structures.

ACI 350-06 Code Requirements for Environmental Engineering Concrete Structures & Commentary

ACI 440.1R-15 Guide for the Design and Construction of Structural Concrete Reinforced with Fiber-Reinforced Polymer (FRP) Bars

ACI 548.6R-96 Polymer Concrete-Structural Applications State-of-the-Art Report

ASTM D 648 (most current) Test Method for Deflection Temperature of Plastics Under Flexural Load in Edgewise Position.

ASTM D 6783 (most current) Standard Specification for Polymer Concrete Pipe.

ASTM D 2584 (most current) Test Method for Ignition Loss of Cured Reinforced Resins.

ASTM C 923 (most current) Standard Specifications for Resilient Connectors between Concrete Manholes Structures and Pipe.

ASTM C 990 (most current) Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections using Preformed Flexible Joint Sealants

ASTM C 497 (most current) Test Methods for Concrete Pipe, Manhole Sections, or Tile.

California Greenbook Standard Specifications for Public Works Construction Section 211-2

1.03 SUBMITTALS

- A. Conform to bid document requirements
- B. Submit manufacturer's data and details of following items for approval:
 - 1. Shop drawings of manhole sections, base units and construction details, jointing methods, materials, and dimensions
 - 2. Summary of criteria used in manhole design including, as minimum, material properties, loading criteria, and dimensions assumed. Include certification from manufacturer that polymer concrete manhole design meets or exceeds the load and strength requirements of ASTM C 478 and ASTM C 857, reinforced in accordance with ACI 440.1R-15.
 - 3. Frames, grates, rings, and covers
 - 4. Materials to be used in fabricating pipe drop connections
 - 5. Materials to be used for pipe connections
 - 6. Materials to be used for stubs and stub plugs, if required
 - 7. Proof of independent chemical resistance testing conducted in accordance with the standard specifications for public works construction (California Greenbook) Section 211-2
 - 8. Current ISO 9001:2015 Certification
 - 9. References of 10 previous polymer concrete projects including scope in the last 5 years performed with both owner and contractor for reference and review by owner
- C. Submitted sealed drawings by a registered Professional Engineer

PART 2 PRODUCTS

2.01 POLYMER CONCRETE MANHOLES

- A. Provide polymer concrete manhole sections, monolithic base sections and related components referencing to ASTM C 478. ASTM C 478 material and manufacturing is allowed compositional and dimensional differences required by a polymer concrete product
- B. Provide base riser section with monolithic floors, unless shown otherwise
- C. Provide riser sections joined with bell and spigot / ship-lap design seamed with butyl mastic and or rubber gaskets (ASTM C 990) so that on assembly, manhole base, riser and top section make a continuous and uniform manhole structure
- D. Construct riser sections for polymer concrete manholes from standard polymer concrete manhole sections of the diameter indicated on drawings. Use various lengths of polymer concrete manhole sections in combination to provide correct height with the fewest joints
- E. Design wall sections for depth and loading conditions with wall thickness as designed by polymer concrete manufacturer
- F. Provide tops to support AASHTO HS-20 loading or loads as required and receiving cast iron frame covers or hatches, as indicated on drawings

2.01-1 DESIGN CRITERIA:

Polymer Concrete Manhole risers, cones, flat lids, grade rings and manhole base sections shall be designed by manufacturer to meet the intent of ASTM C 478 with allowable compositional and sizing differences as designed by the polymer concrete manufacturer.

1. AASHTO HS-20 design or as required loading applied to manhole cover and transition and base slabs
2. Polymer manholes will be designed based upon live and dead load criteria in ASTM C 857 and ACI 350-06
3. Unit soil weight of 120 pcf located above portions of manhole, including base slab projections
4. Internal liquid pressure based on unit weight of 63 pcf
5. Dead load of manhole sections fully supported by polymer concrete manhole base

2.01-2 DESIGN:

Polymer Concrete Manhole risers, cones, flat lids, grade rings and manhole base sections shall be designed by manufacturer to meet loading requirements

of ASTM C 478, ASTM C 857 and ACI 350-06 as modified for polymer concrete manhole design as follows:

1. Polymer Concrete Mix Design shall consist of thermosetting resin, sand, and aggregate. No Portland cement shall be allowed as part of the mix design matrix. All sand and aggregate shall be inert in an acidic environment
2. Reinforcement – Shall use acid resistant reinforcement (FRP Bar) in accordance with ACI 440.1R-06 as applicable for polymer concrete design
3. The wall thickness of polymer concrete structures shall not be less than that prescribed by the manufacturer's design by less than 95% of stated design thickness
4. Thermosetting Resin - The resin shall have a minimum deflection temperature of 158° F when tested at 264 psi (1.820 mPa) following Test Method D 648. The resin content shall not be less than 7% of the weight of the sample as determined by test method D 2584. Resin selection shall be suitable for applications in the corrosive conditions to which the polymer concrete manhole structures will be exposed
5. Each polymer concrete manhole component shall be free of all defects, including indentations, cracks, foreign inclusions and resin starved areas that, due to their nature and degree or extent, detrimentally affect the strength and serviceability of the component part. Cosmetic defect shall not be cause for rejection. The nominal internal diameter of manhole components shall not vary more than 2%. Variations in height of two opposite sides of risers and cones shall not be more the 5/8 inch. The under run in height of a riser or cone shall not be more than ¼ in/ft of height with a maximum of ½ inch in any one section
6. Marking and Identification - Each manhole shall be marked with the following information - Manufacturer's name or trademark, Manufacturer's location and Production Date
7. Manhole joints shall be assembled with a bell/spigot or shiplap butyl mastic and/or gasketed joint so that on assembly, manhole base, riser and top section make a continuous and uniform manhole. Joint sealing surfaces shall be free of dents, gouges and other surface irregularities that would affect joint integrity
8. Minimum clearance between wall penetrations and joints shall be per manufacturer's design
9. Construct invert channels to provide smooth flow transition with minimal disruption of flow at pipe-manhole connections. Invert slope through manhole is as indicated on drawings. All precast base sections to be cast monolithically. Polymer bench and channel are to be constructed with all polymer concrete material. Extended ballast slab requirements for buoyancy concerns can be addressed with cementitious concrete material

10. Provide resilient connectors conforming to requirements of ASTM C 923 or other options as available. All connectors are to be water tight. Install approved resilient connectors at each pipe entering and exiting manholes in accordance with manufacturer's instructions

2.01-3 QUALITY CONTROL

Facility Quality Control should be maintained by adhering to ISO 9001:2015 for manufacturing. All fabricators will be ISO 9001:2015 Certified. All fabrication will take place in an all polymer concrete fabrication facility. At no time will the polymer concrete fabrication facility share the facility with a cementitious precast product production facility. Fabricator is also to provide references of 10 previous projects in the last 5 years performed with both owner and contractor for reference and the scope and review by owner. Polymer concrete shall be cast in a polymer only facility and shall not be manufactured in a cementitious concrete facility

2.01-4 GROUTING

All materials needed for grouting and patching will be a polyester mortar compound provided by the manufacturer or an approved equal by the manufacturer

2.01-5 MANUFACTURER

1. **Armorock LLC, www.armorock.com
702-824-9702**

TABLE OF CONTENTS

1.0 INTRODUCTION 1
2.0 SITE DESCRIPTION 1
3.0 PROPOSED LAND USE 1
4.0 ON-SITE FLOW CALCULATIONS 1
5.0 EXISTING SEWERS 4
 5.1 On-Site Sewers..... 6
 5.2 Off-Site Sewers 6
6.0 OFF-SITE SEWER CAPACITY ANALYSIS 6
7.0 PROPOSED ON-SITE SEWERS..... 7
8.0 CONCLUSIONS..... 10

TABLES

Table 1 – Proposed Land Use 1
Table 2 – City of Scottsdale Wastewater Design Criteria 4
Table 3 – Wastewater Generation Estimates 4
Table 4 – Additional Planned Development Peak Flow Summary 6
Table 5 – Peak Flow Monitoring Summary..... 7
Table 6 – Off-Site Design Flows 7
Table 7 – On-Site Design Flows 10

FIGURES

Figure 1 – Location Map..... 2
Figure 2 – Land Use Map 3
Figure 3 – Existing Sewer System 5
Figure 4 – Sewer Line Extension and Gas Relocation 8
Figure 5 – Proposed On-Site Sewer System 9



APPENDICES

- Appendix A Wastewater Generation Calculations
- Appendix B Pool Backwash Calculations
- Appendix C Off-Site Sewer Flow Monitoring and Modeling
- Appendix D Off-Site Sewer Hydraulic Calculations
- Appendix E SWG Gas Line Relocation Plans
- Appendix F On-Site Sewer Hydraulic Calculations
- Appendix G On-Site Sewer Plans



1.0 INTRODUCTION

Banyan Residential plans to redevelop 23 acres of nearly 28 acres of land formerly known as the Scottsdale Auto Park into the mixed use development of Scottsdale Entrada. The project is located on the northeast corner of 64th Street and McDowell Road in Scottsdale, Arizona as shown on Figure 1.

2.0 SITE DESCRIPTION

Scottsdale Entrada is located in Section 34, Township 2 North, Range 4 East of the Gila River Baseline and Meridian, Maricopa County, Arizona. The property slopes from the northwest to the southeast and ranges in elevation from approximately 1280 to 1270 feet above mean sea level (MSL). The property is bounded by residential property to the north, the Crosscut Canal to the east, McDowell Road to the south and 64th Street to the west.

3.0 PROPOSED LAND USE

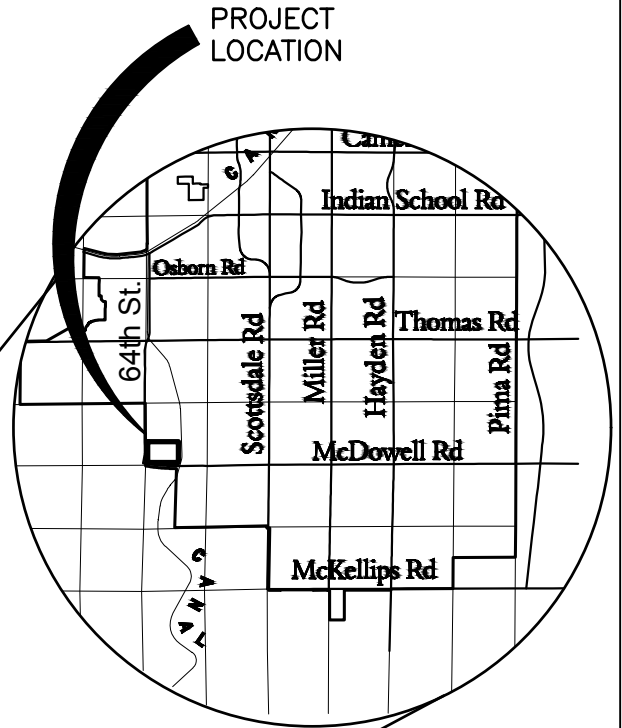
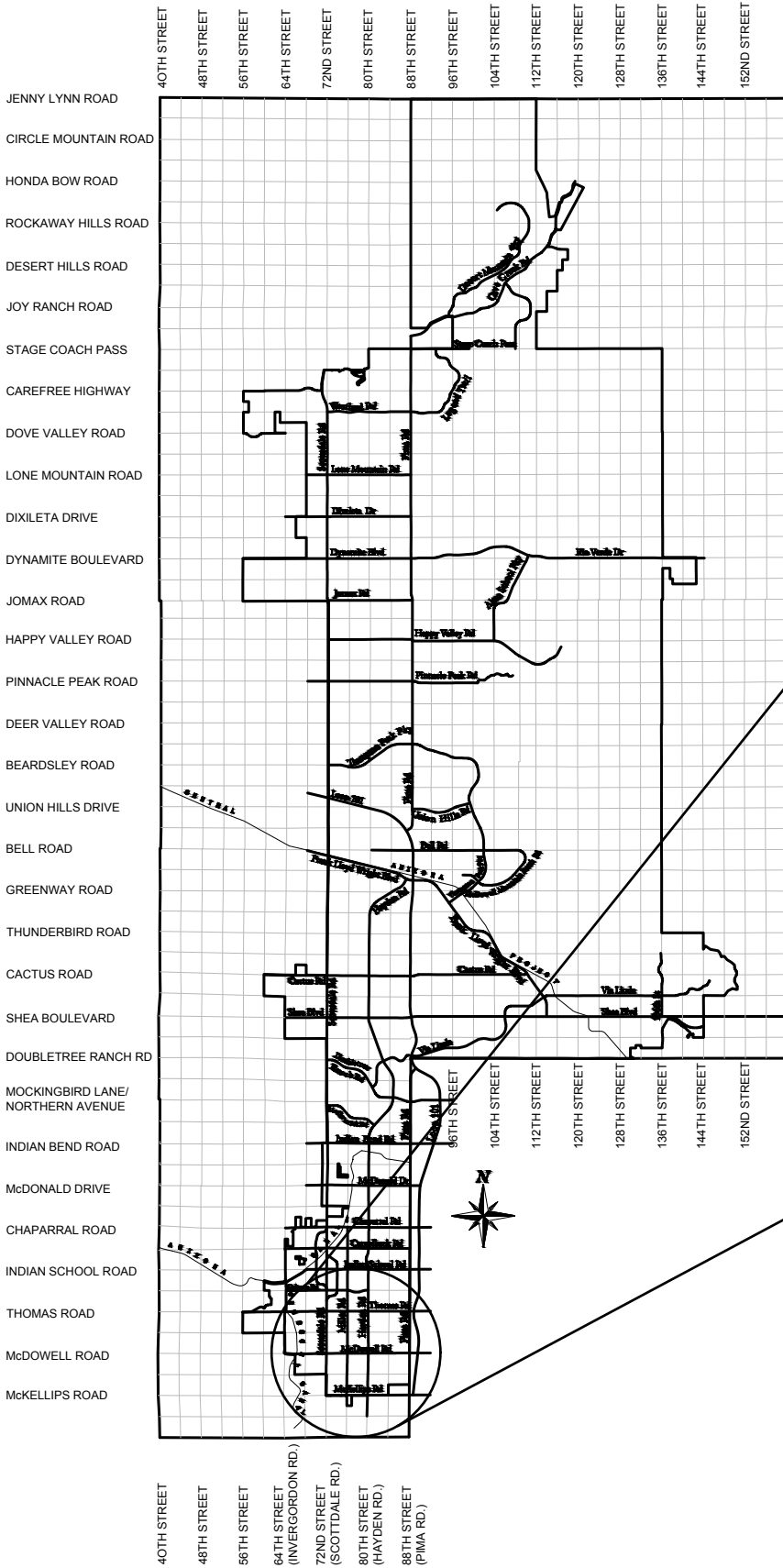
As shown on Figure 2, proposed land uses for the Scottsdale Entrada mixed use development include high density condominiums and commercial uses, which include offices and restaurants. Table 1 summarizes the proposed uses.

Table 1 – Proposed Land Use

Land Use	Dwelling Units	Net Area	Density
High Density Condo	735 DU	18.64 ac	39.4 DU/ac
Office	-	243,503 sf	-
Restaurant	-	10,716 sf	-

4.0 ON-SITE FLOW CALCULATIONS

Wastewater generation rates for Scottsdale Entrada were calculated based on the design criteria provided in the *City of Scottsdale Design Standards and Policies Manual – 2018*. The City also required that backwash water for the Scottsdale Entrada pools be collected and stored within on-site storage tanks and metered to the sewer system at a rate of no greater than 20 gpm. These criteria are presented in Table 2.



SCALE NTS

CITY OF SCOTTSDALE
LOCATION MAP

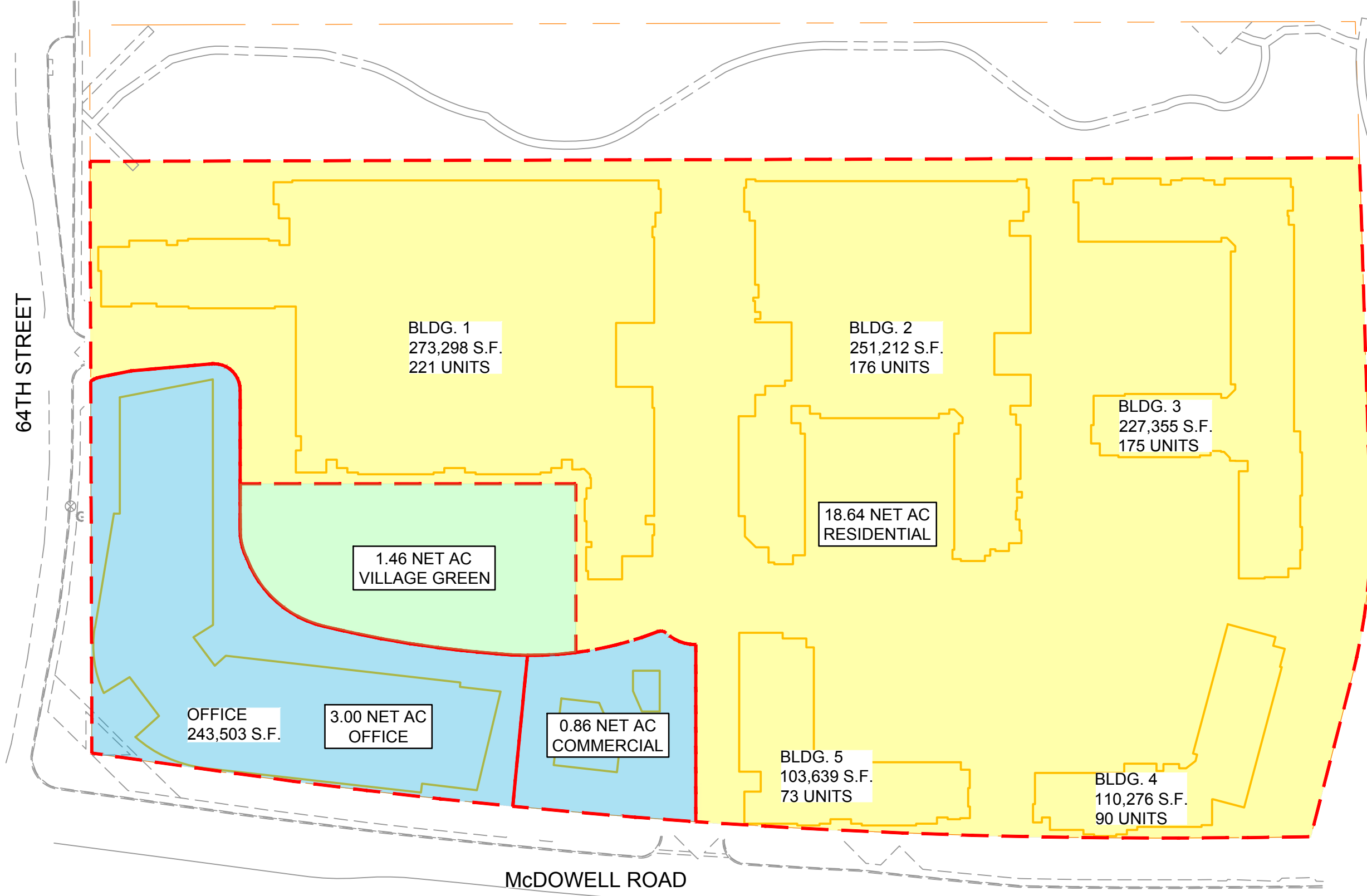
SCOTTSDALE ENTRADA

JOB NO
1.14.0254309

4550 NORTH 12TH STREET
PHOENIX, ARIZONA 85014
TELEPHONE (602) 264-6831

COE & VAN LOO
PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

FIGURE



SCALE 1" = 120'

EXHIBIT

4550 North 12th Street
 Phoenix, Arizona 85014
 Phone 602-264-6831
<http://www.cvlc.com>

SCOTTSDALE ENTRADA

LAND USE MAP



Table 2 – City of Scottsdale Wastewater Design Criteria

Description	Criteria
Design Requirement	Peak Flow
Sewer Capacity	
≤ 12-inch Diameter	d/D ≤ 0.65
>12-inch Diameter	d/D ≤ 0.70
Manning’s Coefficient	0.013
Minimum Velocity	2.5 fps when flowing full
Maximum Velocity	10 fps
Minimum Depth of Cover	4 ft.
High Density Condo	
Average Day Flow	140 gpd/DU
Peak Flow	ADF x 4.5
Office	
Average Day Flow	0.4 gpd/sf
Peak Flow	ADF x 3.0
Restaurant	
Average Day Flow	1.2 gpd/sf
Peak Flow	ADF x 6.0
Retail	
Average Day Flow	0.5 gpd/sf
Peak Flow	ADF x 3.0
Maximum Pool Backwash Discharge Rate	20 gpm

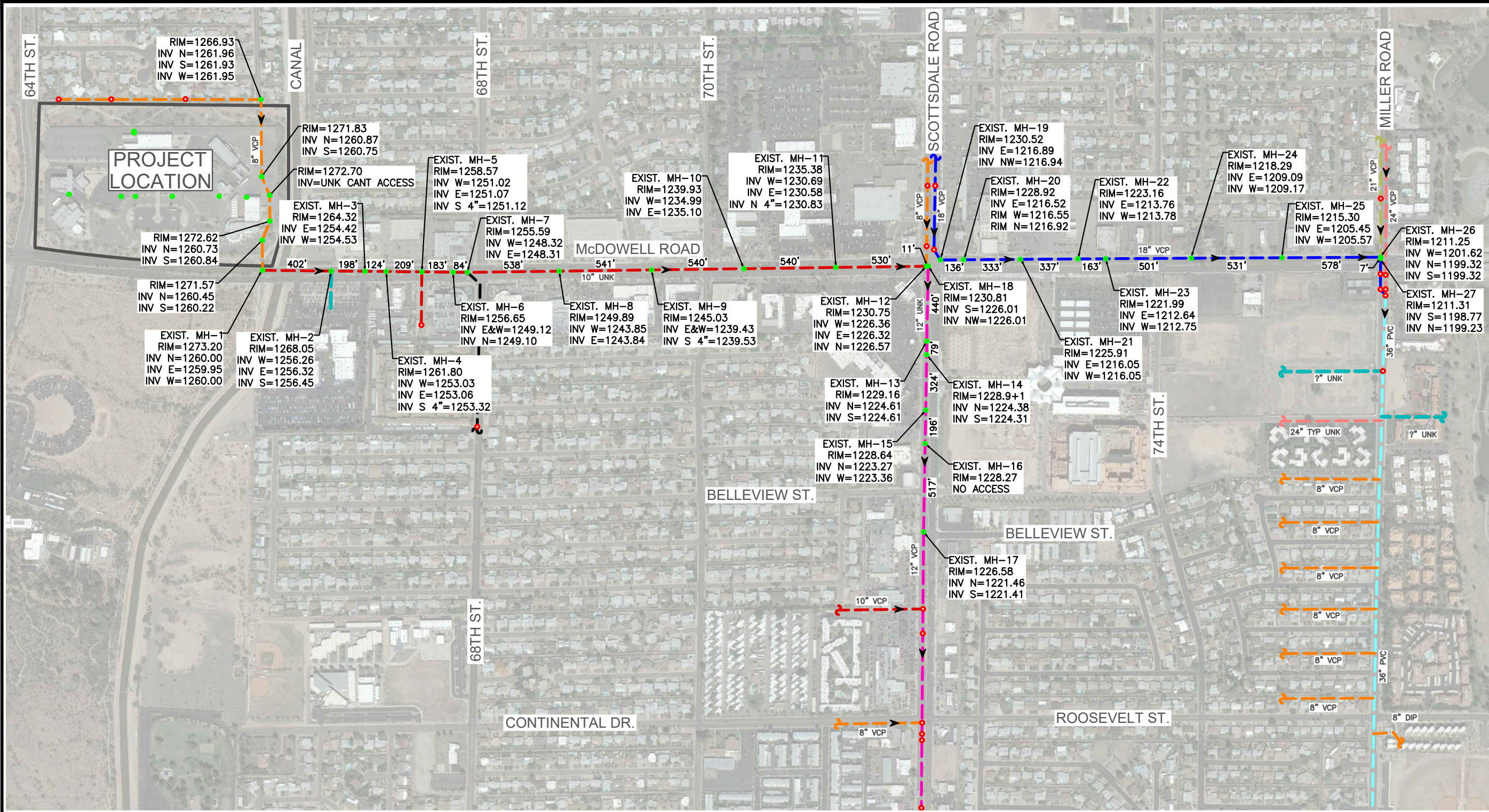
Table 3 summarizes the estimated wastewater generation rates for Scottsdale Entrada. Two pools are proposed for Scottsdale Entrada. Backwash water will be collected, stored in on-site tanks and pumped at a rate of no greater than 20 gpm through the on-site sewer system, which will discharge to the existing 10-inch McDowell Road sewer. Calculations for the wastewater generation flows are presented in Appendix A. Pool backwash rates, duration and tank sizing calculations are provided in Appendix B.

Table 3 – Wastewater Generation Estimates

Land Use	Average Day Flow		Peak Flow	
	(gpd)	(gpm)	(gpd)	(gpm)
High Density Condo	102,900	71	463,050	322
Office	97,401	68	292,204	203
Restaurant	10,716	7	64,296	45
Pool Backwash	28,800	20	28,800	20
Total	239,817	167	848,350	589

5.0 EXISTING SEWERS

Information for these sewers was obtained from record drawings, field surveys, utility locators and City of Scottsdale quarter section maps. The 10-inch McDowell Road sewer line was recently relined with PVC. Existing on-site and off-site sewers in the vicinity of the property are shown on Figure 3.



LEGEND

---	EX. 6" PIPE	- - - -	EX. 24" PIPE
- - - -	EX. 8" PIPE	- - - -	EX. 36" PIPE
- - - -	EX. 10" PIPE	- - - -	UNKNOWN (UNK)
- - - -	EX. 12" PIPE	●	EX. MANHOLE-VERIFIED
- - - -	EX. 18" PIPE	●	EX. MANHOLE-UNKNOWN
- - - -	EX. 21" PIPE	➤	FLOW DIRECTION



SCALE 1" = 600'

FIGURE 2

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
http://www.cvlci.com

EXISTING SEWER SYSTEM ANALYSIS

SCOTTSDALE ENTRADA - OFFSITE



FIGURE 3

5.1 On-Site Sewers

An existing 8-inch vitrified clay (VCP) gravity sewer is located on the east side of the property within an easement on the property. This sewer serves a number of single family residences and the National Guard facility located off-site to the north. This sewer flows south to an existing 10-inch gravity sewer located in McDowell Road. This existing on-site sewer will be rerouted in order to maintain service to the existing residents to the north prior to construction of the proposed development. The existing private on-site sewers will be removed and new private on-site sewers will be constructed to serve the development.

5.2 Off-Site Sewers

An existing 10-inch gravity sewer is located in McDowell Road on the south side of the site. This sewer flows east to Scottsdale Road where it connects to an existing 12-inch sewer that flows south to McKellips Road and then east to Miller Road. At Miller Road the 12-inch sewer discharges to an existing 36-inch sewer, which ultimately conveys sewage to the 91st Avenue wastewater treatment plant.

An existing 18-inch sewer is located at the intersection of McDowell and Scottsdale Roads that flows east in McDowell Road to Miller Road where it discharges to the aforementioned 36-inch sewer. This sewer is not connected to the existing 10-inch McDowell sewer that serves the property.

6.0 OFF-SITE SEWER CAPACITY ANALYSIS

CVL surveyed the existing 10-inch McDowell Road sewer from Scottsdale Entrada to Scottsdale Road, the 18-inch McDowell Road sewer from Scottsdale Road to Miller Road and the existing 12-inch Scottsdale Road sewer from McDowell Road to Bellevue (see Figure 3).

The City has three other approved planned developments in the area that are not yet contributing flow to the sewer system in this area. The City provided CVL with the estimated peak flow values for these developments. This information is summarized in Table 4.

Table 4 – Additional Planned Development Peak Flow Summary

Property	Location	Peak Flow	Point of Discharge
The McDowell	6601 E. McDowell Rd.	130 gpm	McDowell Rd. 10-inch sewer
The McDowell	6601 E. McDowell Rd.	133 gpm	Scottsdale Rd. 12-inch sewer
Sky on McDowell	6801 E. McDowell Rd.	55 gpm	Scottsdale Rd. 12-inch sewer
Papago Plaza	7115 E. McDowell Rd.	79 gpm	Scottsdale Rd. 12-inch sewer

The City required CVL to monitor flows in the existing 10-inch McDowell Road sewer, the existing 12-inch Scottsdale Road sewer and the existing 18-inch McDowell Road sewer to determine existing peak flows. The flow monitoring was performed by RDH Environmental Services from 4/12/19 to 4/23/19 (see Appendix C). The peak flow results from the monitoring study are summarized in Table 5.

Table 5 – Peak Flow Monitoring Summary

Site	Location	Peak Flow
A	10-inch McDowell Road Sewer – Just west of Scottsdale Rd	46 gpm ¹
B	18-inch McDowell Rd Sewer – Just west of Miller Rd.	836 gpm
C	12-inch Scottsdale Rd Sewer – Scottsdale Rd/Bellevue St. intersection	165 gpm ¹

¹This flow data was not used in the final hydraulic calculations based previous monitoring by City of Scottsdale which resulted in higher flow (see Table 6).

Based on the above information and CVL’s peak flow projections for Scottsdale Entrada at that time, CVL analyzed the sewer capacities of the 10-inch, 12-inch and 18-inch sewers and presented the results to the City at a meeting on 5/16/19. The analysis, along with the City’s subsequent sewer modeling (see Appendix C), confirmed that the existing 12-inch sewer line in Scottsdale Road has no further capacity.

Connection of the existing 10-inch McDowell Road sewer to the existing 18-inch sewer at the Scottsdale/McDowell intersection was selected as the preferred discharge option. Therefore, CVL had utilities potholed in the Scottsdale/McDowell intersection to determine if there would be any difficulty making the sewer connection. It was determined that the connection could be made by relocating an existing 4-inch gas line. Southwest Gas (SWG) was contacted and was agreeable to the relocation. Based on the City’s and SWG’s input, Figure 4 shows the plan and profile of the proposed connection and gas line relocation.

In an email dated 10/17/19, the City revised the design flows for the off-site sewer as is presented in Table 6. The off-site sewer hydraulic calculations are provided in Appendix D. SWG’s gas line relocation agreement and design are provided in Appendix E.

Table 6 – Off-Site Design Flows

Reach	Peak Flow	
	(gpd)	(gpm)
Scottsdale Entrada ¹	848,350	589
McDowell 10-inch Sewer (Existing at Scottsdale Rd and McDowell Rd intersection-includes flow North of Scottsdale Entrada) ²	115,200	80
The McDowell (Allocated development) ²	187,200	130
Subtotal (10-inch McDowell Rd. Sewer)	1,150,750	799
Scottsdale Rd. 8-inch Sewer (Existing N. of McDowell Rd.) ²	172,800	120
Subtotal (McDowell Rd. 12-inch Sewer)	1,323,550	919
McDowell Rd. 18-inch Sewer (Existing at Miller Rd. and McDowell Rd. intersection) ³	1,203,840	836
Total (18-inch McDowell Rd. Sewer)	2,527,390	1,755

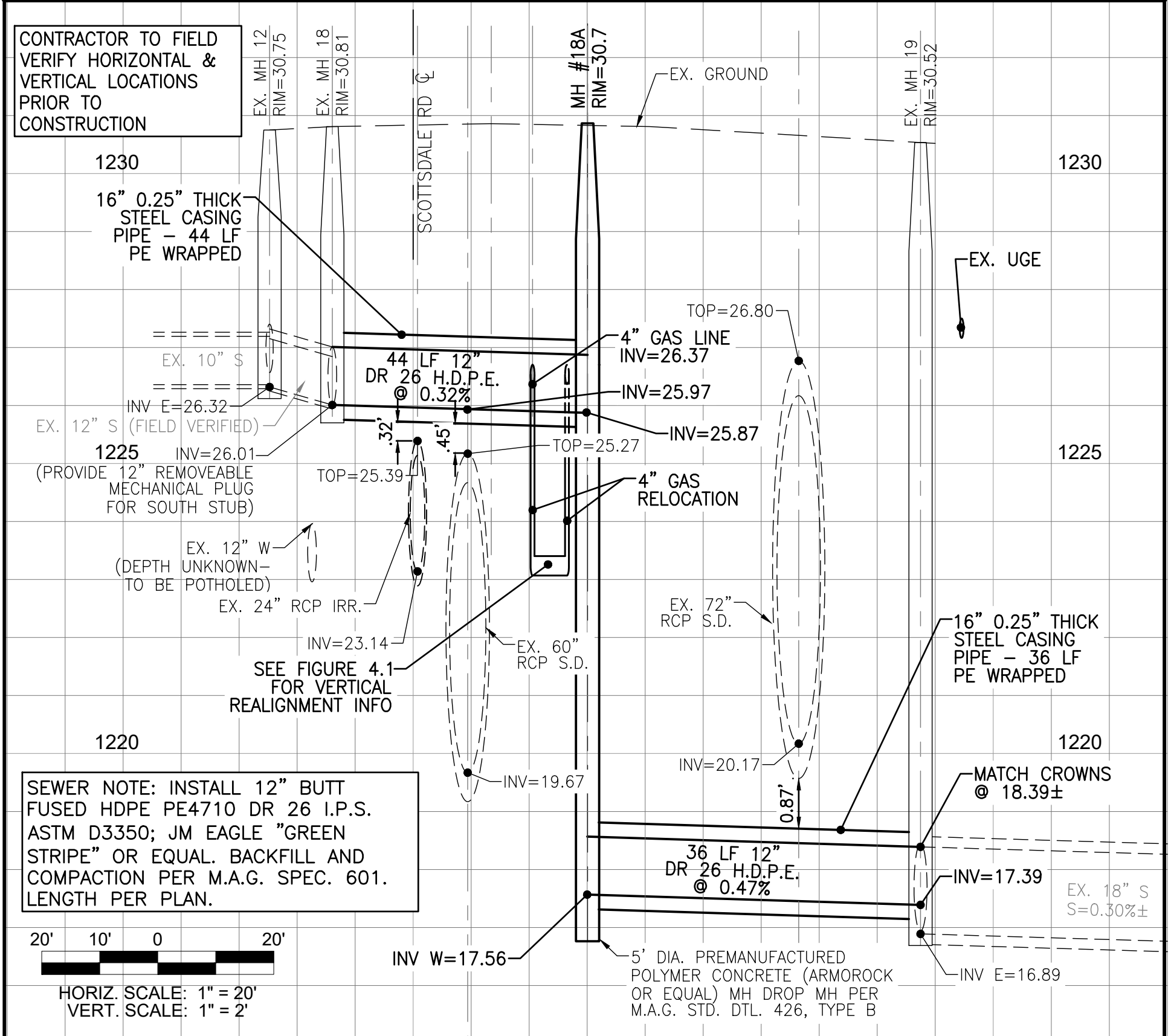
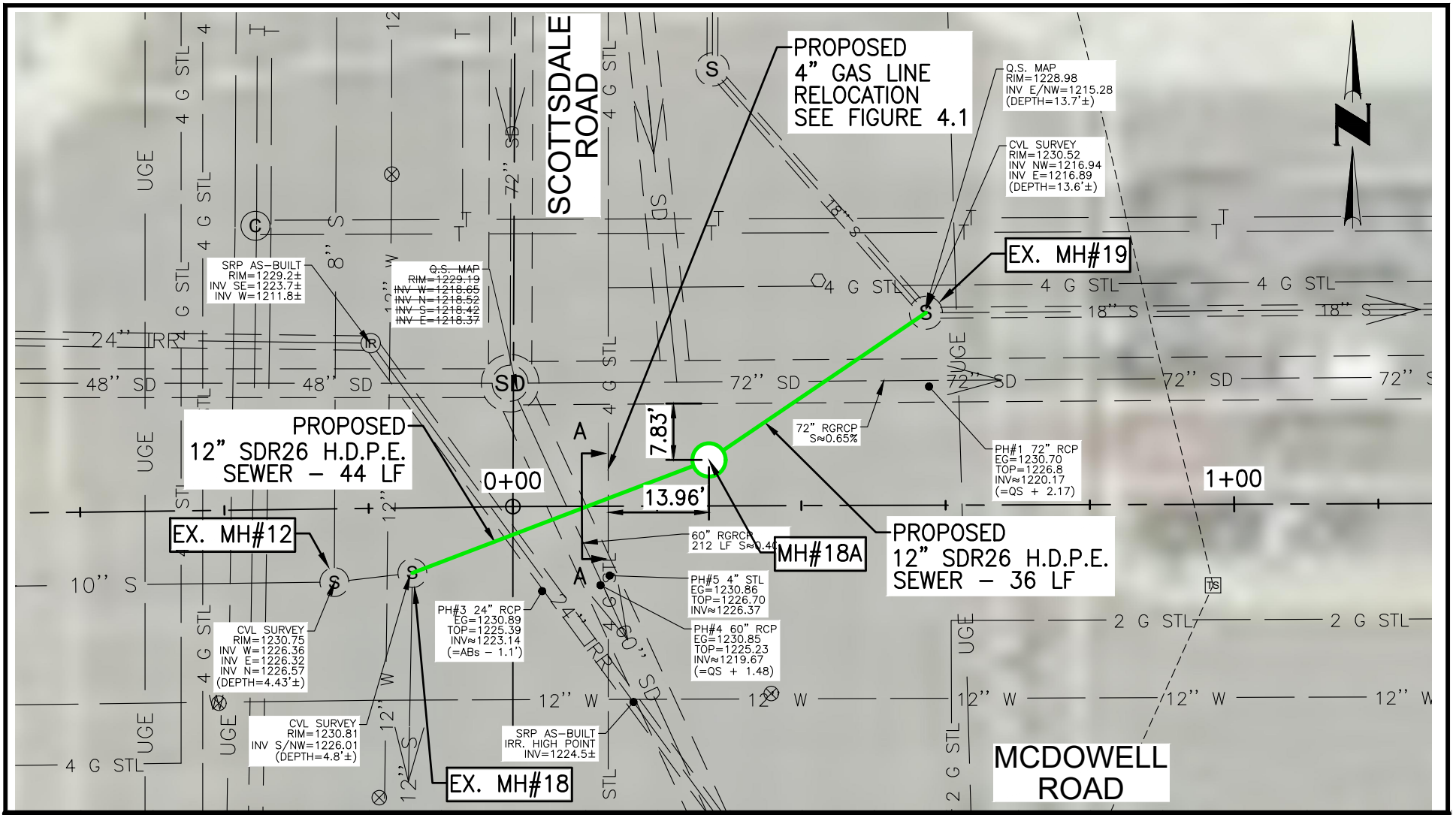
¹Calculated peak flow (see Table 3 and Appendix A).

²200 gpm of peak flow was provided by City of Scottsdale based on a previous flow monitoring study by others for Papago Plaza per email dated 10/17/19 at this location. 120 gpm is the resulting peak flow when the 80 gpm existing peak flow in McDowell Road north of Scottsdale Entrada is subtracted from it.

³Peak flow monitored by RDH Environmental from 4/12/19 to 4/23/19 (see Table 5 and Appendix B).

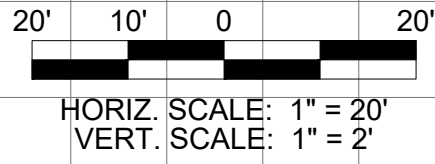
7.0 PROPOSED ON-SITE SEWERS

A layout of the proposed on-site sewer system is presented on Figure 5. In order to make room for Scottsdale Entrada’s proposed amenities, the existing 8-inch on-site sewer line on the east



CONTRACTOR TO FIELD VERIFY HORIZONTAL & VERTICAL LOCATIONS PRIOR TO CONSTRUCTION

SEWER NOTE: INSTALL 12" BUTT FUSED HDPE PE4710 DR 26 I.P.S. ASTM D3350; JM EAGLE "GREEN STRIPE" OR EQUAL. BACKFILL AND COMPACTION PER M.A.G. SPEC. 601. LENGTH PER PLAN.



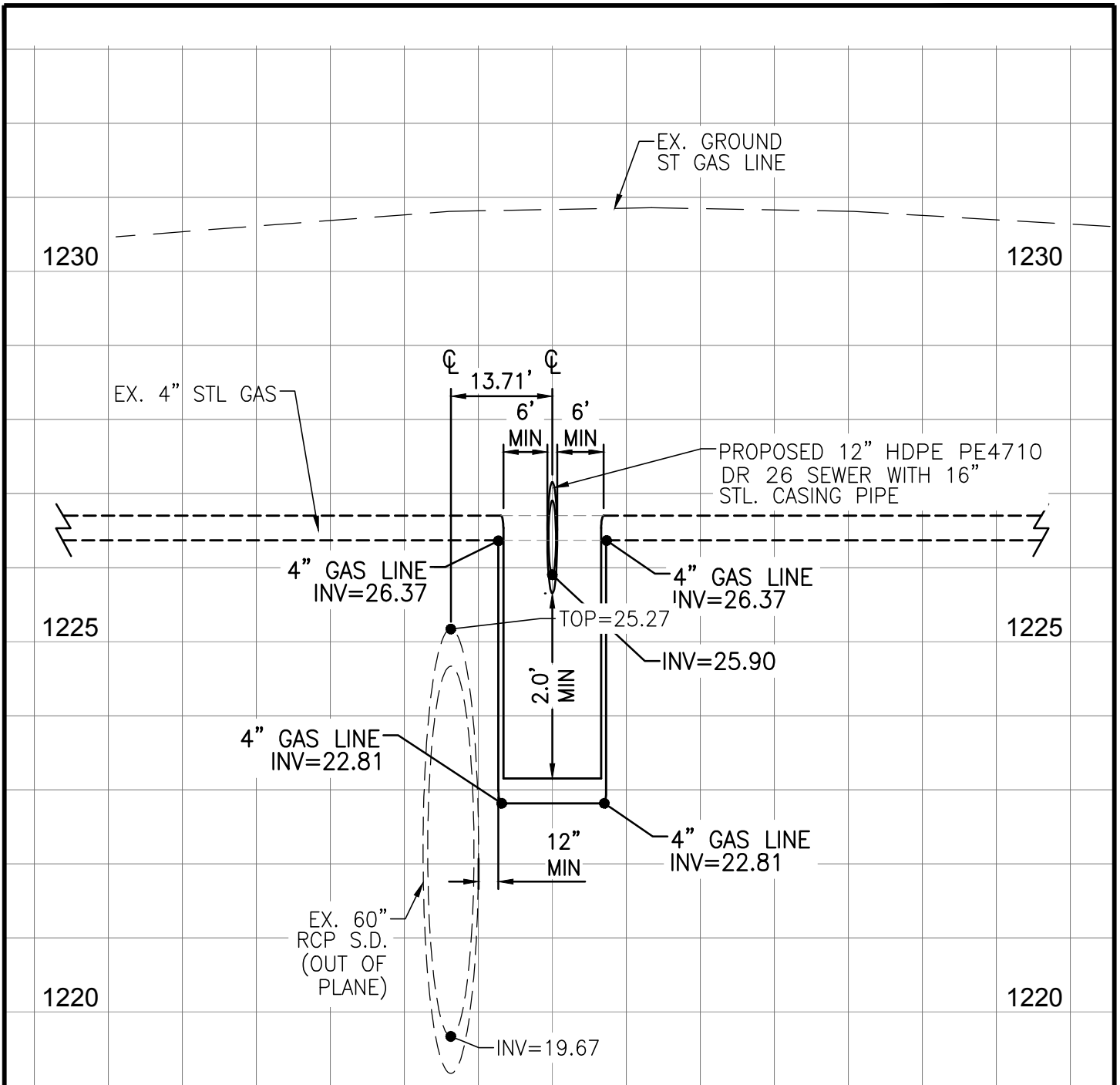
SCALE 1" = 20'
 EXHIBIT A
 4550 North 12th Street
 Phoenix, Arizona 85014
 Phone 602-264-6831
 http://www.cvlci.com

SCOTTSDALE ENTRADA

SEWER LINE EXTENSION AND GAS RELOCATION



FIGURE 4



SECTION A-A

LOOKING EAST



HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1" = 2'

CONTRACTOR TO FIELD
VERIFY HORIZONTAL &
VERTICAL LOCATIONS
PRIOR TO
CONSTRUCTION

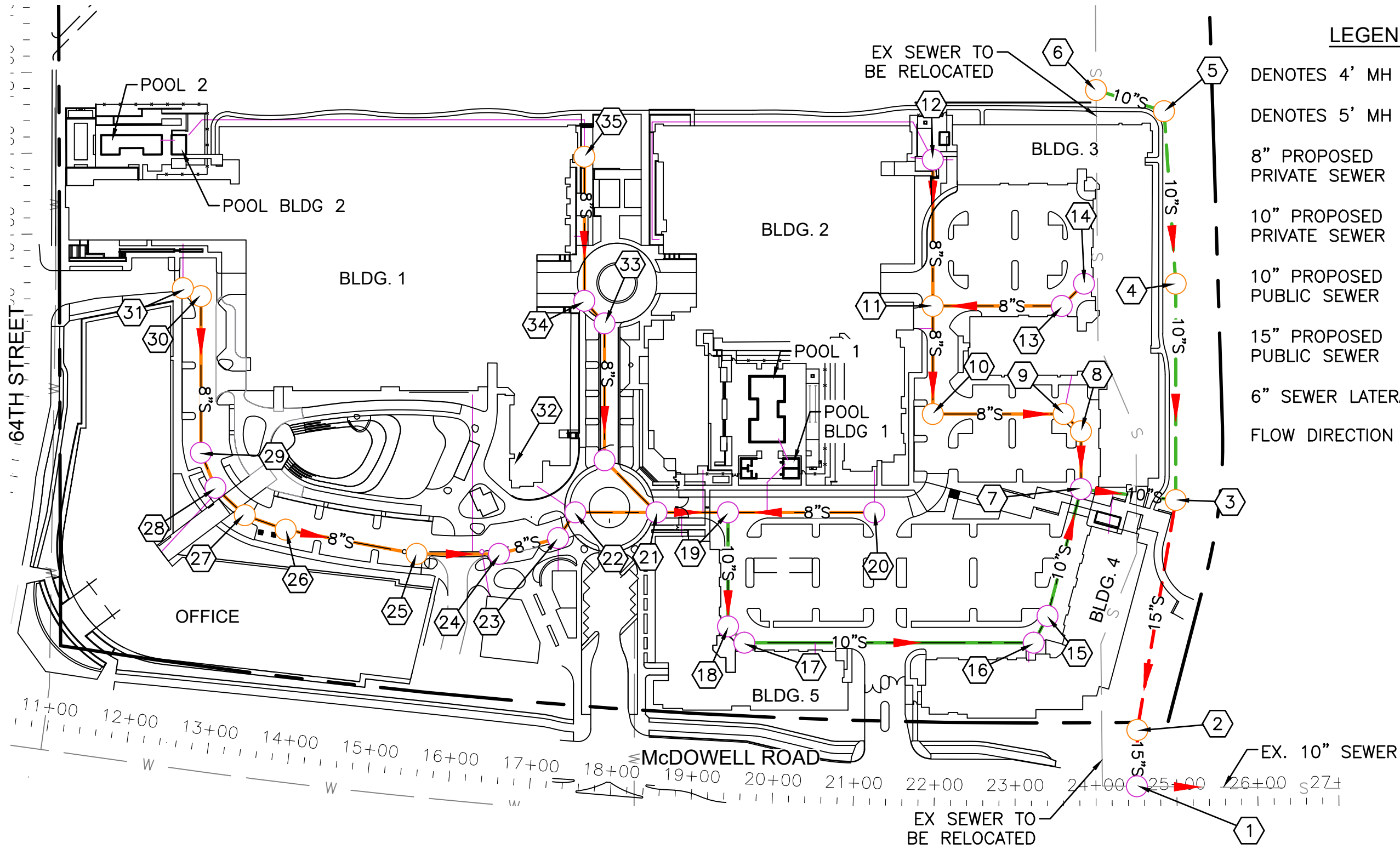
SCALE 1" = 20'
EXHIBIT
4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
<http://www.cvlci.com>

SCOTTSDALE ENTRADA

PROPOSED GAS VERTICAL REALIGNMENT DETAIL

FIGURE 4: SHEET 2 OF 2

N:\01\0254301\Enviro\Reports\Figures\WasteWater\sewer layout.dwg MoniqueB January 28, 2020



LEGEND

- DENOTES 4' MH
- DENOTES 5' MH
- 8" PROPOSED PRIVATE SEWER
- 10" PROPOSED PRIVATE SEWER
- 10" PROPOSED PUBLIC SEWER
- 15" PROPOSED PUBLIC SEWER
- 6" SEWER LATERAL
- FLOW DIRECTION

SCOTTSDALE ENTRADA

ON-SITE SEWER

SCALE 1" = 130'

FIGURE 5

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
<http://www.cvlci.com>



side of the site that serves the area north of Scottsdale Entrada will be removed and replaced with a 10-inch and 15-inch public gravity sewer that parallels the existing 8-inch sewer's location. The rest of the on-site sewers will be 8-inch and 10-inch private gravity sewers. The on-site sewer system will discharge to the aforementioned 15-inch portion of the relocated public sewer, which will, in turn, discharge to the existing 10-inch McDowell Road sewer. Manholes on the proposed on-site private sewers will be minimum 4 feet in diameter where the sewer has less than 10 feet of cover. Where the depth of cover of the private sewers is 10 feet or greater, the manholes will be 5 feet in diameter. Manholes on the proposed 10-inch and 15-inch on-site public sewers will be minimum 5 feet in diameter and will be concrete polymer manholes or epoxy coated per City of Scottsdale standards. All sewer service connections will be a minimum of 6-inch in diameter per MAG Detail 440-3 with cleanout.

The on-site sewer hydraulic calculations are provided in Appendix F. On-site sewer plans are provided in Appendix G. For the purposes of the on-site analysis, the existing off-site peak flow north of Scottsdale Entrada was assumed to be 80 gpm, the same as the City's monitored peak flow in the existing McDowell Road sewer at Scottsdale Road (see Table 6). The flow for the on-site public sewer is summarized in Table 7.

Table 7 – On-Site Public Sewer Flows

Reach	Peak Flow	
	(gpd)	(gpm)
North of Scottsdale Entrada ¹	115,200	80
Scottsdale Entrada ²	848,350	589
Total (On-Site Public Sewer)	963,550	669

¹Assumes existing 10-inch McDowell Rd monitored flow for worst case flow analysis condition.

²Calculated peak flow (see Table 3 and Appendix A).

8.0 CONCLUSIONS

1. The Scottsdale Entrada property is served via an existing 10-inch gravity sewer that flows east in McDowell Road as shown on Figure 3.
2. The existing 10-inch McDowell Road sewer will be connected to the existing 18-inch McDowell Road sewer at the intersection of McDowell and Scottsdale Roads because the existing 12-inch sewer in Scottsdale Road is at capacity. An existing 4-inch gas line will be relocated as shown on Figure 4 and Appendix E to allow for the connection.
3. An existing 8-inch public gravity sewer flows south along the east side of the Scottsdale Entrada property that serves residences to the north. This sewer will be removed and replaced with a 10-inch and 15-inch public gravity sewer in a parallel location further to the east. See Figures 2 and 5 and Appendix G.
4. All other on-site sewers will be 10-inch and 8-inch private gravity sewers as shown on Figure 5 and Appendix G.

5. Pool backwash water from two proposed pools will be discharged to on-site holding tanks and pumped to the sewer at a controlled rate. Each pool will be provided with its own backwash holding tank and metering pump. The excess capacity of each tank will be as required by the Scottsdale Entrada pool designer, and each pump will discharge at a rate of no greater than 10 gpm for a combined discharge rate to the gravity sewer of no greater than 20 gpm. Calculations for the backwash system are provided in Appendix B. Pool locations and backwash pumping and storage buildings are shown on Figure 5.
6. The projected average day flow for Scottsdale Entrada is 239,817 gpd (167 gpm) and the projected peak flow is 848,350 gpd (589 gpm). Flow generation calculations for Scottsdale Entrada are provided in Appendix A. On-site sewer hydraulic calculations are provided in Appendix F.
7. Projected peak flow is 1,150,750 gpd (799 gpm) in the existing 10-inch McDowell Road sewer. Off-site sewer hydraulic calculations for these flows are provided in Table 6 and Appendix D.
8. Projected peak flow is 1,323,750 gpd (919 gpm) in the existing 12-inch McDowell Road sewer. Off-site sewer hydraulic calculations for these flows are provided in Table 6 and Appendix D.
9. Projected peak flow is 2,527,390 gpd (1,755 gpm) in the existing 18-inch McDowell Road sewer. Off-site sewer hydraulic calculations for these flows are provided in Table 6 and Appendix D.
10. Connection of the proposed 15-inch on-site public gravity sewer from Scottsdale Entrada to the existing 10-inch McDowell Road sewer will require crossing beneath an existing 48-inch storm drain with less than 2 feet of clearance. Therefore, this segment of sewer will require concrete encasement per MAG standards as shown in Appendix G.
11. Manholes on the proposed on-site private sewers will be minimum 4 feet in diameter where the depth of cover is less than 10 feet. Where the depth of cover is 10 feet or greater the manholes will be 5 feet in diameter. Manholes on the proposed 10-inch and 15-inch on-site public sewer and public sewers with greater than 10 feet of cover will be minimum 5 feet in diameter and will be concrete polymer manholes or epoxy coated per City of Scottsdale standards as shown on Figure 4 and in Appendix G.
12. All sewer service connections will be a minimum of 6-inch in diameter per MAG Detail 440-3 with cleanout as shown on Figure 5 and in Appendix G.

APPENDIX A

WASTEWATER GENERATION CALCULATIONS

**WASTEWATER FLOWS
SCOTTSDALE ENTRADA**

Building	Land Use	Units (sf, DUs)	Unit Factor ¹ (gpd/unit)	Average Day Flow		PF ¹	Peak Flow		No. of Laterals	Units/Lat	ADF/Lat (gpd)	PF/Lat (gpd)
				(gpd)	(gpm)		(gpd)	(gpm)				
<i>Scottsdale Entrada</i>												
Building 1	High Density	221	140	30,940	21	4.5	139,230	97	5	44.20	6,188	27,846
Building 2	High Density	176	140	24,640	17	4.5	110,880	77	5	35.20	4,928	22,176
Building 3	High Density	175	140	24,500	17	4.5	110,250	77	4	43.75	6,125	27,563
Building 4	High Density	90	140	12,600	9	4.5	56,700	39	2	45.00	6,300	28,350
Building 5	High Density	73	140	10,220	7	4.5	45,990	32	2	36.50	5,110	22,995
Subtotal		735		102,900	71		463,050	322				
Office	Office	243,503	0.4	97,401	68	3.0	292,204	203	1	243,503.00	97,401	292,204
Subtotal		243,503		97,401	68		292,204	203				
Retail 1	Restaurant	6,516	1.2	7,819	5	6.0	46,915	33	1	6,516.00	7,819	46,915
Retail 2	Restaurant	2,414	1.2	2,897	2	6.0	17,381	12	1	2,414.00	2,897	17,381
Subtotal		8,930		10,716	7		64,296	45				
Pool 1 Backwash ²				14,400	10	1.0	14,400	10	1	1.00	14,400	14,400
Pool 2 Backwash ²				14,400	10	1.0	14,400	10	1	1.00	14,400	14,400
Subtotal				28,800	20		28,800	20				
Total				239,817	167		848,350	589				

¹ Ref.: City of Scottsdale Design Standards and Policies Manual (2018).

² Pool backwash will be collected, stored on site and pumped to the 10" McDowell Road sewer at a combined rate of no more than 20 gpm.

APPENDIX B

POOL BACKWASH CALCULATIONS

**POOL BACKWASH STORAGE
SCOTTSDALE ENTRADA**

Pool	Backwash Rate ³ (gpm)	Duration ³ (min)	Volume (gal)	Multiplier ⁴	Req'd Volume		
Big Pool 1	100	5	500	3	1500		
Small Pool 2	75	4	300	3	900		
Total							

Assumptions:

¹ Both pools are backwashed simultaneously.

² Provide two metering pumps with maximum pumping rates of 10 gpm each. 20 gpm is the maximum required discharge rate required by the City of Scottsdale.

³ Backwash rates and duration provided by Russon Hale of Hardison Downey by email dated 9/19/19.

⁴ Excess capacity shall be as required by the pool designer. A factor of 3X has been assumed for the purposes of this report.

APPENDIX C

OFF-SITE SEWER FLOW MONITORING AND MODELING



Flow Study for Coe & Van Loo Consultants – Three Manholes

Fred Renn, PE

Sr. Project Engineer

COE & VAN LOO CONSULTANTS, INC

4550 N. 12th Street • Phoenix, Arizona • 85014

SL389 RDH Flow Study, 3 sites in Scottsdale, AZ 4-12-19 to 4-23-19.

Equipment: Hach 901 Logger with AV sensor mounted on a pipe band.

The equipment was installed on 4-12-19 with confined space entry, pipe size confirmed, sensor calibrated and level depth confirmed to the flow level at that time.

Duration of monitoring: 12 days 4-12-19 to 4-23-19

Monitor, Flow gpm, velocity fps and Level inches

Data logging: 5 minutes intervals

Site A: McDowell Rd West of Scottsdale Rd.

Quarter section 1244 MH-10

10" pipe with 1 lateral pipe.

AV sensor installed downstream on the 10" line to capture both flows.

There was no buildup in the pipe.

All data is good with minimal sensor interference from debris.

Site B: McDowell Rd West of Miller Rd.

Quarter section 1345 MH-6

18" pipe no laterals.

AV sensor installed upstream on the 18".

There was no buildup in the pipe.

All data is good with minimal sensor interference from debris.

Site C: Scottsdale Rd and Belleview

Quarter section 1244 MH-6

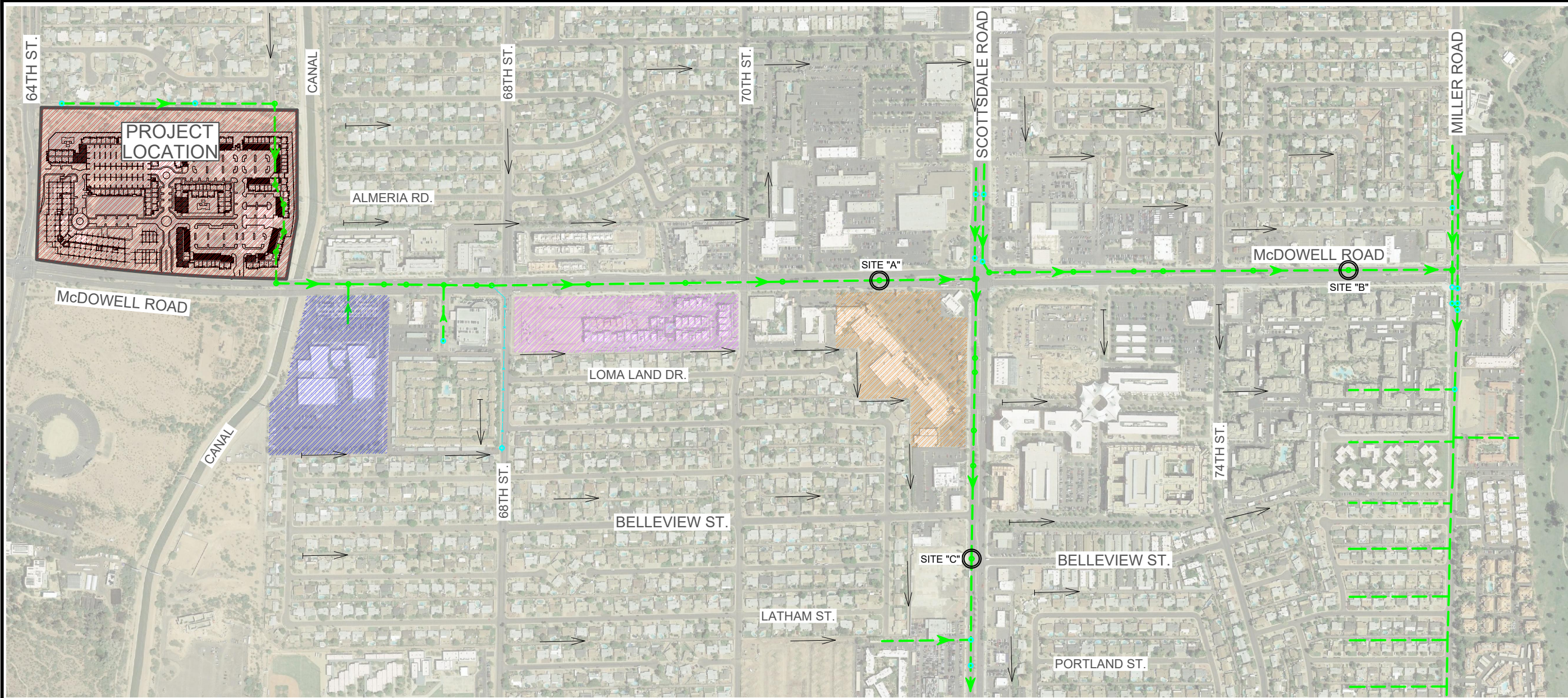
12" pipe on laterals.

AV sensor installed upstream on the 12" line.

There was no buildup in the pipe.

All data is good with minimal sensor interference from debris.

Attached is the excel sheet showing all Level, Velocity and Flow using the Manning equation within the loggers. Below are the data summaries for each site.



PROPERTY LEGEND

- PROPOSED: 6520 E. MCDOWELL RD. "SCOTTSDALE ENTRADA"
- ALLOCATED: 6601 E. MCDOWELL RD. "THE MCDOWELL"
- ALLOCATED: 6801 E. MCDOWELL RD. "SKY ON MCDOWELL"
- ALLOCATED: 7115 E. MCDOWELL RD. "PAPAGO PLAZA"

SEWER LEGEND

- EX. SEWER MAINS
- EX. MANHOLE—VERIFIED
- EX. MANHOLE—UNKNOWN
- EX. MAIN FLOW DIRECTION
- EX. SECONDARY FLOWS
- FLOW MONITORING LOCATION



EXISTING SEWER FLOWS

SCOTTSDALE ENTRADA - OFFSITE

SCALE 1" = 600'

FIGURE 1-B

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
<http://www.cvici.com>



Flow Study for Coe & Van Loo Consultants – Three Manholes

B 18in LEVEL (inches)			
Date	Maximum	Minimum	Average
4/12/2019	4.5268	2.4804	3.9449
4/13/2019	4.5416	2.3300	3.7408
4/14/2019	4.6133	2.1807	3.6380
4/15/2019	4.5800	2.1345	3.7188
4/16/2019	4.6626	2.3440	3.7935
4/17/2019	4.7628	2.6511	3.8503
4/18/2019	4.8735	2.1515	3.7384
4/19/2019	5.9977	2.1758	3.8762
4/20/2019	4.9456	2.2241	3.7893
4/21/2019	4.8385	2.2745	3.7778
4/22/2019	4.8098	2.2605	3.7752
4/23/2019	4.4002	2.2766	3.1107

B 18in VELOCITY (fps)			
Date	Maximum	Minimum	Average
4/12/2019	4.4382	1.4969	3.1114
4/13/2019	4.4825	1.3633	2.6514
4/14/2019	4.6559	1.4128	2.7352
4/15/2019	4.4528	1.3125	2.5868
4/16/2019	4.4842	1.3368	2.4993
4/17/2019	4.3036	-0.0864	2.3197
4/18/2019	2.9317	1.3190	2.1639
4/19/2019	3.1019	1.3348	2.1831
4/20/2019	3.7753	1.3926	2.3335
4/21/2019	4.8697	1.3772	2.4917
4/22/2019	4.4147	1.3579	2.3820
4/23/2019	2.6697	1.3979	1.8743

B 18in FLOW (gpm)			
Date	Maximum	Minimum	Average
4/12/2019	642.8438	102.1149	408.6824
4/13/2019	680.9930	82.4417	342.7766
4/14/2019	689.8063	79.3537	343.9462
4/15/2019	661.2177	71.0849	331.5585
4/16/2019	669.7227	85.4744	324.3790
4/17/2019	642.4510	-6.6202	303.1488
4/18/2019	508.5188	73.5506	274.0913
4/19/2019	558.7452	72.7316	291.9154
4/20/2019	601.1895	79.9804	308.3269
4/21/2019	836.1680	80.0600	332.2078
4/22/2019	676.4539	78.2287	309.8378
4/23/2019	401.0752	81.5208	185.0438

Flow Study Summary (Gallons Per Day)		
Measures	Value	Unit
Max Total Flow	588502.719	GPD
Avg Total Flow	180283.893	GPD
Min Total Flow	0.000	GPD
Total Flow	5408516.797	gal



Flow Study for Coe & Van Loo Consultants – Three Manholes

A 10in LEVEL (inches)				A 10in VELOCITY (fps)			
Date	Maximum	Minimum	Average	Date	Maximum	Minimum	Average
4/12/2019	1.6093	-0.0737	1.3131	4/12/2019	1.5494	0.0000	0.7948
4/13/2019	1.7482	0.7622	1.2239	4/13/2019	1.2982	0.0000	0.6872
4/14/2019	1.7186	0.6945	1.1586	4/14/2019	1.6259	0.0000	0.5734
4/15/2019	1.7763	0.7971	1.2571	4/15/2019	1.4685	0.0000	0.6815
4/16/2019	1.7914	0.7066	1.3046	4/16/2019	1.4146	0.0000	0.7314
4/17/2019	1.9349	0.8786	1.4028	4/17/2019	1.2456	0.3299	0.7629
4/18/2019	1.9184	0.7686	1.3288	4/18/2019	1.3361	0.0000	0.6914
4/19/2019	1.8860	0.8567	1.3418	4/19/2019	1.3313	0.3074	0.8095
4/20/2019	1.9079	0.9479	1.3975	4/20/2019	1.3931	0.2938	0.6772
4/21/2019	1.7926	0.8834	1.3843	4/21/2019	1.3295	0.1466	0.5353
4/22/2019	1.9566	1.0084	1.5133	4/22/2019	1.2157	0.2948	0.6278
4/23/2019	1.5197	0.9073	1.1648	4/23/2019	0.6457	0.2213	0.4441

A 10in FLOW (gpm)			
Date	Maximum	Minimum	Average
4/12/2019	32.5940	0.0000	15.3830
4/13/2019	36.2679	0.0000	12.7208
4/14/2019	45.5778	0.0000	10.0985
4/15/2019	39.2654	0.0000	13.0172
4/16/2019	42.0491	0.0000	14.5798
4/17/2019	37.2976	5.7425	16.1257
4/18/2019	40.8070	0.0000	14.0983
4/19/2019	35.4070	5.7132	16.2277
4/20/2019	39.4807	4.6282	14.3973
4/21/2019	39.6027	1.6825	11.5109
4/22/2019	39.9815	4.4127	15.5286
4/23/2019	14.4291	2.7261	7.2275

Flow Study Summary (Gallons Per Day)		
Measures	Value	Unit
Max Total Flow	23367.925	GPD
Avg Total Flow	7723.946	GPD
Min Total Flow	0.000	GPD
Total Flow	231718.385	gal



Flow Study for Coe & Van Loo Consultants – Three Manholes

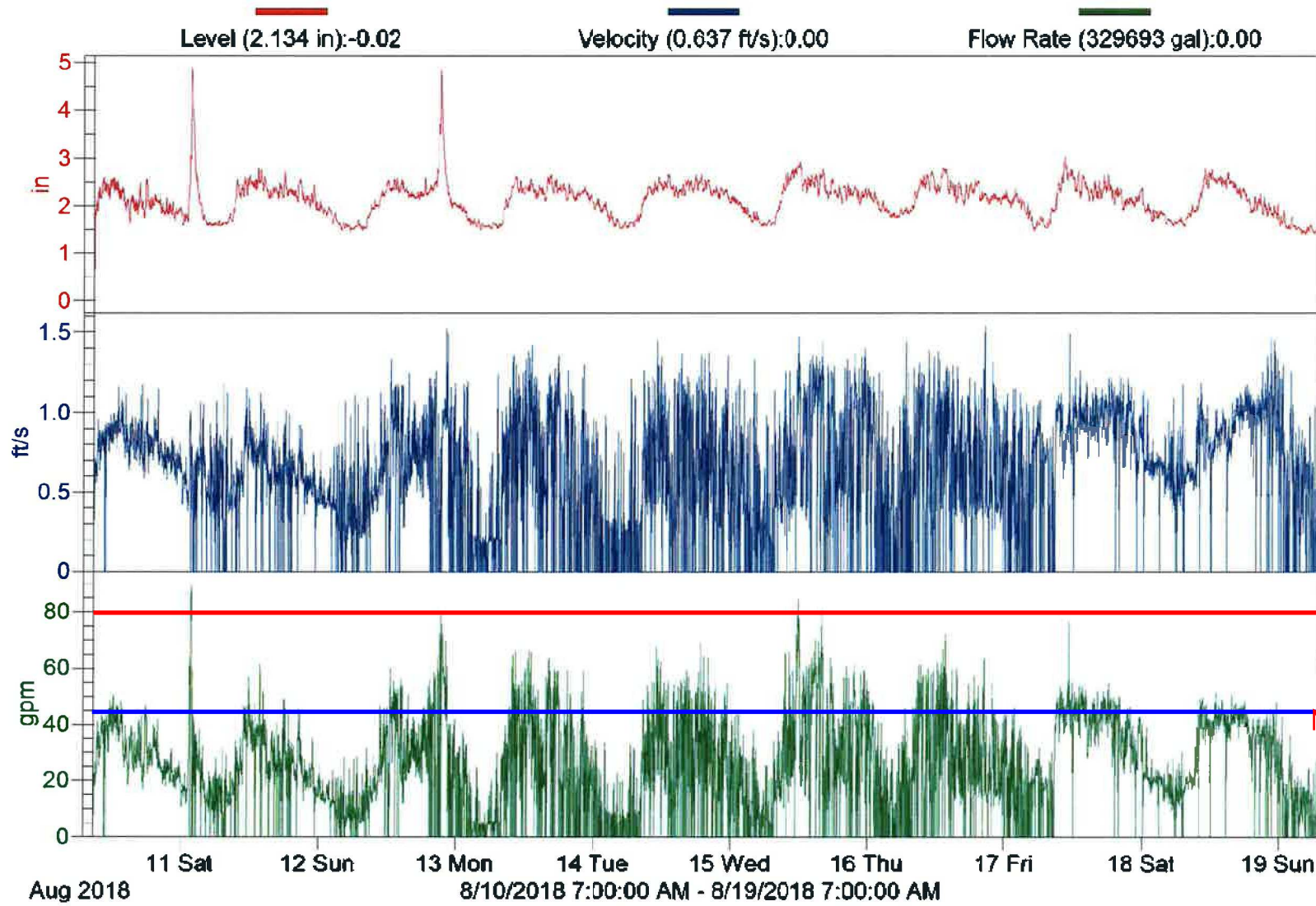
C 12in LEVEL (inches)				C 12in VELOCITY (fps)			
Date	Maximum	Minimum	Average	Date	Maximum	Minimum	Average
4/11/2019	2.8400	1.8900	2.2834	4/11/2019	1.9700	0.9300	1.4436
4/12/2019	3.1700	1.2900	2.2588	4/12/2019	1.9900	0.5200	1.3092
4/13/2019	3.2200	1.6000	2.2233	4/13/2019	2.1400	0.8600	1.3117
4/14/2019	2.7700	1.2200	2.0506	4/14/2019	1.7000	0.4700	1.1406
4/15/2019	3.0800	0.8300	2.0110	4/15/2019	2.0400	0.4300	1.2866
4/16/2019	3.0800	1.3300	2.1782	4/16/2019	1.9900	0.4500	1.2704
4/17/2019	3.2200	1.4200	2.2655	4/17/2019	2.0200	0.5300	1.2738
4/18/2019	3.2600	1.3400	2.3185	4/18/2019	1.9000	0.4900	1.2267
4/19/2019	3.3600	1.4300	2.2152	4/19/2019	2.0100	0.4900	1.1928
4/20/2019	3.1100	1.5300	2.1708	4/20/2019	1.8100	0.5900	1.1717
4/21/2019	2.7400	1.3000	2.0627	4/21/2019	1.6700	0.4400	1.0391
4/22/2019	3.3600	1.3700	2.2319	4/22/2019	2.0400	0.5300	1.2391
4/23/2019	1.6300	0.1100	1.3020	4/23/2019	1.0800	0.0000	0.6654

C 12in FLOW (gpm)			
Date	Maximum	Minimum	Average
4/11/2019	120.9300	35.5700	68.5204
4/12/2019	145.6400	11.2600	65.8878
4/13/2019	163.1800	25.7500	61.5478
4/14/2019	104.0600	8.8400	49.6740
4/15/2019	146.1700	5.0700	58.0088
4/16/2019	142.4400	12.1400	60.1890
4/17/2019	145.3800	12.6700	63.3326
4/18/2019	142.7900	10.5500	62.7491
4/19/2019	162.8000	12.0200	57.4397
4/20/2019	129.9000	16.4700	54.2806
4/21/2019	92.1300	9.6100	45.2851
4/22/2019	165.2200	13.0300	62.0498
4/23/2019	28.5400	0.0000	14.6798

Flow Study Summary (Gallons Per Day)		
Measures	Value	Unit
Max Total Flow	98669.444	GPD
Avg Total Flow	34734.941	GPD
Min Total Flow	0.000	GPD
Total Flow	1042048.253	gal

Papago Plaza McDowell 10 inch Line

Flowlink 5



Papago Plaza Peak, ~80gpm

5-minute peak for CVL/RDH April 2019, 46gpm

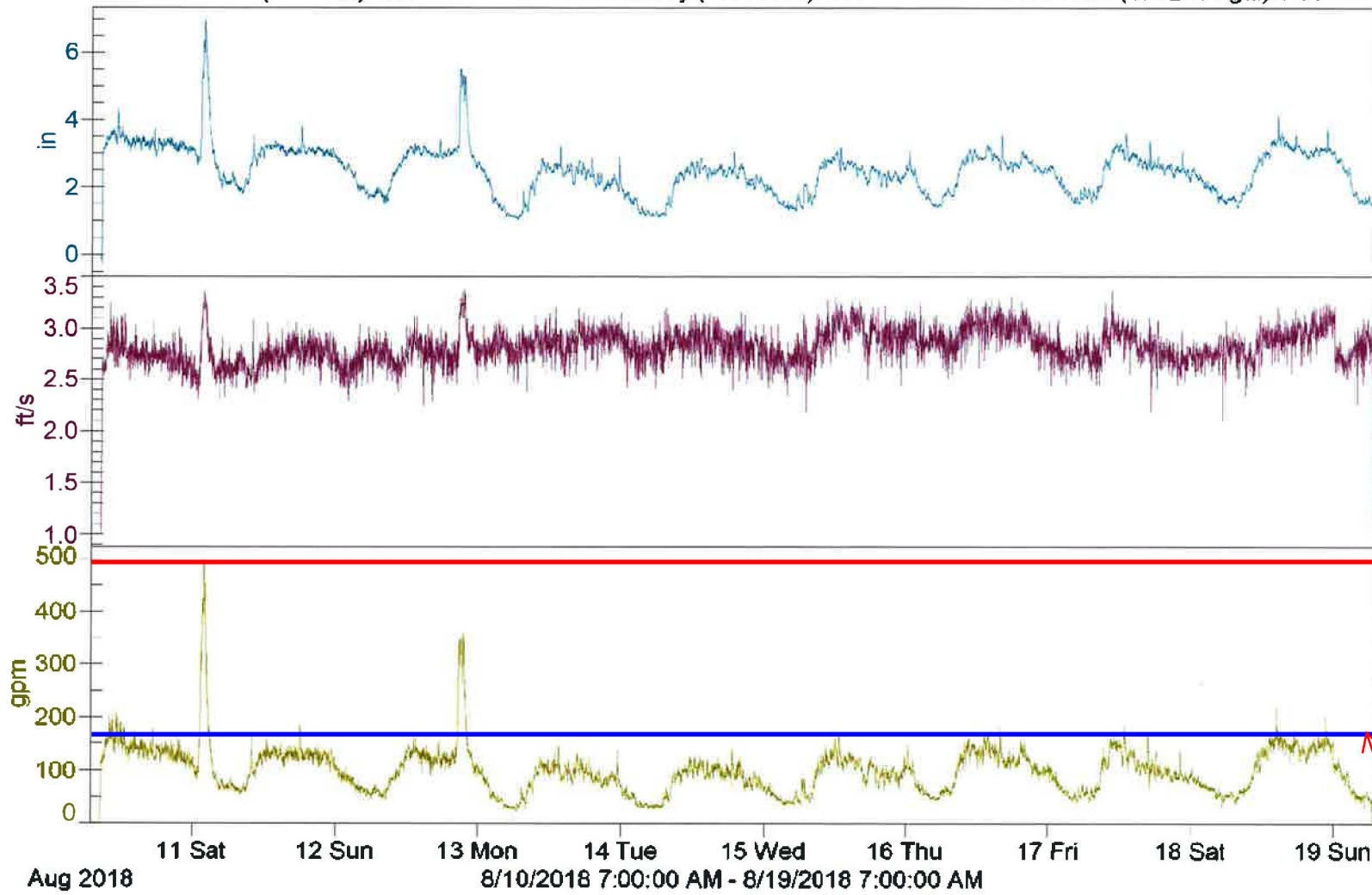
Papago Plaza Scottsdale 12 inch Line

Flowlink 5

Level (2.477 in):0.00

Velocity (2.808 ft/s):1.00

Flow Rate (1292090 gal):1.00



Papago Plaza Peak, 498gpm

5-minute peak for CVL/RDH April 2019, 165gpm

APPENDIX D

OFF-SITE SEWER HYDRAULIC CALCULATIONS

**OFF-SITE WASTEWATER FLOWS
SCOTTSDALE ENTRADA**

Building	Land Use	Units (sf, DUs)	Unit Factor ¹ (gpd/unit)	Average Day Flow		PF ¹	Peak Flow	
				(gpd)	(gpm)		(gpd)	(gpm)
Scottsdale Entrada								
Building 1	High Density	221	140	30,940	21	4.5	139,230	97
Building 2	High Density	176	140	24,640	17	4.5	110,880	77
Building 3	High Density	175	140	24,500	17	4.5	110,250	77
Building 4	High Density	90	140	12,600	9	4.5	56,700	39
Building 5	High Density	73	140	10,220	7	4.5	45,990	32
Subtotal		735		102,900	71		463,050	322
Office								
Office	Office	243,503	0.4	97,401	68	3.0	292,204	203
Subtotal		243,503		97,401	68		292,204	203
Retail								
Retail 1	Restaurant	6,516	1.2	7,819	5	6.0	46,915	33
Retail 2	Restaurant	2,414	1.2	2,897	2	6.0	17,381	12
Subtotal		8,930		10,716	7		64,296	45
Pool Backwash²								
Pool Backwash ²				28,800	20	1.0	28,800	20
Subtotal				28,800	20		28,800	20
Scottsdale Entrada Total				239,817	167		848,350	589
Other Flows								
The McDowell (12-7N-201) ³							187,200	130
Existing Flow ⁴								
10" McDowell Rd Sewer							115,200	80
12" Scottsdale Rd Sewer ⁵							172,800	120
18" McDowell Rd Sewer							1,203,840	836
Existing 10" Sewer Flow Total							1,150,750	799
Existing 12" Sewer Flow Total							1,323,550	919
Existing 18" Sewer Flow Total							2,527,390	1,755
¹ Ref.: City of Scottsdale Design Standards and Policies Manual (2018). ² Pool back wash will be collected, stored on site and pumped to the on-site sewer at a rate of no more than 20 gpm. ³ Provided by City of Scottsdale. ⁴ Based on RDH Environmental flow monitoring 4/12/19 to 4/23/19. ⁵ 200 gpm of peak flow was provided by City of Scottsdale based on a previous flow monitoring study by others for Papago Plaza per email dated 10/17/19 at this location. 120 gpm is the resulting peak flow when the 80 gpm existing peak flow in McDowell Road north of Scottsdale Entrada is subtracted from it.								

**OFF-SITE SEWER ANALYSIS
SCOTTSDALE ENTRADA**

Upstream MH	Downstream MH	ID	Total Future Peak Flow (gpd)	Surveyed Rim Elevation (feet)	Estimated Length (feet)	Line Dia. (in)	Sewer Line Slope (ft/ft)	Surveyed Upstream Invert Elevation (feet)	Surveyed Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D	Comments
BEGIN OFF-SITE															
1	2	Sdale Ent/McD	963,550	1,273.20	402	10	0.0092	1,259.95	1,256.26	1,356,487	0.710	3.848	4.187	0.621	
2	3	McD	1,150,750	1,268.05	198	10	0.0090	1,256.32	1,254.53	1,346,199	0.855	3.819	4.302	0.710	
3	4	McD	1,150,750	1,264.32	124	10	0.0112	1,254.42	1,253.03	1,499,035	0.768	4.253	4.700	0.655	
4	5	McD	1,150,750	1,261.80	209	10	0.0098	1,253.06	1,251.02	1,398,805	0.823	3.969	4.442	0.689	
5	6	McD	1,150,750	1,258.57	183	10	0.0107	1,251.07	1,249.12	1,461,528	0.787	4.146	4.605	0.667	
6	7	McD	1,150,750	1,256.65	84	10	0.0095	1,249.12	1,248.32	1,381,722	0.833	3.920	4.397	0.695	
7	8	McD	1,150,750	1,255.59	538	10	0.0083	1,248.31	1,243.85	1,289,115	0.893	3.657	4.146	0.735	
8	9	McD	1,150,750	1,249.89	541	10	0.0082	1,243.84	1,239.43	1,278,309	0.900	3.627	4.115	0.740	
9	10	McD	1,150,750	1,245.03	540	10	0.0082	1,239.43	1,234.99	1,283,837	0.896	3.642	4.131	0.737	
10	11	McD	1,150,750	1,239.93	540	10	0.0082	1,235.10	1,230.69	1,279,492	0.899	3.630	4.119	0.739	
11	12	McD	1,150,750	1,235.38	530	10	0.0080	1,230.58	1,226.36	1,263,379	0.911	3.584	4.073	0.747	
12	18	McD/Sdale	1,323,550	1,230.75	11	12	0.0282	1,226.32	1,226.01	3,865,003	0.342	7.615	6.915	0.403	
18	18A	McD/Sdale	1,323,550	1,230.81	44	12	0.0032	1,226.01	1,225.87	1,302,388	1.016	2.566	2.933	0.832	Proposed Sewer Connection
18A	19	McD/Sdale	1,323,550	1,230.80	36	12	0.0047	1,217.56	1,217.39	1,582,117	0.837	3.117	3.499	0.698	Proposed Sewer Connection
19	20	McD	2,527,390	1,230.52	136	18	0.0025	1,216.89	1,216.55	3,394,001	0.745	2.972	3.265	0.642	
20	21	McD	2,527,390	1,228.92	333	18	0.0014	1,216.52	1,216.05	2,550,168	0.991	2.233	2.554	0.809	
21	22	McD	2,527,390	1,225.91	337	18	0.0067	1,216.05	1,213.78	5,571,088	0.454	4.878	4.771	0.472	
22	23	McD	2,527,390	1,223.16	163	18	0.0062	1,213.76	1,212.75	5,343,292	0.473	4.679	4.624	0.483	
23	24	McD	2,527,390	1,221.99	501	18	0.0069	1,212.64	1,209.17	5,649,212	0.447	4.947	4.820	0.468	
24	25	McD	2,527,390	1,218.29	531	18	0.0066	1,209.09	1,205.57	5,526,702	0.457	4.839	4.742	0.474	
25	26	McD/Miller	2,527,390	1,215.30	578	18	0.0066	1,205.45	1,201.62	5,525,575	0.457	4.838	4.742	0.474	
26	27	McD/Miller	2,527,390	1,211.25	7	18	0.0129	1,199.32	1,199.23	7,696,872	0.328	6.740	6.052	0.394	
END OFF-SITE															

0.809 is questionable over 333ft. Some attenuation of the peak can be assumed given the length from the development. Also, because segment has accelerating flows into and out of segment so the peak level will be transitional if achieved at all, i.e. depths through manholes should be less. 1755gpm is 92% of peak flow at d/D=0.94 (1,903gpm). Velocity at peak @ d/D=0.8.

0.832 acceptable over very short length of 44ft and possibility for no new additional flows into this line.

APPENDIX E

SWG GAS LINE RELOCATION PLANS



SOUTHWEST GAS CORPORATION

Franchise - East
January 20, 2020

Ben Brosseau
Bridge Banyan Qualified Opportunity Zone Business I, LLC
2411 3rd St, Unit E
Santa Monica, CA 90405

SUBJECT: Gas Line Relocation Ahead of Sewer Improvements
FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL
Scottsdale Rd at McDowell Rd, Scottsdale, AZ 85257
Gas Utility Conflict

Dear Ben Brosseau,

The proposed construction, grading, or excavation being made with your development has created an apparent conflict with our existing natural gas facilities. Your sewer line improvement project located within the City of Scottsdale, Arizona will require the relocation of the Southwest Gas system before construction can proceed.

Southwest Gas Corporation has prior rights recorded under the Franchise Agreement with the City of Scottsdale and County of Maricopa. These natural gas facilities were installed under a permit establishing the legal right for the placement of these facilities.

The cost of this work will be entirely at the developer's expense. The total cost to perform this work is \$79,327.72. This cost estimate is valid for only 30 calendar days. Please send payment with signed enclosed Facility Relocation Agreement to:

Southwest Gas Corporation
Zach Stevenson
East Engineering - M/S 42I-586
P.O. Box 52075
Phoenix, AZ 85072-2075

We have prepared preliminary plans for this estimate. Final plans will be required for approvals and acquiring permits. This normally takes about 6 weeks. Our current construction schedule is 6 weeks out before we can start work. Keep in mind that we cannot release this project for construction scheduling unless full payment is received. Please let us know as soon as possible of what action to take.

This job is designed and estimated to be worked with the customer providing the entire trench and backfill. The customer's contractor shall at its expense perform all required trenching and shoring that may be necessary and protect all excavations as required for safety and governing laws. The contractor shall at its expense provide all trench materials to meet bedding, shading, padding and backfill requirements. The contractor shall provide the required bedding and shading material on site. The material shall be Portland cement concrete fine aggregate sand. Southwest Gas shall be responsible for only the installation of the actual natural gas pipeline and appurtenances.



SOUTHWEST GAS CORPORATION

Prior to beginning construction, please instruct your contractor to call the Blue Stake Center at 1-800-782-5348, for field locations of all utility facilities, pursuant to the "Blue Stake Law" (ARIZONA REVISED STATUTES (State Law), Chapter 2, Article 6.3, Sections 40-360.21 through 40-360.32).

Thank you for your cooperation. Please contact Andy Saks at (480) 730-3857 (Email: Andrew.Saks@swgas.com) or myself if you have any questions or require additional information.

Sincerely,

Zach Stevenson
Engineering Supervisor
Mail Station 42I-586
(480) 730-3855

CC: Andy Saks



FACILITY RELOCATION AGREEMENT (Arizona/California/Nevada)

1. AGREEMENT

- 1.1 This is a Relocation of Gas Distribution Facilities Agreement ("Agreement") dated _____ between Southwest Gas Corporation ("Southwest") located at P.O. Box 52075, MS 421-586, Phoenix, Arizona 85072-2075 and Ben Brosseau, Manager, Bridge Banyan Qualified Opportunity Zone Business I, LLC ("Requester") whose mailing address is 2411 3rd St, Unit E, Santa Monica, CA 90405.
- 1.2 All communications concerning this Agreement shall be in writing and shall be delivered to each party at the address shown above or such other address as either party may hereafter specify in writing.
- 1.3 This Agreement may not be amended except in writing and executed by all of the parties hereto.
- 1.4 No assignment of this Agreement or of any refunds which may become due hereunder shall be binding upon Southwest without its written consent.
- 1.5 The mutual promises made and obligations undertaken by the parties constitute the consideration for this Agreement.

2. PROPOSED SERVICE ADDRESSES OR LOCATIONS

Intersection of Scottsdale Road and McDowell Road
City of Scottsdale, Arizona 85257

3. DESCRIPTION AND SKETCH OF THE REQUESTED FACILITIES

- 3.1 Attached hereto as Exhibit A and made a part of this Agreement is a drawing or diagram of the gas distribution facilities ("Subject Facilities") Southwest proposes to install, relocate, and/or abandon pursuant to this Agreement.

4. DESCRIPTION OF REQUESTED RELOCATION WORK

- 4.1 Description of the Subject Facilities to be installed, relocated, and/or abandoned as part of this Agreement:
Private development requires City sewer improvements in the intersection of Scottsdale Rd and McDowell Rd, which will require the relocation of approximately 10' of steel, high-pressure, high priority gas main via in-line "drop section".

5. AGREEMENT CONDITIONS

- 5.1 The Requester is prohibited from building any type of structure over Subject Facilities. If this occurs, the Requester must contact Southwest to relocate the gas lines and/or meter at the Requester's expense.
- 5.2 Encroachment relocation (must be resolved by _____, or service interruption may result).
- 5.3 Southwest requires a minimum of 6 weeks to finalize the design, obtain permits, and schedule the work for construction.
Please call Contract Inspections at (623) 587-3161 or (623) 587-3171 to coordinate construction times and schedules.
- 5.4 Southwest is not responsible for any damage that may occur to any other underground utilities, irrigation systems, etc., that are not properly marked by One Call, Blue Stake, and/or private facility owner.

6. ESTIMATED COSTS

- 6.1 Southwest will relocate the Subject Facilities as described in attached Exhibit A at a total estimated cost of \$ 79,327.72
Estimated Cost \$ 79,327.72 + Gross-Up Tax \$ 0.00 = Total Estimated Cost \$ 79,327.72
- 6.2 Southwest will review the final cost approximately ninety (90) days after the Subject Facilities is complete. If the estimated cost paid by Requester is less than the final cost, Requester hereby agrees to pay Southwest the difference of the final cost over the estimated cost within thirty (30) days of presentment of an invoice by Southwest. If the estimated cost is greater than the final cost, Southwest will refund the difference to Requester.
- 6.3 **This cost estimate is valid for ninety (90) days from the date of this Agreement.**

7. PAYMENT TERMS

- 7.1 Requester agrees to pay Southwest, at least five (5) days in advance of the estimated construction date specified in paragraph 8 hereof, the total estimated cost of the Subject Facilities, to which Requester may be entitled. Payment must be received in full before the Subject Facilities can be released for construction.

8. ESTIMATED DATES OF COMMENCEMENT AND COMPLETION OF CONSTRUCTION

- 8.1 Southwest estimates that construction of the Subject Facilities will begin on approximately 4/6/2020 and will be completed by approximately 4/22/2020 ("Completion Date"). If, however, the actual Completion Date is more than thirty (30) days after the estimated date of completion specified above, the Completion Date shall be the date the Subject Facilities actually are completed, and this Agreement shall be amended accordingly.
- 8.2 Southwest makes no representations, warranties, or promises, either express or implied, with respect to any Completion Date for the Subject Facilities.
- 8.3 Requester hereby acknowledges that the approximate date for Southwest to begin construction of the Subject Facilities is dependent upon receipt of Requester payment set forth in paragraph 7 hereof.

9. COPY OF AGREEMENT

- 9.1 The Requester hereby acknowledges receipt of a copy of this Agreement.
- 9.2 Requester, nor its respective affiliates, directors, officers, employees, agents, or permitted assignees shall disclose to any third party, the terms and provisions of this Agreement without Southwest's prior written consent; provided, however that the Requester may make such disclosure as required by law, and on a confidential basis, of the terms and provisions of this Agreement to their consultants and attorneys.

10. OWNERSHIP AND EASEMENTS

- 10.1 The Subject Facilities will at all times be owned by Southwest.
- 10.2 The Requester agrees to grant or otherwise provide to Southwest, without cost to Southwest, easements and rights-of-way which are adequate, in the opinion of Southwest, for the location, installation, operation, and maintenance of the Subject Facilities.

11. REGULATORY CHANGES

- 11.1 This Agreement is subject to the jurisdiction of the state Public Utilities Commission ("Commission").
- 11.2 Southwest's standard rules filed with the Commission, to the extent applicable and as they may be changed from time to time, are part of this Agreement, provided that the amended standard rules shall not increase the amount the Requester is obligated to advance or the amount that Southwest may refund thereafter.
- 11.3 State law shall govern the interpretation of this Agreement.

WHEREFORE, the parties have executed this Agreement as of the day and year specified in paragraph 1 hereof.

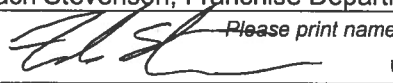
REQUESTER

SOUTHWEST GAS CORPORATION

Zach Stevenson, Franchise Department

Please print name

Requester signature and date signed

Please print name

 _____ 1/20/20
Southwest representative signature and date signed
 Title Engineering Supervisor

<i>For Accounting Use Only</i>								Amount \$
ACCOUNTING CONTROL KEY							Prog/Ref (4)	
CO (2)	ORC (4)	RD (4)	FERC (5)	Activity (4)	C/E (4)	WO (12)		Prog/Ref (4)
	7319	0042			9901	W3924489		71394.95
	7346	0042			9901	W3924489		7932.77

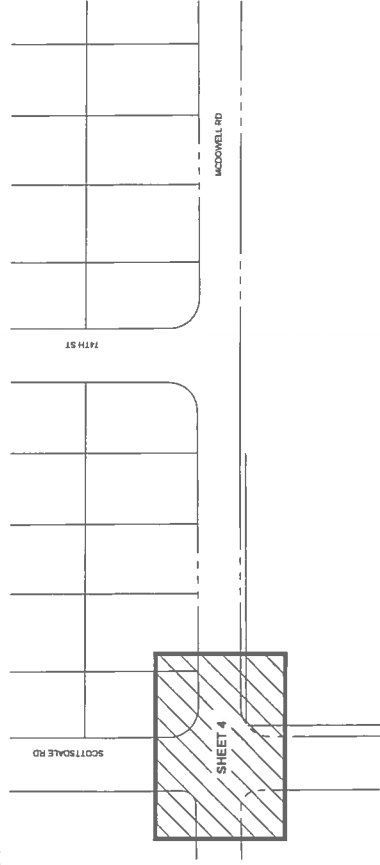
Distribution: White – Originator Canary – Requester

LEGEND

- EXISTING GAS MAIN
EXISTING GAS SERVICE
GAS LINE TO BE ABANDONED
STEEL RISER
ANODELESS RISER
GASLIGHT
GAS VALVE
EXCESS FLOW VALVE
RELIEF VALVE
COUPLINGS
BOND OVER
TEST POINT
INSULATOR
REGULATOR STATION
RECTIFIER
ANODE
SCADA
METER SET ASSEMBLY
PURGE POINT
BRANCH C/LINE STOPPER
GAS LINE TO BE ABANDONED
PROPOSED GAS MAIN
PROPOSED GAS SERVICE
EXISTING EASEMENT
ROW LINE
STREET CENTERLINE
EDGE OF PAVEMENT
CABLE LINE - UNDERGROUND
ELECTRIC - OVERHEAD
ELECTRIC - UNDERGROUND
FIBER OPTIC - UNDERGROUND
PHONE - OVERHEAD
PHONE - UNDERGROUND
RECLAIMED WATER
SEWER
STORMWATER
WATER
UTILITY PEDESTALS
FIRE HYDRANT
MANHOLE
WATER VALVE
SURVEY MONUMENT
POWER POLE
GAS FLOW ARROW

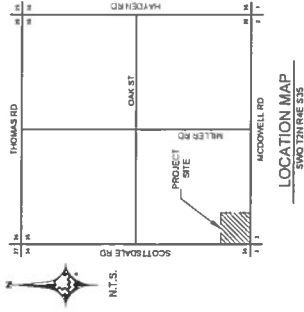


FRANCHISE EAST
PRIVATE DEVELOPER - SEWER IMPROVEMENTS
SCOTTSDALE RD AND MCDOWELL RD



SHEET INDEX

- 1 COVER SHEET
2 MAIN LINES
3 NOTES AND BOARD DETAILS
4 PLAN SHEET
5 TEST TREE
6 FABRICATION ASSEMBLY & TEST
7 FIELD WELD ASSEMBLY



CITY OF SCOTTSDALE
GENERAL NOTES FOR PUBLIC WORKS CONSTRUCTION

- 1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE SCOTTSDALE STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL OF ENGINEERING DESIGNS. THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF ASSOCIATED PERMIT HAS EXPIRED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.
4. A CITY INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE. NOTIFY INSPECTOR SERVICES 72 HOURS BEFORE BEGINNING WORK.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 811, TWO WORKING DAYS BEFORE EXCAVATION BEGINS.
6. PERMISSION TO WORK IN THE RIGHT OF WAY (ROW) PERMITS ARE REQUIRED FOR ALL WORKS WITHIN THE RIGHTS-OF-WAY AND EASEMENTS TO BE MAINTAINED FOR PURPOSES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
CONSTRUCTION NOTES:
1. REFER TO CITY OF SCOTTSDALE WATER SEPARATION DETAIL 2372
2. REFER TO CITY OF SCOTTSDALE SEWER SEPARATION DETAIL 2301
3. REFER TO CITY OF SCOTTSDALE PAVEMENT REPLACEMENT DETAIL 2200
4. REFER TO MARICOPA ASSOCIATION OF GOVERNMENTS SPECIFICATIONS 336 (FOR POSSIBLE SLURRY SEAL COAT)
5. ON PAVEMENT CUTS GREATER THAN 300FT. OR BORE PITS LESS THAN 300FT. APART

SHEET INDEX MAP

VALVE INSTALLATION / ABANDONMENT / RECLASSIFICATION
DETAIL #504

Table with columns for VALVE NUMBER, LOCATION, VALVE SERIAL NO., and VALVE WINDOW ID. Includes summary rows for TOTAL NUMBER OF VALVES ABANDONED and RECLASSIFIED.

Table with columns for DESIGN, CITY, and DESCRIPTION. Includes summary rows for DESIGN PIPE SUMMARY and ABANDON PIPE SUMMARY.

Project information including sheet index, project name, location, and contact details for SOUTHWEST GAS CORPORATION and ARIZONA. Includes a logo for Southwest Gas Corporation and Arizona.

PRESSURE TEST PERFORMED BY AND VERIFIED BY SIGNATURES
I HAVE PREPARED THE PRESSURE TESTS AS SHOWN ON THE AS-BUILT AND IN ACCORDANCE WITH THE OPERATIONS MANUAL.
I HAVE TESTED THE PRESSURE TESTS AS SHOWN ON THE AS-BUILT AND IN ACCORDANCE WITH THE OPERATIONS MANUAL.
PRESSURE TEST # _____ PERFORMED BY _____ DATE _____
SWO VERIFIED BY _____ DATE _____

PURGE PLAN PERFORMED BY SIGNATURES
PURGE PLAN WAS COMPLETED IN ACCORDANCE WITH THE OPERATIONAL MANUAL ORDINANCE
PERFORMED BY _____ DATE _____ SHEET # _____
LOCATION _____

PIPE JOINER VISUAL INSPECTION CERTIFICATION
I HAVE VISUALLY INSPECTED ALL WELDED JUNCTIONS, JOINTS, COUPLERS, TEES, AND VALVES THAT HAVE BEEN PERFORMED.
NAME _____ JOB _____

2ND VISUAL INSPECTION CERTIFICATION
I HAVE VISUALLY INSPECTED ALL WELDED JUNCTIONS, JOINTS, COUPLERS, TEES, AND VALVES THAT HAVE BEEN PERFORMED.
NAME _____ JOB _____

CONSTRUCTION
INSPECTOR _____ P.O.# _____
FORUM _____ P.O.# _____
REVIEWED BY _____ P.O.# _____

CONTRACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE COMMUNICATION



CALL 811 OR (602) 442-2111



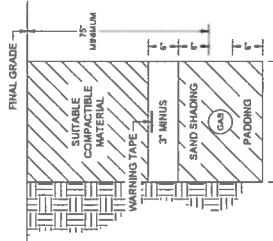
SOUTHWEST GAS CORPORATION

Members of Gas Corporation, Certificate and Proprietary Information
The information contained herein is the property of Southwest Gas Corporation and is not to be disseminated outside the organization. Any reproduction or use of this information without the express written permission of Southwest Gas Corporation is prohibited. The information contained herein is the property of Southwest Gas Corporation and is not to be disseminated outside the organization. Any reproduction or use of this information without the express written permission of Southwest Gas Corporation is prohibited.

REVISIONS				N.C. SYSTEM				JOB TYPE		MR. NO.		ENGINEER/TECHNICIAN		ACCOUNT REP.		PHONE	
				SYSTEM MAP - 175				HP SERVICE <input type="checkbox"/>		3924489		ANDY SAMS		N/A		460-730-3357	
				SYSTEM MAP - 175				DISTRIBUTION <input type="checkbox"/>				ERIC LAURIN - CIVL		N/A		602-285-4722	
				SYSTEM NAME 2				FEEDER <input checked="" type="checkbox"/>		RELATED MR NOS		ERIC LAURIN - CIVL		N/A		602-285-4722	
				SYSTEM MAP - 1345				TRANS. BY DEF <input type="checkbox"/>		N/A		ERIC LAURIN - CIVL		N/A		602-285-4722	
				SYSTEM MAP - 1345				TRANS. BY DEF <input type="checkbox"/>				ERIC LAURIN - CIVL		N/A		602-285-4722	
PERMIT INFORMATION		ISOLATION AREA		LOCATION		ATLAS OR TILE		DATE		APPROV.		SHEET NO.		SCALE		DATE	
CITY OF SCOTTSDALE		152B		5W0 TIN RAE 575		1345						3924489		1/2"		1/27/2019	

FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL
SCOTTSDALE RD AND MCDOWELL RD
SCOTTSDALE, AZ 85257

**MAIN INSTALLATION
DETAIL #306**



ENSURE ALL TRENCHES FOR MAIN
ARE PROPERLY BACKFILLED
BEFORE GASING UP FACILITIES.

PREPOST CAMERA INSPECTIONS

PER THE MAIN AND SERVICE INSTALLATION
PROCEDURE

REQUIRED? YES NO
PERFORMED? YES NO

NAME _____
DATE _____

**SEWER LATERAL
DETAIL #116**

METHOD USED TO LOCATE SEWER FOR POT HOUSING CAMERA ELECTRONIC LOCATOR OTHER _____

NUMBER OF SEWER LATERALS POT HOLED _____

NUMBER OF SEWER LATERALS EXPOSED DURING BORE CROSSING _____

ALL EXPOSED SEWER LATERALS EXPOSED BY BORE WERE EXPOSED DURING THE BORE CROSSING(S)
SIGNATURE OF WORK OBSERVER (PERSON WHO EXPOSED CLEARANCE WHEN CROSSING) _____

INSPECTOR IS THE NUMBER OF LATERALS EXPOSED BY BORE IS GREATER THAN THE NUMBER OF LATERALS EXPOSED YOU MUST PROVIDE AN
EXPLANATION. _____

SUPERVISOR, ANY REVERS NOT EXPOSED DURING THE BORE CROSSING MUST BE INSPECTED BY CAMERA OR POT HOLED TO ENSURE PROPER
CLEARANCE. _____

SECTION 116 - ADDENDUM TO MAINS FITTING

A. PLEASE DOCUMENT THE FOLLOWING INFORMATION FOR EACH FITTING:
 TYPE OF FITTING: NO. YES NO
 FITTING SIZE: YES NO
 FITTING WALL THICKNESS: YES NO

B. FITTING MATERIAL: YES NO
 FITTING RATED FOR CURRENT SYSTEM WORKING: YES NO
 FITTING RATED FOR CURRENT SYSTEM WORKING: YES NO
 FITTING RATED FOR CURRENT SYSTEM WORKING: YES NO

C. FITTING MANUFACTURER PART NO. _____
 SERIAL NO. _____
 DATE OF INSTALLATION: _____
 LOCATION FROM TOP CORNER: _____
 DATE: _____
 OPER COORDINATOR: _____
 DATE: _____
 OPER COORDINATOR: _____

D. FITTING PROVIDE A SET OF PHOTO'S OF THE FITTING (TOP VIEW AND SIDE VIEW).

REVISIONS

NO.	DESCRIPTION	ISOLATION AREA	LOCATION	DATE	APPROVED
1	162B		SWG TRM RE 525	11-15	

CITY OF SCOTTSDALE

JOB TYPE

HP SERVICE DISTRIBUTION FEEDER

TRANS. BY DEF TRANS. 20%

SYSTEM MAP

SYSTEM MAP: 175
SYSTEM MAP: 175
SYSTEM NAME: _____
SYSTEM MAP: _____
SYSTEM MAP: _____

VR NO.


VR NO.: 3924489
RELATED VR NO.S: N/A

CONTRACT INFORMATION

CONTRACT NO.: _____
PROJECT CONTACT: ERIC LAIRN - CIVL
SHEET NO. 3 OF 7
SCALE: N.T.S.
DWG. BY: SWG-AJB9
CHKD. BY: _____
PHONE: 480-750-3857
PHONE: 602-584-7722
DATE: 11/28/19
APPROD BY: _____


PROJECT INFORMATION

PROJECT: FRE SCOT PD SCOTSDALE MCDOWELL MAIN REPL
SCOTSDALE RD AND MCDOWELL RD
SCOTSDALE, AZ 85257



SOUTHWEST GAS CORPORATION

CONTRACT NUMBER: 111-11-11-11
START DATE: 11/11/11
END DATE: 11/11/11
CALL 811 OR CLICK: 811AZ.COM



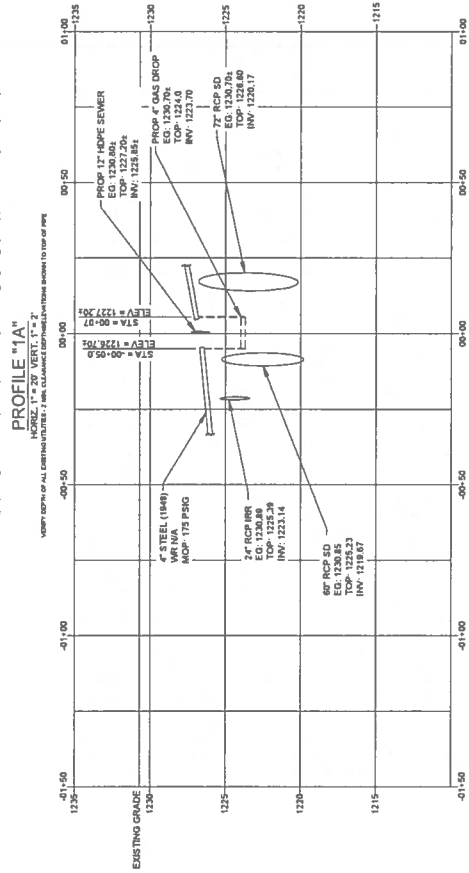
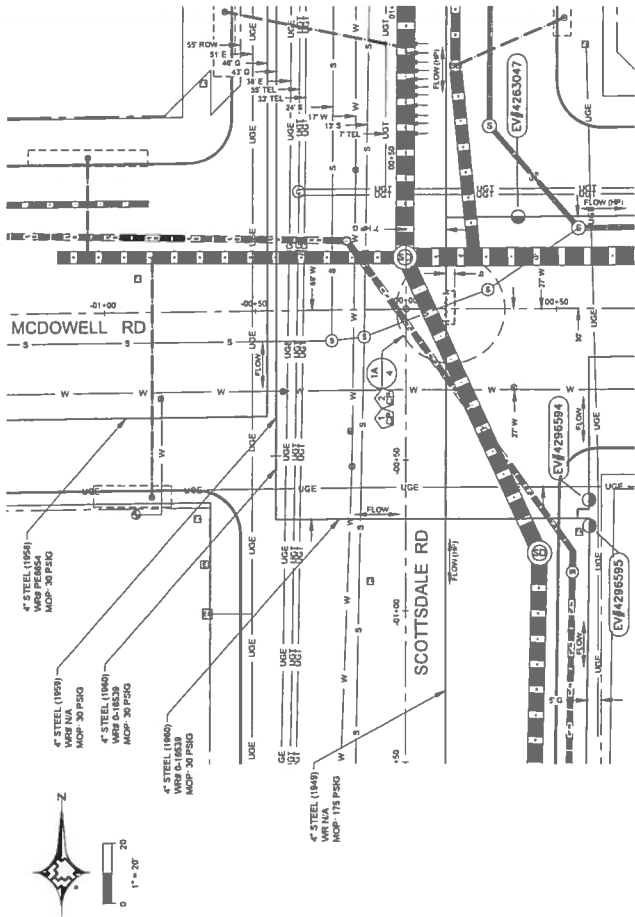
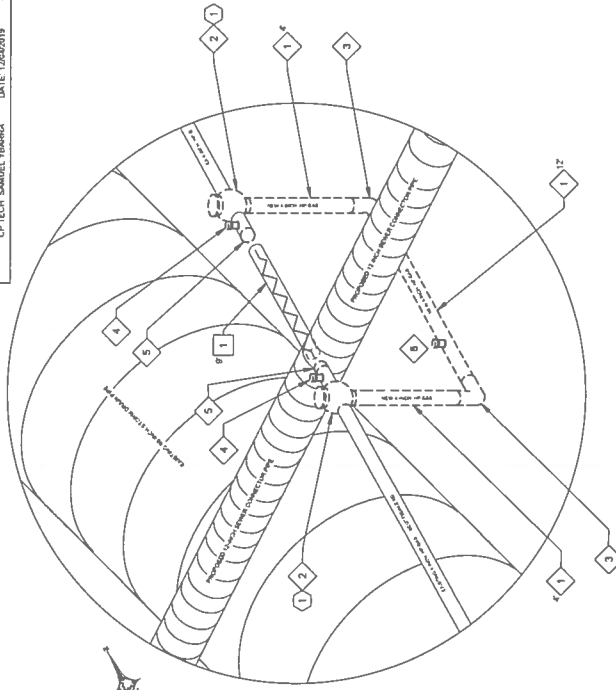
CALL 811 OR CLICK: 811AZ.COM

HIGH PRESSURE MATERIALS LIST					
CODE	DESIGN QTY	STACK QTY	DESCRIPTION	SEAM	COATING
1	20	100-1024	PIPE STEEL CTD 4.51 4' X 2.37" WT ENH	N/A	N/A
2	7	100-1195	4" TEE SPHERICAL 3-WAY 300SD TDW	N/A	N/A
3	2	100-1123	4" ELBOW STEEL WELD 90 DEG, Y-32	N/A	N/A
4	2	100-6622	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG MULAR	N/A	N/A
5	1	100-2031	4" CAP STEEL WELD 0.237" WT Y-32	N/A	N/A
6	1	100-6622	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG MULAR	N/A	N/A

ABANDON FACILITIES		
CODE	DESIGN QTY	DESCRIPTION
1	9	4" STEEL WR N/A MOP 115 PSIG

CONSTRUCTION NOTES	
1	TEST AND RE-ANNEAL 4" STEEL DROP SECTION TO EXISTING 4" STEEL USING 4" SPHERICAL FITTINGS. SEE DETAIL "A".
2	CATHODIC PROTECTION NOTES
3	STEEL PIPE IS PROTECTED BY IMPRESSED CURRENT FACILITY 420C/P004179
4	DO NOT LEAVE OR CREATE ANY ISOLATED STEEL
5	CP TECH SAMUEL YBARRA DATE 12/26/2019 PHONE 602-444-5113

FOR STEEL ONLY ST15	
1	100-1024
2	100-1195
3	100-1123
4	100-6622
5	100-2031
6	100-6622



REVISIONS		JOB TYPE		WR NO.		ENGINEER/DESIGNER		ACCOUNT REP	
NO.	DESCRIPTION	DATE	APPROV	HP SERVICE	175	3924489	ANDY SAMS	ERIC LAURIN-CVL	PHONE 602-335-4772
	ISOLATION AREA			DISTRIBUTION	175				PHONE 602-335-4772
	LOCATION			FEEDER					DATE 11/26/19
				TRANS. BY DEF					APPROV BY
				TRANS - 30%					
PERMIT INFORMATION		SYSTEM MAP		SYSTEM MAP		SYSTEM MAP		SYSTEM MAP	
CITY OF SCOTTSDALE		13-45		13-45		13-45		13-45	
DESCRIPTION		ISOLATION AREA		LOCATION		SNO ZIN RE 375		CITY OF SCOTTSDALE	
152B				SNO ZIN RE 375				CITY OF SCOTTSDALE	
<p>Southwest Gas Corporation and its subsidiaries are not liable for the use of this information for any purpose other than that for which it was originally prepared. This information is provided for your information only and does not constitute an offer of insurance or any other financial product. Please contact your agent for more information.</p>									

SOUTHWEST GAS CORPORATION

ARIZONA

CALL 811 OR CLICK ARIZONA11.COM

CONTACT ARIZONA 11 AT LEAST TWO FULL WORKING DAYS BEFORE YOUR EXCAVATION

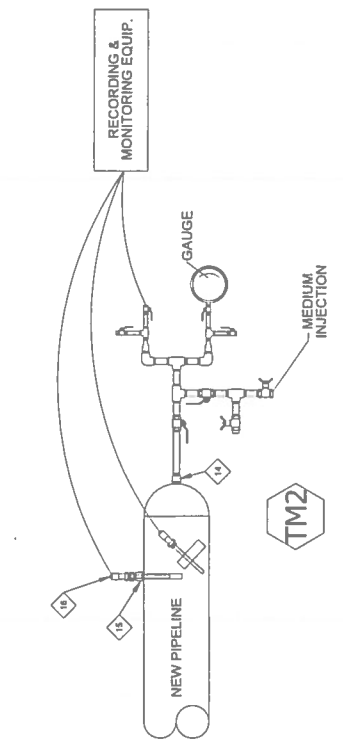
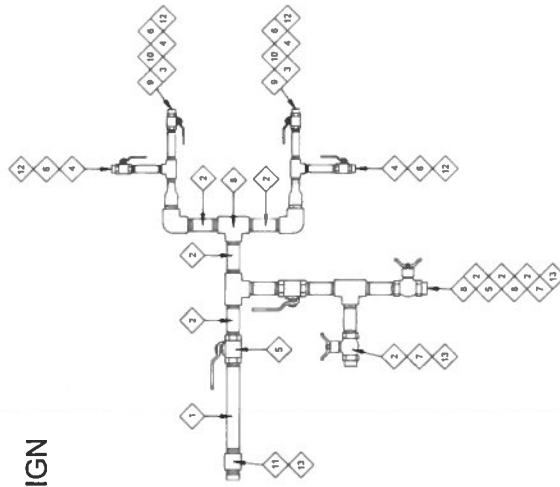
PRESSURE TEST TREE DESIGN

N.T.S.

TEST DATA SHEET
 TEST LOCATION: SCOTTSDALE RD AND MCDOWELL RD
 CHANGES: CALS SECTION 3
 SYSTEM MAP: 175
 MAP TEST PRESSURE: 100 PSI
 MAX TEST PRESSURE: 150 PSI
 GENERAL NOTES:
 1. TEST STATUS: CALCULATED
 2. DESIGNER: ERIC LAURIN - CIVL
 3. SYSTEM NAME: 4375
 4. SUBSYSTEM NAME: 4375
 5. TESTING GROUP: CONSTRUCTION
 6. APPROVED ASSEMBLY: YES
 7. DATE: 09-DEC-19
 8. DOC# CALS-3024489_02

NO.	SECTION	TEST MEDIA	TEST METHOD	TEST PRESSURE	MAX TEST PRESSURE	MAX TEST DURATION	TEST RESULTS	TESTER	DATE
1	1	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
2	2	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
3	3	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
4	4	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
5	5	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
6	6	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
7	7	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
8	8	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
9	9	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
10	10	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
11	11	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
12	12	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
13	13	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
14	14	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19
15	15	WATER	HYDROSTATIC	100 PSI	100 PSI	15 MIN	PASS	ERIC LAURIN	09-DEC-19

NOTES:
 1. TEST ONLY REMOVE AFTER TEST DO NOT INSTALL.
 2. END OF TEST DATA SHEET CALS-3024489_02 3024489 TEST TREE --



MAP DETERMINED USING THE FOLLOWING TEST METHODS FOR SPECIFIED SECTIONS:
 (T1) TEST PRESSURE DECREASING OR EQUAL TO 100% MAP, TESTED WITH WATER (150 PSI) (150 PSI)
 (T2) TEST PRESSURE DECREASING OR EQUAL TO 100% MAP, TESTED WITH WATER (150 PSI) (150 PSI)

ENGINEER/TECHNICIAN: ANDY SAMS
 ACCOUNT REP: N/A
 PROJECT CONTACT: ERIC LAURIN - CIVL
 SHEET NO.: 3 OF 7
 DATE: 1/7/2019
 DRAWN BY: ERIC LAURIN
 CHECKED BY: ANDY SAMS

PHONE: 480-700-3357
 PHONE: 602-285-4722
 PHONE: 1-727-819

APPROVED BY: [Signature]

FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL
 SCOTTSDALE RD AND MCDOWELL RD
 SCOTTSDALE, AZ 85257

VR NO.: 3024489
 JOB TYPE: HP SERVICE, DISTRIBUTION, FEEDER, TRANS. BY DEF, TRANS. > 20%
 SYSTEM MAP: 175
 SYSTEM MOP: 175
 SYSTEM NAME: 4375
 SYSTEM MOP: 175
 SYSTEM MAP: 175

REVISIONS:

NO.	DESCRIPTION	ISOLATION AREA	LOCATION	BY	DATE	APPROV.
1	CITY OF SCOTTSDALE	152B	SWO TIN #4E 375		11-4-15	

CONTACT: ANDREW SAMS AT 480-700-3357
 800-368-5828
 CALL 811 OR CLEAR.MEDIUM.COM

DETAIL 554

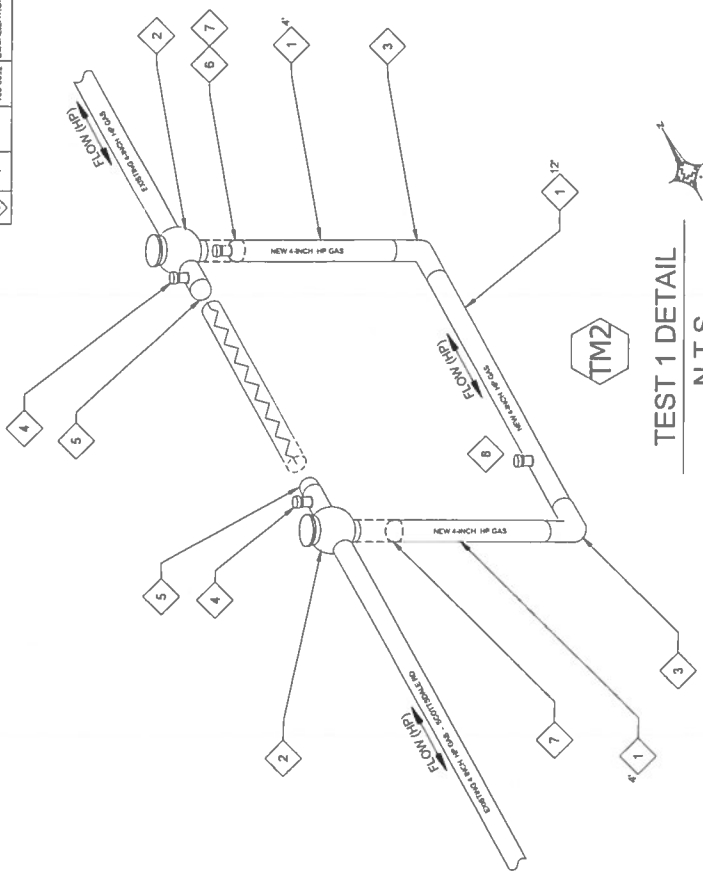
NOTE: MAOP DETERMINED USING THE FOLLOWING TEST METHODS FOR SPECIFIED SECTIONS:

- (TM) TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH WATER (50 HYDRO)
- (TM) TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH AIR, NITROGEN, OR NATURAL GAS (150 OTHER)

DETAIL 555

NOTE: MAOP ESTABLISHED USING NITROGEN, AIR OR GAS AT A TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP. (150 OTHER)

CODE	DESIGN CLASSIFICATION	DESIGN PRESSURE (PSIG)	DESIGN TEMP (°F)	DESIGN WELD	DESIGN FITTING	DESIGN SEAM	COATING
1	100-1024	150	120	6	6	6	NA
2	100-1195	150	120	6	6	6	NA
3	100-1233	150	120	6	6	6	NA
4	100-4852	150	120	6	6	6	NA
5	100-3011	150	120	6	6	6	NA
6	100-3021	150	120	6	6	6	NA
7	100-4852	150	120	6	6	6	NA
8	100-4852	150	120	6	6	6	NA



TEST DATA SHEET

TEST LOCATION: SCOTTSDALE PD AND MCDOWELL RD
 EXISTING CLASSIFICATION: 3
 EXISTING DESIGN PRESSURE: 150 PSIG
 EXISTING DESIGN TEMP: 120 °F

DESIGN CLASSIFICATION: 3
 DESIGN PRESSURE: 150 PSIG
 DESIGN TEMP: 120 °F

TESTING GROUP: CONSTRUCTION
 FABRICATED ASSEMBLY: YES

TEST MEDIA: NITROGEN
 MIN TEST DURATION: 150 HRS
 INTERMEDIATE LEAK TEST REQUIRED BETWEEN 100 PSIG AND 1000 PSIG: NO

GENERAL NOTES:
 1. MAOP DETERMINED USING THE FOLLOWING TEST METHODS FOR SPECIFIED SECTIONS:
 (TM) TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH WATER (50 HYDRO)
 (TM) TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH AIR, NITROGEN, OR NATURAL GAS (150 OTHER)

DATE: 10/26/2018
 DESIGNED BY: ANDREW SANKS

NO.	SECTION	U	DESCRIPTION	DESIGN PRESSURE (PSIG)	DESIGN TEMP (°F)	TEST PRESSURE (PSIG)	TEST TEMP (°F)	TEST METHOD	TEST RESULT
1	100-1024	6	PIPE STEEL STD 4.5" X 0.375" WT ERW	150	120	225	120	(TM)	PASS
2	100-1195	6	4" TEE SPHERICAL 3-WAY 300-D, TDW	150	120	225	120	(TM)	PASS
3	100-1233	6	4" ELBOW STEEL WELD 90 DEG, Y-52	150	120	225	120	(TM)	PASS
4	100-4852	6	EQUALIZATION FITTING 2" X 3" MAOP 140 PSIG, MLER	150	120	225	120	(TM)	PASS
5	100-3011	6	4" CAP STEEL WELD 0.375" WT, Y-52	150	120	225	120	(TM)	PASS
6	100-3021	6	EQUALIZATION FITTING 2" X 3" MAOP 140 PSIG, (TARE)	150	120	225	120	(TM)	PASS
7	100-4852	6	EQUALIZATION FITTING 2" X 3" MAOP 140 PSIG, (TARE)	150	120	225	120	(TM)	PASS
8	100-4852	6	EQUALIZATION FITTING 2" X 3" MAOP 140 PSIG, MLER	150	120	225	120	(TM)	PASS

NOTES:
 A. JOINT TEST ITEM NOT PART OF TEST PER SWG OPERATIONS MANUAL REQUIREMENTS.
 B. TEST PER SWG OPERATIONS MANUAL REQUIREMENTS.

END OF TEST DATA SHEET CALZ 305408 01 DROP SECTION

REVISIONS

NO.	DESCRIPTION	DATE	BY	APP'D
1	ISSUE FOR CONSTRUCTION	10/26/2018	AS	AS

PERMIT INFORMATION

NO.	DESCRIPTION	ISOLATION AREA	LOCATION	DATE	APP'D
1	ATLAS OR TILE <td>152B</td> <td>580 7TH AVE S35</td> <td>10-26</td> <td>AS</td>	152B	580 7TH AVE S35	10-26	AS

SYSTEM INFORMATION

NO.	DESCRIPTION	ISOLATION AREA	LOCATION	DATE	APP'D
1	ATLAS OR TILE <td>152B</td> <td>580 7TH AVE S35</td> <td>10-26</td> <td>AS</td>	152B	580 7TH AVE S35	10-26	AS

SYSTEM INFORMATION

NO.	DESCRIPTION	ISOLATION AREA	LOCATION	DATE	APP'D
1	ATLAS OR TILE <td>152B</td> <td>580 7TH AVE S35</td> <td>10-26</td> <td>AS</td>	152B	580 7TH AVE S35	10-26	AS

Southwest Gas Corporation

CONTACT: ARIZONA 811 AT LEAST 48 HOURS BEFORE ANY WORK BEGINS. CALL 811 OR CLICK ARIZONA11.COM

ARIZONA 811

SCOTTSDALE, AZ 85257

REVISIONS

NO.	DESCRIPTION	DATE	BY	APP'D
1	ISSUE FOR CONSTRUCTION	10/26/2018	AS	AS

SYSTEM INFORMATION

NO.	DESCRIPTION	ISOLATION AREA	LOCATION	DATE	APP'D
1	ATLAS OR TILE <td>152B</td> <td>580 7TH AVE S35</td> <td>10-26</td> <td>AS</td>	152B	580 7TH AVE S35	10-26	AS

Southwest Gas Corporation. Confidential and Proprietary Information. For Reference Only. Not Valid for Use Without Approval. No reproduction or distribution of this information is permitted without the express written consent of Southwest Gas Corporation.

DOCUMENT ELECTRODE LOT NUMBERS
DETAIL 201A

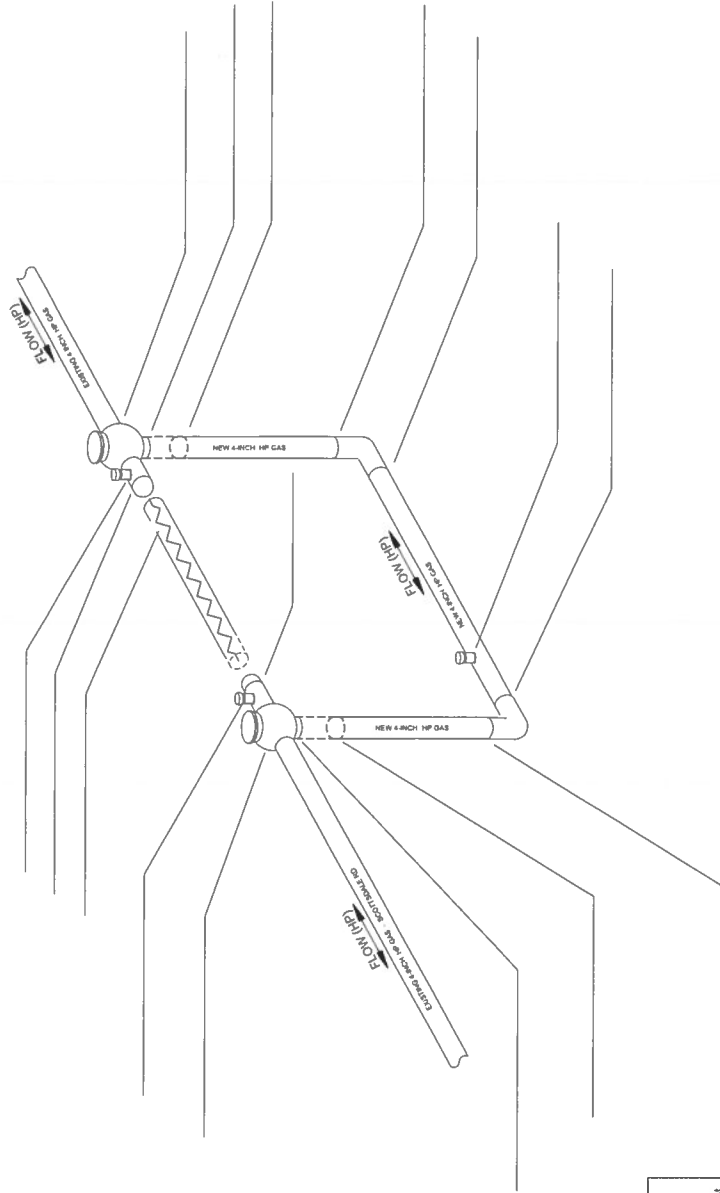
DOCUMENT LOT NUMBERS OF ALL WELDING ELECTRODES USED ON THIS PROJECT

MFR. _____ LOT# _____
MFR. _____ LOT# _____
MFR. _____ LOT# _____
MFR. _____ LOT# _____

DETAIL 201

THE FOLLOWING WELDING PROCEDURES WERE UTILIZED

WELD PROCEDURE
N.T.S.



DETAIL 200

NON-DESTRUCTIVE TESTING
ALL HIGH PRESSURE WELDS SHALL BE NON-DESTRUCTIVELY TESTED. BUTT WELDS SHALL BE RADIOGRAPHICALLY TESTED AND ALL FILLET WELDS SHALL BE MAGNETIC PARTICLE TESTED IN ACCORDANCE WITH THE OPERATIONS MANUAL, STEEL WELDING PROCEDURES, NON-DESTRUCTIVE TESTING, SECTION 6. GPS ALL WELDS AND RECORD LOCATIONS ON THE AS-BUILT.

DETAIL 514

TYPICAL FIELD OR TRENCH WELD STATION



DETAIL 207

EXISTING PIPE SPECIFICATIONS

EXPECTED FIELD TEST RESULTS*
4" STL 0.0850 WT GDB W.T.

*CONSTRUCTION TO FIELD VERIFY USING NON-DESTRUCTIVE TESTING METHOD

DETAIL 201B

DOCUMENT PURCHASE ORDER NUMBER (P.O.#) OF STEEL PIPE INSTALLED HIGH PRESSURE (1-600)

P.O.# _____ SIZE _____
P.O.# _____ SIZE _____
P.O.# _____ SIZE _____
P.O.# _____ SIZE _____

DETAIL 207A

TRANSITION WELDS - CONNECTION METHOD

If wall thickness between pipe ends or pipe and fitting ends exceeds 3/32" or 0.09375", request transitional pipe, if available, to eliminate back welding and taper bores. When back welding and/or taper bore are required, Engineering must approve and Construction must indicate location, revised wall thickness of the modified component and method of each connection made on the weld diagram next to the weld #

NOTE: GPS ALL NEW WELDS AND EXISTING WELDS UNCOVERED IN THE TRENCH DURING CONSTRUCTION. ENSURE WT. READS ARE TAKEN



SOUTHWEST GAS CORPORATION

Southwest Gas Corporation, Commercial and Proprietary Information For Reference Only. Not Valid for Use Without the express, written representation or warranty as made by the authority, accuracy or information provided herein. Southwest Gas Corporation does not warrant or guarantee the accuracy or reliability of the information provided herein. The information provided herein is for informational purposes only and does not constitute an offer of any product or service. The accuracy of the information provided herein is not guaranteed. The information provided herein is for informational purposes only and does not constitute an offer of any product or service. The accuracy of the information provided herein is not guaranteed.

REVISIONS		PERMIT INFORMATION		LOCATION	
NO.	DESCRIPTION	ISOLATION AREA	ATLAS OR TILE	DATE	APPROV
151B				13-45	

SYSTEM		JOB TYPE		MR NO.	
SYSTEM NAME	SYSTEM MOP	HP SERVICE	DISTRIBUTION	FEEDER	TRANS. BY DEF
SYSTEM MOP	175	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SYSTEM MOP	175	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SYSTEM MOP		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ENGINEER/TECHNICIAN		ACCOUNT REF		PHONE	
NAME	SCALE	DATE	DATE	PHONE	PHONE
ANDY SAMS	N/A	11/28/19	11/28/19	480-700-3367	480-700-3367

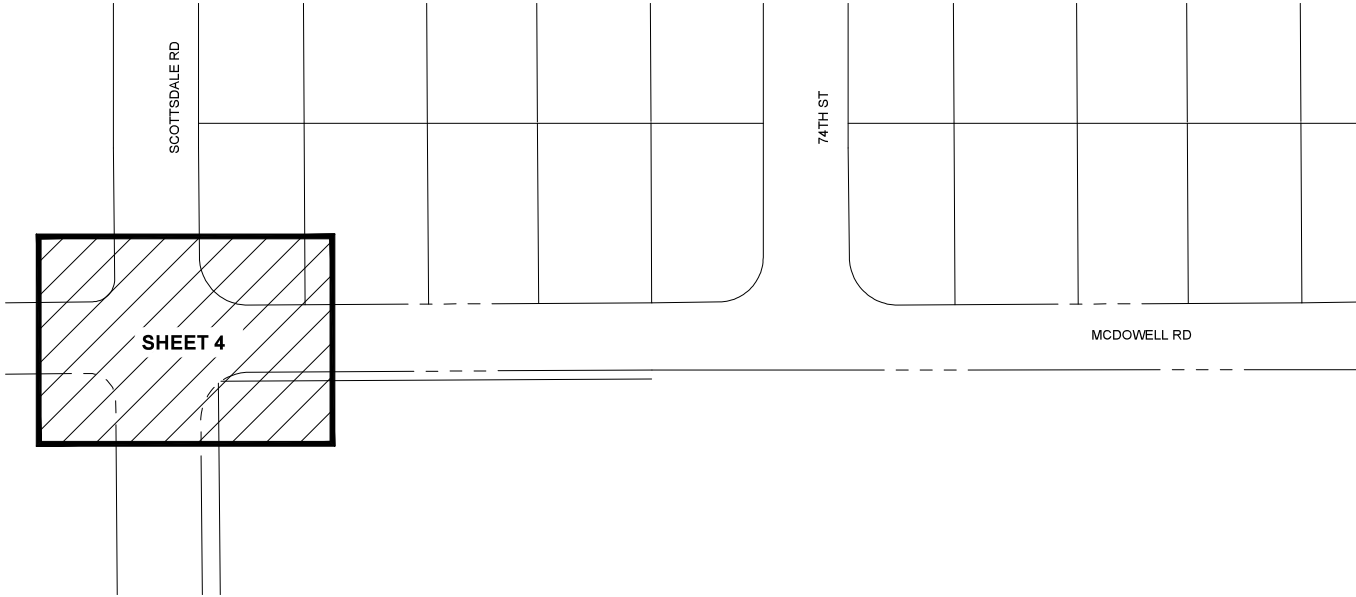
PROJECT CONTACT: ERIC LAURIN - CIVL
PHONE: 802-288-4722
SHEET NO. 7 OF 7
SCALE: NTS
DATE: 11/28/19
DRAWN BY: JMS/ASB
CHECKED BY: JMS/ASB
PROJECT: FIRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL
SCOTTSDALE RD AND MCDOWELL RD
SCOTTSDALE, AZ 85257

LEGEND

- EXISTING GAS MAIN
- EXISTING GAS SERVICE
- GAS LINE TO BE ABANDONED
- STEEL RISER
- ANODELESS RISER
- GASLIGHT
- GAS VALVE
- EXCESS FLOW VALVE
- RELIEF VALVE
- COUPLINGS
- BOND OVER
- TEST POINT
- INSULATOR
- REGULATOR STATION
- RECTIFIER
- ANODE
- SCADA
- METER SET ASSEMBLY
- PURGE POINT
- BRANCH,CVT,LINE STOPPER
- GAS LINE TO BE ABANDONED
- PROPOSED GAS MAIN
- PROPOSED GAS SERVICE
- EXISTING EASEMENT
- ROW LINE
- PROPERTY LINE
- STREET CENTERLINE
- EDGE OF PAVEMENT
- CABLE LINE - UNDERGROUND
- ELECTRIC - OVERHEAD
- ELECTRIC - UNDERGROUND
- FIBER OPTIC - UNDERGROUND
- PHONE - OVERHEAD
- PHONE - UNDERGROUND
- RECLAIMED WATER
- SEWER
- STORMWATER
- WATER
- UTILITY PEDESTALS
- FIRE HYDRANT
- MANHOLE
- WATER VALVE
- SURVEY MONUMENT
- POWER POLE
- GAS FLOW ARROW



**FRANCHISE EAST
PRIVATE DEVELOPER - SEWER IMPROVEMENTS
SCOTTSDALE RD AND MCDOWELL RD**



SHEET INDEX MAP

**VALVE INSTALLATION / ABANDONMENT / RECLASSIFICATION
DETAIL #504A**

Detail #557
Pipeline Patrol #
Patrol Description-

Before:
Start Coordinates: End Coordinates:
X: Y:
Y: X:

After:
Start Coordinates: End Coordinates:
X: Y:
Y: X:

Extended New Patrol
 Contracted Unchanged
 Eliminated No Patrol Required

INSTALL	ABANDON	RECLASSIFY	VALVE NUMBER:	LOCATION:	VALVE SERIAL NO.:	TRANS. DIST.	ISO. EGS.	SUSY	VALVE W/ PUPS P.O.#
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		NO AFFECTED VALVES					

TOTAL NUMBER OF VALVES INSTALLED: 0
TOTAL NUMBER OF VALVES ABANDONED: 0
TOTAL NUMBER OF VALVES RECLASSIFIED: 0

DESIGN PIPE SUMMARY		ABANDON PIPE SUMMARY	
DESIGN QTY.	DESCRIPTION	ABANDON QTY.	DESCRIPTION
20'	4" HP STEEL MAIN	9'	4" HP STEEL MAIN (1949)

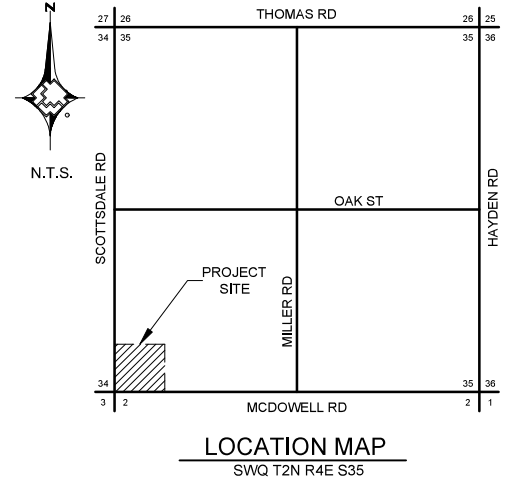
Southwest Gas Corporation Confidential & Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes section § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation

SHEET INDEX

- 1 COVERSHEET
- 2 SIGNATURES
- 3 NOTES AND STANDARD DETAILS
- 4 PLAN SHEET
- 5 TEST TREE
- 6 FABRICATION ASSEMBLY & TEST
- 7 FIELD WELD ASSEMBLY



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

1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF ASSOCIATED PERMIT HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.
4. A CITY INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE. NOTIFY INSPECTION SERVICES 72 HOURS BEFORE BEGINNING WORK.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 811, TWO WORKING DAYS BEFORE EXCAVATION BEGINS.
6. PERMISSION TO WORK IN THE RIGHT OF WAY (PWR) PERMITS ARE REQUIRED FOR ALL WORKS WITHIN THE RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.

CONSTRUCTION NOTES:

1. REFER TO CITY OF SCOTTSDALE WATER SEPARATION DETAIL 2372
2. REFER TO CITY OF SCOTTSDALE SEWER SEPARATION DETAIL 2401
3. REFER TO CITY OF SCOTTSDALE TRENCH BACKFILL DETAIL 2201
4. REFER TO CITY OF SCOTTSDALE PAVEMENT REPLACEMENT DETAIL 2200
5. REFER TO MARICOPA ASSOCIATION OF GOVERNMENTS SPECIFICATIONS 336 (FOR POSSIBLE SLURRY SEAL COAT)
ON PAVEMENT CUTS GREATER THAN 300FT. OR BORE PITS LESS THAN 300FT. APART

NOT RELEASED FOR CONSTRUCTION
INFO COPY ONLY

CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION



CALL 811 OR CLICK ARIZONA811.COM



SOUTHWEST GAS CORPORATION

Southwest Gas Corporation Confidential and Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation.

REVISIONS				"R" SYSTEM	JOB TYPE	WR NO.	ENGINEER/TECHNICIAN	ANDY SAKS	PHONE: 480-730-3857		
NO.	DESCRIPTION	BY	DATE				APPVD.	ACCOUNT REP.	N/A	PHONE:	
					HP SERVICE <input type="checkbox"/>	3924489	PROJECT CONTACT	ERIC LAURIN - CVL	PHONE: 602-285-4722		
					DISTRIBUTION <input type="checkbox"/>		SHEET NO.	1 OF 7	SCALE	N.T.S.	DATE
					FEEDER <input checked="" type="checkbox"/>	RELATED WR NO.S	DWN. BY	SWG - AJSJ	CHKD. BY	APPVD. BY	
					TRANS. BY DEF <input type="checkbox"/>	N/A	FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL SCOTTSDALE RD AND MCDOWELL RD SCOTTSDALE, AZ 85257				
					TRANS > 20% <input type="checkbox"/>						
					SYSNAME2						
					CITY OF SCOTTSDALE						
					152B						
					SWQ T2N R4E S35						
					13-45						
					SYSTEM MAOP:	175					
					SYSTEM MOP:	175					
					SYSTEM MAOP:	-					
					SYSTEM MOP:	-					

PRESSURE TEST PERFORMED BY AND VERIFIED BY SIGNATURES

I HAVE **PERFORMED** THE PRESSURE TESTS AS SHOWN ON THE AS-BUILT AND IN ACCORDANCE WITH THE OPERATIONS MANUAL.
 I HAVE **VERIFIED** THE PRESSURE TESTS AS SHOWN ON THE AS-BUILT AND IN ACCORDANCE WITH THE OPERATIONS MANUAL.

PRESSURE TEST # _____ PERFORMED BY _____ DATE _____
 SWG VERIFIED BY _____ DATE _____

PURGE PLAN PERFORMED BY SIGNATURES

PURGE PLAN WAS COMPLETED IN ACCORDANCE WITH THE OPERATIONS MANUAL GUIDELINES:

PERFORMED BY _____ DATE _____ SHEET# _____
 LOCATION _____

PIPE JOINER VISUAL INSPECTION CERTIFICATION

I HAVE VISUALLY INSPECTED ALL HEATED FUSIONS, SOLVENT, CEMENT, MECHANICAL JOINTS, AND WELDS THAT I HAVE PERFORMED

NAME _____ PJO# _____

2ND VISUAL INSPECTION CERTIFICATION

I HAVE VISUALLY INSPECTED ALL HEATED FUSIONS, SOLVENT, CEMENT AND MECHANICAL JOINTS THAT HAVE BEEN PERFORMED (INSPECTION OF FINAL JOINT ON PLASTIC PIPE ONLY)

NAME _____ PJO# _____

CONSTRUCTION

INSPECTOR _____ PJO# _____
 FOREMAN _____ PJO# _____
 REVIEWED BY _____ PJO# _____

Southwest Gas Corporation Confidential & Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes section § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation

NOT RELEASED FOR CONSTRUCTION
INFO COPY ONLY



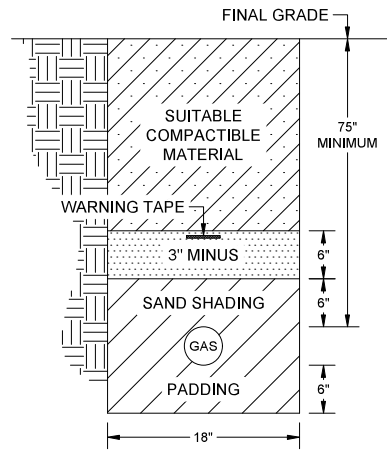
Southwest Gas Corporation Confidential and Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation.

REVISIONS				"K" SYSTEM	JOB TYPE	WR NO.	ENGINEER/TECHNICIAN	ANDY SAKS	PHONE: 480-730-3857			
				SYSTEM MAOP: 175	HP SERVICE <input type="checkbox"/>	3924489	ACCOUNT REP.	N/A	PHONE:			
				SYSTEM MOP: 175	DISTRIBUTION <input type="checkbox"/>		PROJECT CONTACT	ERIC LAURIN - CVL	PHONE: 602-285-4722			
NO.	DESCRIPTION	BY	DATE	APPVD.	FEEDER <input checked="" type="checkbox"/>	RELATED WR NO.S	SHEET NO.	2 OF 7	SCALE	N.T.S.	DATE	11/28/19
PERMIT INFORMATION	ISOLATION AREA	LOCATION	ATLAS OR TILE	SYSNAME2	TRANS, BY DEF <input type="checkbox"/>	N/A	DWN. BY	SWG - AJS9	CHKD. BY	APPVD. BY	FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL	
CITY OF SCOTTSDALE	152B	SWQ T2N R4E S35	13-45	SYSTEM MAOP: - SYSTEM MOP: -	TRANS > 20% <input type="checkbox"/>		SCOTTSDALE RD AND MCDOWELL RD		SCOTTSDALE, AZ 85257			

**MAIN INSTALLATION
DETAIL #306**



ENSURE ALL TRENCHES FOR MAIN & SERVICES ARE BACKFILLED BEFORE GASSING UP FACILITIES.

DETAIL #556 - UNDOCUMENTED RATED FITTING

A. PLEASE DOCUMENT THE FOLLOWING:
 UNDOCUMENT FITTING FOUND ON PROJECT? YES NO
 TYPE OF FITTING FOUND: _____
 IS THE FITTING MAPPED? YES NO
 FITTING SIZE: _____
 PIPE SIZE & WALL THICKNESS READS: _____

FITTING RATING VISIBLE? YES NO **IF YES, FITTING RATING: _____
 FITTING RATED FOR CURRENT SYSTEM MOP/MAOP? YES NO
 **IF NO, CONTACT ENGINEERING PRIOR TO BACKFILLING FITTING.
 MANUFACTURER PART NO.: _____
 SERIAL NO.: _____
 OTHER STAMPED INFO: _____
 LOCATION FOUND (TIE DOWN): _____ GRID: _____
 GPS COORDINATES: _____
 DATE: _____
 SWG INSPECTOR: _____ PHONE: _____

B. PLEASE PROVIDE A CLEAR PHOTO OF THE FITTING (TOP VIEW & SIDE VIEWS).

PRE/POST CAMERA INSPECTIONS

PER THE MAIN AND SERVICE INSTALLATION PROCEDURE

	YES	NO
REQUIRED?	<input type="checkbox"/>	<input type="checkbox"/>
PERFORMED?	<input type="checkbox"/>	<input type="checkbox"/>

NAME _____
 DATE _____

**SEWER LATERAL
DETAIL #116**

METHOD USED TO LOCATE SEWER FOR POT HOLING CAMERA ELECTRONIC LOCATOR OTHER _____
 NUMBER OF SEWER LATERALS POT HOLED _____
 NUMBER OF SEWER LATERALS CROSSED BY BORE METHOD _____
 NUMBER OF SEWER LATERALS EXPOSED DURING BORE CROSSING _____

ALL KNOWN SEWER LATERALS CROSSED BY BORE WERE EXPOSED DURING THE BORE CROSSING(S)
 SIGNATURE OF BORE OPERATOR (PERSON WHO ENSURED CLEARANCE WHEN CROSSING) _____
 SIGNATURE OF INSPECTOR _____

INSPECTOR: IF THE NUMBER OF LATERALS CROSSED BY BORE IS GREATER THAN THE NUMBER OF LATERALS EXPOSED YOU MUST PROVIDE AN EXPLANATION.
 SUPERVISOR: ANY SEWERS NOT EXPOSED DURING THE BORE CROSSING MUST BE INSPECTED BY CAMERA OR POTHOLED TO ENSURE PROPER CLEARANCE.

Southwest Gas Corporation Confidential & Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes section § 41-4272.

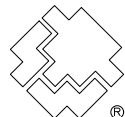
This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation

NOT RELEASED FOR CONSTRUCTION
INFO COPY ONLY

CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION



CALL 811 OR CLICK ARIZONA811.COM



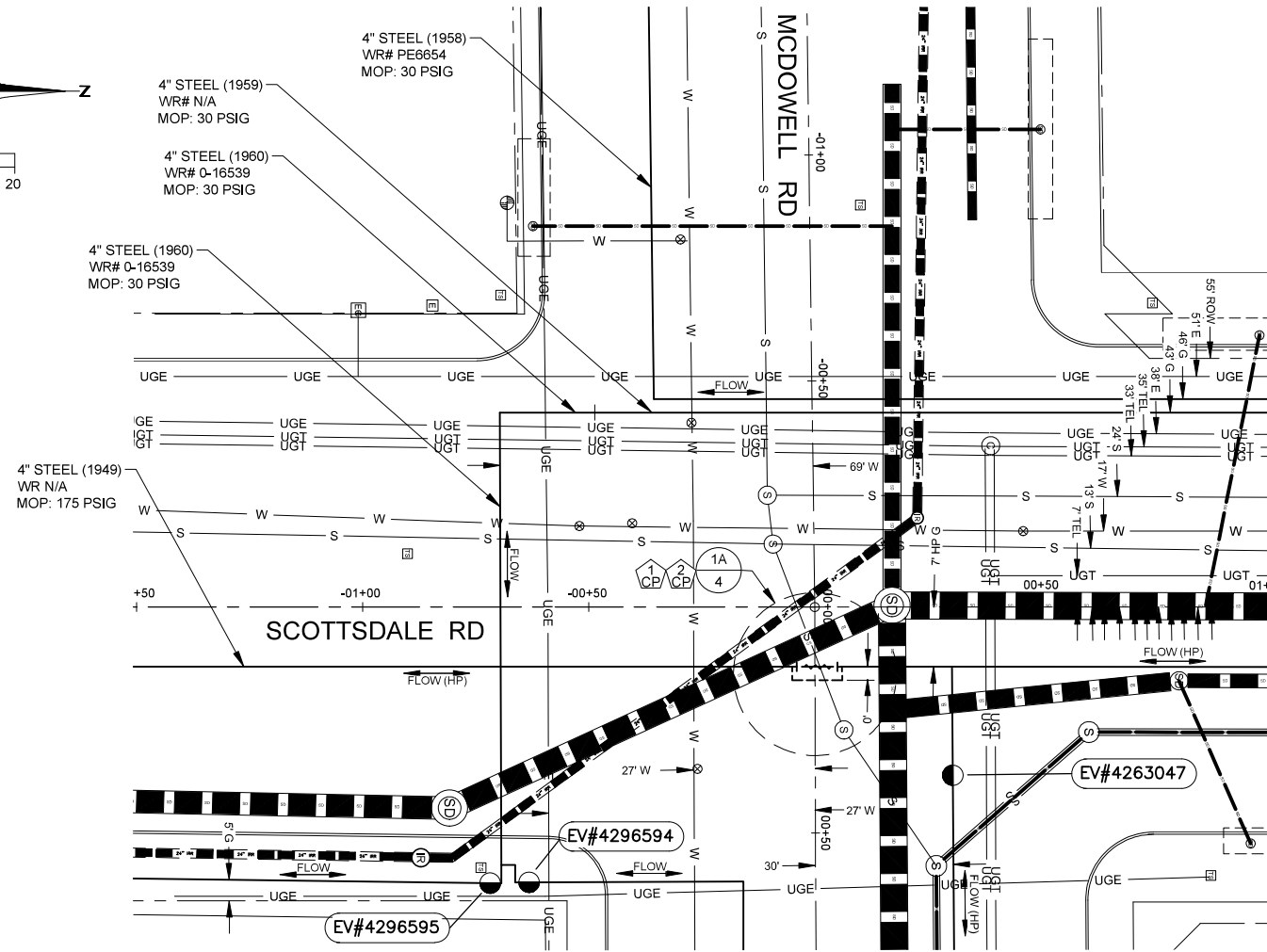
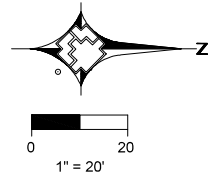
SOUTHWEST GAS CORPORATION

Southwest Gas Corporation Confidential and Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation.

REVISIONS				"K" SYSTEM	JOB TYPE	WR NO.	ENGINEER/TECHNICIAN	ANDY SAKS	PHONE: 480-730-3857			
				SYSTEM MAOP:	175	3924489	ACCOUNT REP.	N/A	PHONE:			
				SYSTEM MOP:	175		PROJECT CONTACT	ERIC LAURIN - CVL	PHONE: 602-285-4722			
NO.	DESCRIPTION	BY	DATE	APPVD.		RELATED WR NO.S	SHEET NO.	3 OF 7	SCALE	N.T.S.	DATE	11/28/19
							DWN. BY	SWG - AJS9	CHKD. BY		APPVD. BY	
PERMIT INFORMATION	ISOLATION AREA	LOCATION	ATLAS OR TILE	SYSNAME2		N/A	FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL					
CITY OF SCOTTSDALE	152B	SWQ T2N R4E S35	13-45	SYSTEM MAOP:	-		TRANS, BY DEF	<input type="checkbox"/>	SCOTTSDALE RD AND MCDOWELL RD			
				SYSTEM MOP:	-	TRANS > 20%	<input type="checkbox"/>	SCOTTSDALE, AZ 85257				



- FOR STEEL ONLY: ST15
HPE TO SOIL _____
- ANODE INSTALLED
 YES
 NO
 IF YES, PIPE TO SOIL _____
- NEW TYPE OF PIPE COATING
 (2) TAR WRAP
 (3) ASPHALT
 (4) PRITEC
 (5) FUSION BONDED EPOXY (FBE)
 (6) PLASTIC TAPE WRAP
 (8) EXTRUDED POLY COATING
 (10) OTHER _____
 IF OTHER: _____
- CONDITION OF PIPE COATING
 EXCELLENT (E)
 GOOD (G)
 FAIR (F)
 POOR (P)
 NO COATING (N)
- EXTERNAL CONDITION OF PIPE
 EXTERNAL GOOD (EG)
 EXTERNAL SLIGHT CORROSION (ESC)
 EXTERNAL HEAVY CORROSION (EHC)
- INTERNAL CONDITION OF PIPE (IF CUT OR COUPON)
 NA
 INTERNAL GOOD (IG)
 INTERNAL SLIGHT CORROSION (ISC)
 INTERNAL HEAVY CORROSION (IHC)
- EXISTING TYPE OF PIPE COATING
 (2) TAR WRAP
 (3) ASPHALT
 (4) PRITEC
 (5) FUSION BONDED EPOXY (FBE)
 (6) PLASTIC TAPE WRAP
 (8) EXTRUDED POLY COATING
 (10) OTHER _____
 IF OTHER: _____

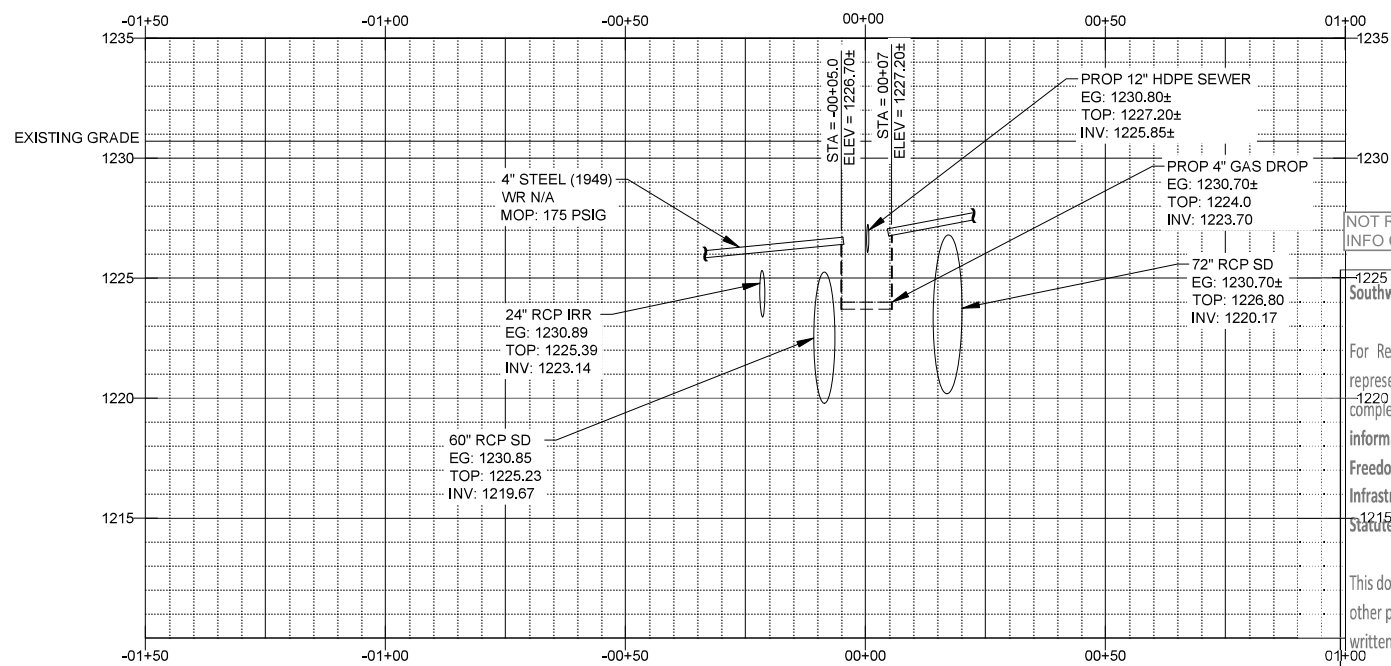
HIGH PRESSURE MATERIALS LIST						
CODE	DESIGN QTY.	AS-BUILT QTY.	STOCK ID	DESCRIPTION	SEAM	COATING
1	20'		100-1024	PIPE, STEEL, CTD, X-52, 4.5" X 0.237" WT, ERW		
2	2		160-8185	4" TEE SPHERICAL, 3-WAY, 300-D, TDW	N/A	N/A
3	2		140-4123	4" ELBOW STEEL WELD 90 DEG, Y-52	N/A	N/A
4	2		160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG, MULR	N/A	N/A
5	2		140-3031	4" CAP STEEL WELD, 0.237" WT, Y-52	N/A	N/A
6	1		160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG, MULR	N/A	N/A

ABANDON FACILITIES				
CODE	DESIGN QTY.	AS-BUILT QTY.	DESCRIPTION	YEAR
1	9'		4" STEEL, WR# N/A, MOP: 175 PSIG	1949

- CONSTRUCTION NOTES**
- 1 TEST AND TIE-IN NEW 4" STEEL DROP SECTION TO EXISTING 4" STEEL USING 4" SPHERICAL FITTINGS, SEE DETAIL "1A"
- CATHODIC PROTECTION NOTES**
- CP STEEL PIPE IS PROTECTED BY IMPRESSED CURRENT FACILITY 42DCP0084789
- DO NOT LEAVE OR CREATE ANY ISOLATED STEEL
- CP TECH: SAMUEL YBARRA DATE: 12/04/2019 PHONE: 602-484-5313

PROFILE "1A"

HORIZ. 1" = 20' VERT. 1" = 2'
 VERIFY DEPTH OF ALL EXISTING UTILITIES - 2' MIN. CLEARANCE DEPTHS/ELEVATIONS SHOWN TO TOP OF PIPE



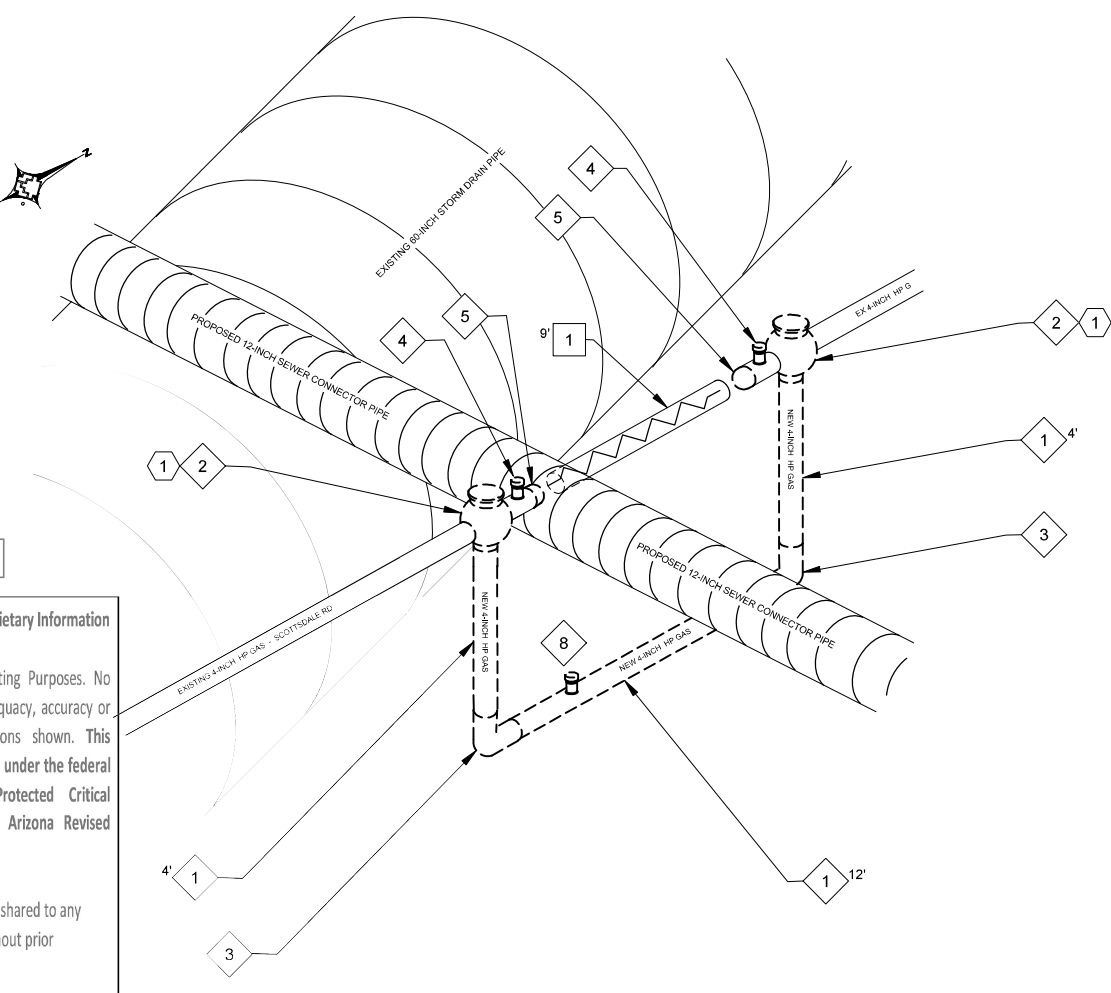
NOT RELEASED FOR CONSTRUCTION
 INFO COPY ONLY

Southwest Gas Corporation Confidential & Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes section § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation

1A ISO DETAIL
 4 N.T.S.



CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION CALL 811 OR CLICK ARIZONA811.COM	 SOUTHWEST GAS CORPORATION	Southwest Gas Corporation Confidential and Proprietary Information For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes § 41-4272. This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation.				REVISIONS NO. DESCRIPTION BY DATE APPVD.	"K" SYSTEM SYSTEM MAOP: 175 SYSTEM MOP: 175	JOB TYPE HP SERVICE <input type="checkbox"/> DISTRIBUTION <input type="checkbox"/> FEEDER <input checked="" type="checkbox"/> TRANS. BY DEF <input type="checkbox"/> TRANS > 20% <input type="checkbox"/>	WR NO. 3924489	ENGINEER/TECHNICIAN ANDY SAKS ACCOUNT REP. N/A PROJECT CONTACT ERIC LAURIN - CVL SHEET NO. 4 OF 7 SCALE 1" = 20' DATE 11/28/19 DWN. BY SWG - AJS9 CHKD. BY APPVD. BY	PHONE: 480-730-3857 PHONE: 602-285-4722 DATE 11/28/19 APPVD. BY
		PERMIT INFORMATION CITY OF SCOTTSDALE ISOLATION AREA 152B LOCATION SWQ T2N R4E S35 ATLAS OR TILE 13-45	SYSNAME2 SYSTEM MAOP: - SYSTEM MOP: -	RELATED WR NO.S N/A	FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL SCOTTSDALE RD AND MCDOWELL RD SCOTTSDALE, AZ 85257						

TEST DATA SHEET	CAZ - 3924489 - 02 - 3924489 - TEST TREE
TEST LOCATION: SCOTTSDALE RD AND MCDOWELL RD	DDR STATUS: CALCULATED
EXISTING CLASS LOCATION: 3 SYSTEM MAOP: 175.0 SYSTEM MOP: 175.0	DESIGN CLASS LOCATION: 3 DESIGN MAOP: 720 CLASSIFICATION: HP DISTRIBUTION SYSTEM NAME: KSYS SUBSYSTEM NAME: KSYS
MIN TEST PRESSURE: 1080 PSIG MAX TEST PRESSURE: 1180 PSIG	TEST MEDIUM: NITROGEN MIN TEST DURATION: 1:00 HRS TESTING GROUP: CONSTRUCTION FABRICATED ASSEMBLY: YES
GENERAL NOTES:	
LAST UPDATED BY: ANDREW SAKS	DATE: 09-DEC-19 DDCA CAZ - 3924489 - 02

NO.	NOTES	DESIGN QTY	U	ITEM NO.	DESCRIPTION	PIPE ATTRIBUTES				% SMYS AT:			RATED COMPONENTS (PSIG)	
						ADD	WT	SEAM	GRACE	MO ²	DESIGN MAOP	MAX TEST PRESSURE	PRESSURE RATING	MAX TEST PRESSURE
1	B	1	EA	852-0539	NIPPLE STEEL GRAY COAT XH SCH 80 1/2" X 6"	0.840	0.147	SMLS	B 35K	1.42	5.87	9.64		
2	B	8	EA	852-0531	NIPPLE STEEL GRAY COAT XH SCH 80 1/2" X 2"	0.840	0.147	SMLS	B 35K	1.42	5.87	9.64		
3	B	2	EA	852-1150	NIPPLE SWAGE STL XH 1/2" X 1/4" THREADED N	0.840	0.147	SMLS	B 35K	1.42	5.87	9.64		
4	B	4	EA	852-0701	NIPPLE STL UNCOAT SCH 80 1/4" X 2" T-THREADED	0.840	0.119	SMLS	B 35K	1.13	4.66	7.65		
14	B	1	EA	856-9410	THREADOLET STL 3"-8" X 1/2" 3000 LB NMDA	0.840	0.147	SMLS	B 35K	1.42	5.87	9.64		
15	B	1	EA	856-9410	THREADOLET STL 3"-8" X 1/2" 3000 LB NMDA	0.840	0.147	SMLS	B 35K	1.42	5.87	9.64		
3	B	3	EA	856-9306	TEE FORGED CS 1/2" THREADED 2000 LB NMDA	0.840							6300	6300
9	B	2	EA	856-9028	ELBOW FCS 1/2" 90 DEG THREADED 2000 LB NM	0.840							6300	6300
10	B	2	EA	856-9305	TEE FORGED CS 1/4" THREADED 2000 LB NMDA	0.840							7933	7933
11	B	1	EA	856-8886	COUPLING FS STD 1/2" NPT TAPERED THREAD	0.840							6300	6300
12	B	4	EA	856-9708	PLUG FS SQUARE HEAD SOLID 1/4" THREADED	0.840							7933	7933
13	B	3	EA	856-9709	PLUG FS SQUARE HEAD SOLID 1/2" THREADED	0.840							6300	6300
16	B	1	EA	288-7502	THERMOWELL THREADED INSERTION LGTH2-1	0.500							3000	4500
5	B	2	EA	126-4116	VALVE BALL 1/2" NCH TREADED ENDS 5000 PSI	0.500							5000	5000
3	B	4	EA	126-4117	VALVE BALL 1/4" NCH TREADED ENDS 5000 P	0.250							5000	5000
7	B	2	EA	126-4232	VALVE NEEDLE CS 1/2" F X F 6000 PSIG KRROT	0.840							6000	6000

NOTES:
B - TEST ONLY. REMOVE AFTER TEST. DO NOT INSTALL.

** END OF TEST DATA SHEET CAZ - 3924489 - 02 - 3924489 - TEST TREE **

AS-BUILT DRAWING-PRESSURE TEST DATA TEST #

DESCRIPTION: _____ TEST MEDIUM: AIR NITROGEN WATER NATURAL GAS TEST METHOD: GAUGE CHART SOAP

TEST POINTS: _____ PIPE DIA: _____ GAUGE SN#: _____ TOTAL LENGTH: _____ PRESS REC FID#: _____

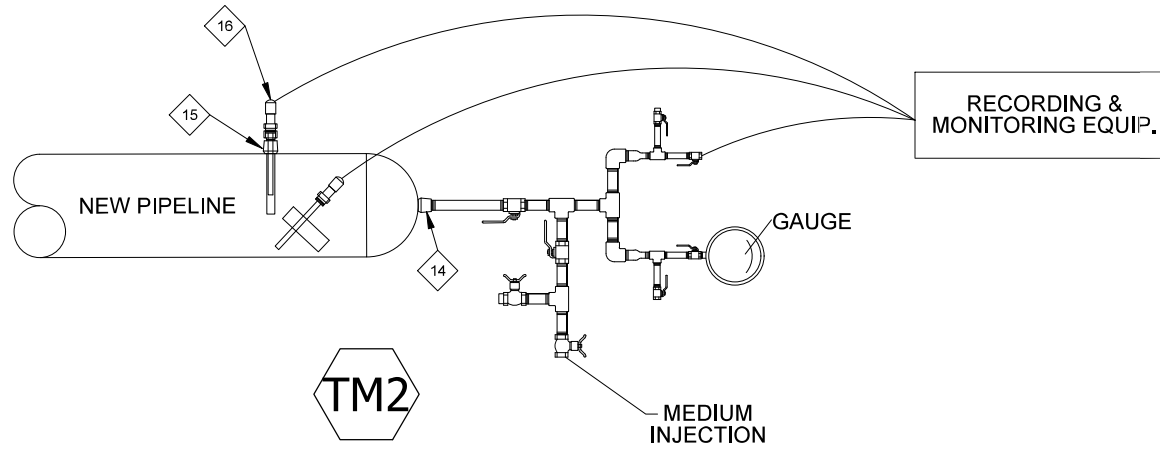
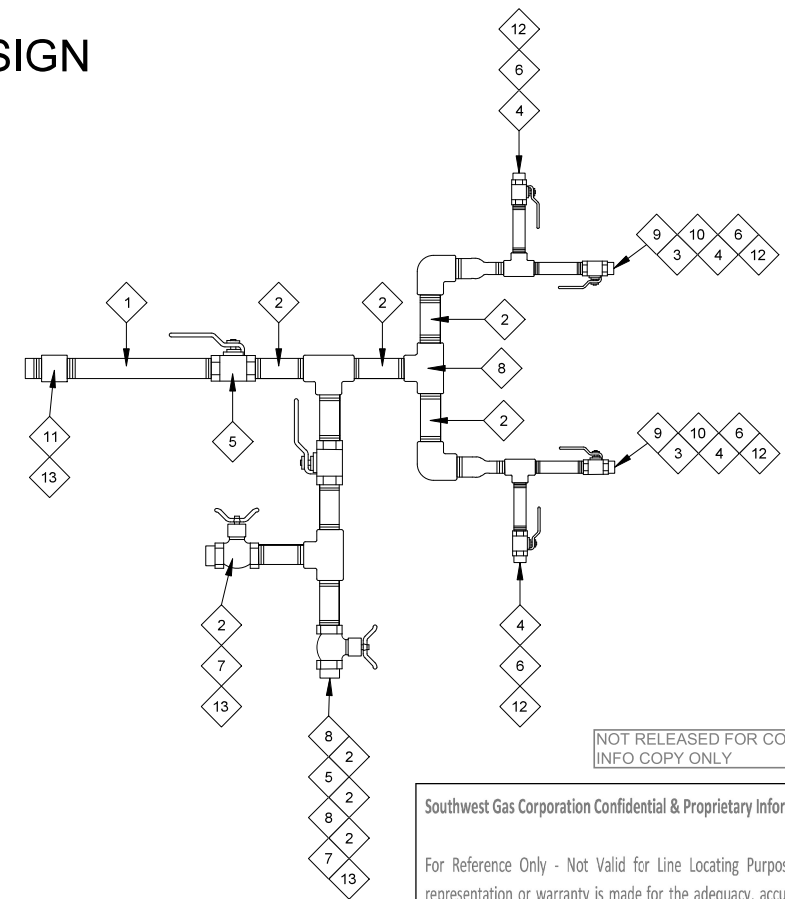
PRESSURE (ALL TESTS) (START) _____ (STOP) _____ PRESSURE (CHART ONLY) (MIN) _____ (MAX) _____ TIME (START) _____ (STOP) _____ DATE (START) _____ (STOP) _____

INTERMEDIATE LEAK TEST YES NO LEAK SURVEY WR# (NATURAL GAS TEST ONLY) _____ ANY LEAKS OR FAILURES ON A TEST YES NO IF YES, NOTE THE LEAKS AND FAILURES AND THEIR DISPOSITION: _____

PERFORMED BY (PRINT NAME AND EMPLOYEE # OR CONTRACTOR #): _____ TESTING COMPANY NAME: _____

PRESSURE TEST TREE DESIGN

N.T.S.



NOT RELEASED FOR CONSTRUCTION
INFO COPY ONLY

Southwest Gas Corporation Confidential & Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes section § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation

MAOP DETERMINED USING THE FOLLOWING TEST METHODS FOR SPECIFIED SECTIONS:

TM1 TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH WATER (150 HYDRO)

TM2 TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH AIR, NITROGEN, OR NATURAL GAS (150 OTHER)

CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

ARIZONA 811

CALL 811 OR CLICK ARIZONA811.COM



Southwest Gas Corporation Confidential and Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation.

REVISIONS				"K" SYSTEM	JOB TYPE	WR NO.	ENGINEER/TECHNICIAN	PHONE:
				SYSTEM MAOP: 175	HP SERVICE <input type="checkbox"/>	3924489	ANDY SAKS	480-730-3857
				SYSTEM MOP: 175	DISTRIBUTION <input type="checkbox"/>		N/A	PHONE: 602-285-4722
NO.	DESCRIPTION	BY	DATE	APPVD.	FEEDER <input checked="" type="checkbox"/>	RELATED WR NO.S	PROJECT CONTACT	DATE
					TRANS. BY DEF <input type="checkbox"/>	N/A	ERIC LAURIN - CVL	11/28/19
					TRANS > 20% <input type="checkbox"/>		DWN. BY	SCALE
PERMIT INFORMATION	ISOLATION AREA	LOCATION	ATLAS OR TILE	SYSNAME2		CHKD. BY	APPVD. BY	
CITY OF SCOTTSDALE	152B	SWQ T2N R4E S35	13-45	SYSTEM MAOP: -				
				SYSTEM MOP: -				

FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL SCOTTSDALE RD AND MCDOWELL RD SCOTTSDALE, AZ 85257

TEST DATA SHEET			CAZ - 3924489 - 01 - DROP SECTION		
TEST LOCATION: SCOTTSDALE RD AND MCDOWELL RD	DDR STATUS: CALCULATED				
EXISTING CLASS LOCATION: 3 SYSTEM MAOP: 175.0 SYSTEM MOP: 175.0	DESIGN CLASS LOCATION: 3 DESIGN MAOP: 720	CLASSIFICATION: HP DISTRIBUTION SYSTEM NAME: KSYS SUBSYSTEM NAME: KSYS			
MIN TEST PRESSURE: 1080 PSIG MAX TEST PRESSURE: 1180 PSIG	TEST MEDIUM: NITROGEN MIN TEST DURATION: 1:00 HRS	TESTING GROUP: CONSTRUCTION FABRICATED ASSEMBLY: YES			
INTERMEDIATE LEAK TEST REQUIRED BETWEEN 100 PSIG AND 1095 PSIG.					
GENERAL NOTES:					
LAST UPDATED BY: ANDREW SAKS		DATE: 16-DEC-19		DDCA CAZ - 3924489 - 01	

TEST DATA SHEET CAZ - 3924489 - 01 - DROP SECTION														
NO.	NOTES	DESIGN QTY	U	ITEM NO.	DESCRIPTION	PIPE ATTRIBUTES				% SMYS AT:		RATED COMPONENTS (PSIG)		
						ADD	WT	SEAM	GRADE	MO	DESIGN MAOP	MAX TEST PRESSURE	PRESSURE RATING	MAX TEST PRESSURE
1		20	FT	100-1024	PIPE STL CTD X-52 ERW 4-1/2" X 3.237" WT NMD	4.500	0.237	HFWERW	X52	3.19	13.4	21.55		
3		2	EA	140-4123	ELBOW STL WLC 4" 90 DEGREE STD WT 4-52	4.500	0.237	DSAW	Y52	3.19	13.4	21.55		
5	A	2	EA	140-3031	CAP STEEL WELD 4" 4-1/2" OD 0.237" WT WPHY	4.500	0.237	DSAW	Y52	3.19	13.4	21.55		
7	B	2	EA	140-3031	CAP STEEL WELD 4" 4-1/2" OD 0.237" WT WPHY	4.500	0.237	DSAW	Y52	3.19	13.4	21.55		
2	A	2	EA	160-8185	TEE SPHERICAL 3-WAY 4" 300D W/BAFS TDWL	4.500							740	1110
4	A	2	EA	160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG	2.375							1440	2150
6	B	1	EA	160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG	2.375							1440	2150
8	B	1	EA	160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG	2.375							1440	2150

NOTES:
A - DO NOT TEST. ITEM NOT PART OF TEST PER SWG OPERATIONS MANUAL REQUIREMENTS.
B - TEST ONLY. REMOVE AFTER TEST. DO NOT INSTALL.

** END OF TEST DATA SHEET CAZ - 3924489 - 01 - DROP SECTION **

AS-BUILT DRAWING-PRESSURE TEST DATA			TEST #
DESCRIPTION:	TEST MEDIUM	TEST METHOD	
	<input type="checkbox"/> AIR	<input type="checkbox"/> GAUGE	
	<input type="checkbox"/> NITROGEN	<input type="checkbox"/> CHART	
	<input type="checkbox"/> WATER	<input type="checkbox"/> SOAP	
	<input type="checkbox"/> NATURAL GAS		
TEST POINTS			
PIPE DIA.		GAUGE SN#	
TOTAL LENGTH		PRESS REC FID#	
PRESSURE (ALL TESTS) (START)		(STOP)	
PRESSURE (CHART ONLY) (MIN)		(MAX)	
TIME (START)		(STOP)	
DATE (START)		(STOP)	
INTERMEDIATE LEAK TEST	YES <input type="checkbox"/> NO <input type="checkbox"/>		
LEAK SURVEY WR# (NATURAL GAS TEST ONLY)			
ANY LEAKS OR FAILURES ON A TEST	YES <input type="checkbox"/> NO <input type="checkbox"/>		
IF YES, NOTE THE LEAKS AND FAILURES AND THEIR DISPOSITION.			
PERFORMED BY (PRINT NAME AND EMPLOYEE # OR CONTRACTOR #):			
TESTING COMPANY NAME:			

DETAIL 554

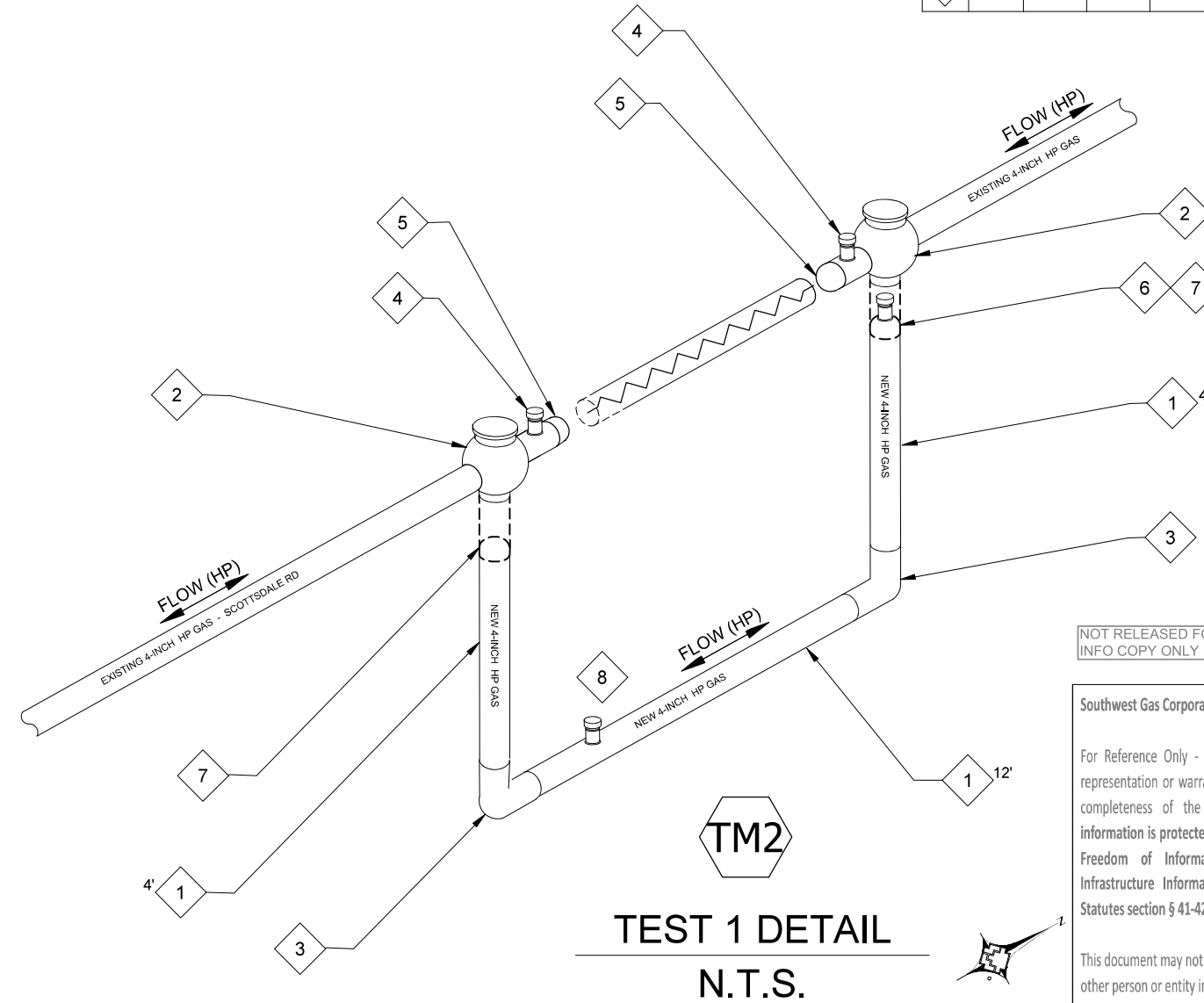
MAOP DETERMINED USING THE FOLLOWING TEST METHODS FOR SPECIFIED SECTIONS:

- TM1 TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH WATER (150 HYDRO)
- TM2 TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP, TESTED WITH AIR, NITROGEN, OR NATURAL GAS (150 OTHER)

DETAIL 555

NOTE: MAOP ESTABLISHED USING NITROGEN, AIR OR GAS AT A TEST PRESSURE EXCEEDING OR EQUAL TO 150% MAOP. (150 OTHER)

HIGH PRESSURE MATERIALS LIST						
CODE	DESIGN QTY.	AS-BUILT QTY.	STOCK ID	DESCRIPTION	SEAM	COATING
1	20'		100-1024	PIPE, STEEL, CTD, X-52, 4.5" X 0.237" WT, ERW		
2	2		160-8185	4" TEE SPHERICAL, 3-WAY, 300-D, TDW	N/A	N/A
3	2		140-4123	4" ELBOW STEEL WELD 90 DEG, Y-52	N/A	N/A
4	2		160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG, MULR	N/A	N/A
5	2		140-3031	4" CAP STEEL WELD, 0.237" WT, Y-52	N/A	N/A
6	1		160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG, (TARE)	N/A	N/A
7	2		140-3031	4" CAP STEEL WELD, 0.237" WT, Y-52 (TARE)	N/A	N/A
8	1		160-6852	EQUALIZATION FITTING 2" X 3" MAOP 1440 PSIG, MULR	N/A	N/A



NOT RELEASED FOR CONSTRUCTION
INFO COPY ONLY

Southwest Gas Corporation Confidential & Proprietary Information
For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes section § 41-4272.
This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation

CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION

CALL 811 OR CLICK ARIZONA811.COM

Southwest Gas Corporation Confidential and Proprietary Information
For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes § 41-4272.
This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation.

REVISIONS			
NO.	DESCRIPTION	BY	DATE

PERMIT INFORMATION		ISOLATION AREA		LOCATION		ATLAS OR TILE	
CITY OF SCOTTSDALE	152B	SWQ T2N R4E S35	13-45				

"K" SYSTEM		JOB TYPE	
SYSTEM MAOP:	175	HP SERVICE	<input type="checkbox"/>
SYSTEM MOP:	175	DISTRIBUTION	<input type="checkbox"/>
SYSNAME2		FEEDER	<input checked="" type="checkbox"/>
SYSTEM MAOP:	-	TRANS. BY DEF	<input type="checkbox"/>
SYSTEM MOP:	-	TRANS > 20%	<input type="checkbox"/>

WR NO.	ENGINEER/TECHNICIAN	ANDY SAKS	PHONE: 480-730-3857
3924489	ACCOUNT REP.	N/A	PHONE: 602-285-4722
	PROJECT CONTACT	ERIC LAURIN - CVL	DATE 11/28/19
	SHEET NO. 6 OF 7	SCALE NTS	APPVD. BY
	DWN. BY SWG - AJSJ	CHKD. BY	
RELATED WR NO.S	N/A		
FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL SCOTTSDALE RD AND MCDOWELL RD SCOTTSDALE, AZ 85257			

DOCUMENT ELECTRODE LOT NUMBERS
DETAIL 201A

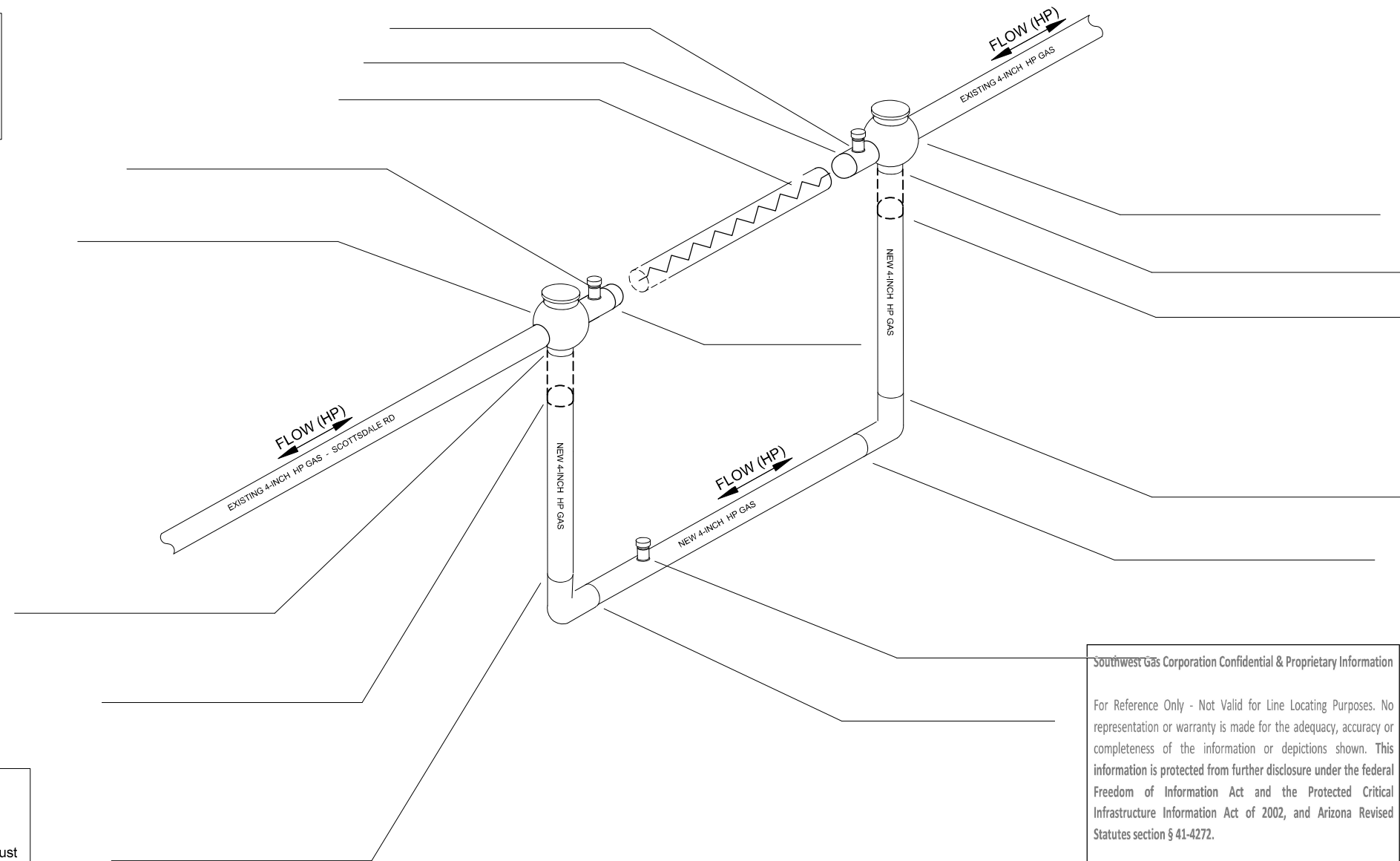
DOCUMENT LOT NUMBERS OF ALL WELDING ELECTRODES USED ON THIS PROJECT

MFR. _____ LOT# _____
MFR. _____ LOT# _____
MFR. _____ LOT# _____
MFR. _____ LOT# _____
MFR. _____ LOT# _____

DETAIL 201

THE FOLLOWING WELDING PROCEDURES WERE UTILIZED

WELD PROCEDURE
N.T.S.



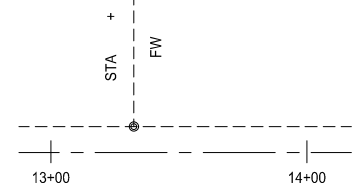
DETAIL 200

NON-DESTRUCTIVE TESTING

ALL HIGH PRESSURE WELDS SHALL BE NON-DESTRUCTIVELY TESTED. BUTT WELDS SHALL BE RADIOGRAPHICALLY TESTED AND ALL FILLET WELDS SHALL BE MAGNETIC PARTICLE TESTED IN ACCORDANCE WITH THE OPERATIONS MANUAL, STEEL WELDING PROCEDURES, NON-DESTRUCTIVE TESTING, SECTION 6. GPS ALL WELDS AND RECORD LOCATIONS ON THE AS-BUILT.

DETAIL 514

TYPICAL FIELD OR TIE-IN WELD STATION



DETAIL 207

EXISTING PIPE SPECIFICATIONS

EXPECTED:	FIELD TEST RESULTS*
4" STL 0.0830 WT GDB	W.T.

*CONSTRUCTION TO FIELD VERIFY USING NON-DESTRUCTIVE TESTING METHOD

DETAIL 201B

DOCUMENT PURCHASE ORDER NUMBER (P.O.) OF STEEL PIPE INSTALLED HIGH PRESSURE (> 60#)

P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:
P.O. #:	SIZE:

DETAIL 207A

TRANSITION WELDS - CONNECTION METHOD

If wall thickness between pipe ends or pipe and fitting ends exceeds 3/32" or 0.09375", request transitional pipe, if available, to eliminate back welding and taper bores. When back welding and/or taper bore are required, Engineering must approve and Construction must indicate location, revised wall thickness of the modified component and method of each connection made on the weld diagram next to the weld #

NOTE: GPS ALL NEW WELDS AND EXISTING WELDS UNCOVERED IN THE TRENCH DURING CONSTRUCTION. ENSURE W.T. READS ARE TAKEN

Southwest Gas Corporation Confidential & Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes section § 41-4272.

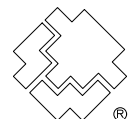
This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation

NOT RELEASED FOR CONSTRUCTION
INFO COPY ONLY

CONTACT ARIZONA 811 AT LEAST TWO FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION



CALL 811 OR CLICK ARIZONA811.COM



SOUTHWEST GAS CORPORATION

Southwest Gas Corporation Confidential and Proprietary Information

For Reference Only - Not Valid for Line Locating Purposes. No representation or warranty is made for the adequacy, accuracy or completeness of the information or depictions shown. This information is protected from further disclosure under the federal Freedom of Information Act and the Protected Critical Infrastructure Information Act of 2002, and Arizona Revised Statutes § 41-4272.

This document may not be copied, distributed, or shared to any other person or entity in any manner or form without prior written consent of Southwest Gas Corporation.

REVISIONS				"K" SYSTEM	JOB TYPE	WR NO.	ENGINEER/TECHNICIAN	PHONE:
				SYSTEM MAOP: 175	HP SERVICE <input type="checkbox"/>	3924489	ANDY SAKS	480-730-3857
				SYSTEM MOP: 175	DISTRIBUTION <input type="checkbox"/>		N/A	PHONE: 602-285-4722
NO.	DESCRIPTION	BY	DATE	APPVD.	FEEDER <input checked="" type="checkbox"/>	RELATED WR NO.S	PROJECT CONTACT	DATE
PERMIT INFORMATION	ISOLATION AREA	LOCATION	ATLAS OR TILE	SYSNAME2	TRANS. BY DEF <input type="checkbox"/>	N/A	ERIC LAURIN - CVL	11/28/19
CITY OF SCOTTSDALE	152B	SWQ T2N R4E S35	13-45	SYSTEM MAOP: - SYSTEM MOP: -	TRANS > 20% <input type="checkbox"/>		SWG - AJSJ	CHKD. BY
FRE SCOT PD SCOTTSDALE MCDOWELL MAIN REPL SCOTTSDALE RD AND MCDOWELL RD SCOTTSDALE, AZ 85257								

APPENDIX F

ON-SITE SEWER CALCULATIONS

**ON-SITE SEWER ANALYSIS
SCOTTSDALE ENTRADA**

Upstream MH	Downstream MH	ID	# of Units (DU or sf)	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
BEGIN ON-SITE																					
31	30	Bldg 1	44.20	140.0	6,188	6,188	4.5	27,846	27,846												
						6,188			27,846	1287.76	24	8	0.0053	11.20	1275.89	1275.76	568,495	5%	2.5	1.31	0.15
30	29		0.00	0.0	0	0	0.0	0	0												
					6,188	6,188		27,846	27,846												
						6,188			27,846	1286.90	193	8	0.0053	10.57	1275.66	1274.63	570,636	5%	2.5	1.31	0.15
29	28		0.00	0.0	0	0	0.0	0	0												
					6,188	6,188		27,846	27,846												
						6,188			27,846	1284.80	47	8	0.0053	9.60	1274.53	1274.28	568,495	5%	2.5	1.31	0.15
28	27	Office	243,503.00	0.4	97,401	97,401	3.0	292,204	292,204												
					6,188	103,589		27,846	320,050												
						103,589			320,050	1284.73	50	8	0.0053	9.88	1274.18	1273.92	565,807	57%	2.5	2.59	0.54
27	26		0.00	0.0	0	0	0.0	0	0												
					103,589	103,589		320,050	320,050												
						103,589			320,050	1284.71	54	8	0.0053	10.22	1273.82	1273.54	565,807	57%	2.5	2.59	0.54
26	25		0.00	0.0	0	0	0.0	0	0												
					103,589	103,589		320,050	320,050												
						103,589			320,050	1284.36	164	8	0.0053	10.26	1273.44	1272.57	567,421	56%	2.5	2.60	0.54
25	24	Bldg 1	44.20	140.0	6,188	6,188	4.5	27,846	27,846												
					103,589	109,777		320,050	347,896												
						109,777			347,896	1283.67	102	8	0.0070	10.53	1272.47	1271.76	651,000	53%	2.9	2.94	0.52
24	23	Restaurant 1	6,516.00	1.2	7,819	7,819	6.0	46,915	46,915												
		Bldg 1	44.20	140.0	6,188	14,007	4.5	27,846	74,761												
					109,777	123,784		347,896	422,657												
						123,784			422,657	1281.56	76	8	0.0090	9.23	1271.66	1270.98	740,815	57%	3.3	3.40	0.54
23	22	Restaurant 2	2,414.00	1.2	2,897	2,897	6.0	17,381	17,381												
					123,784	126,681		422,657	440,038												
						126,681			440,038	1279.66	38	8	0.0100	8.11	1270.88	1270.50	780,888	56%	3.5	3.57	0.54
22	21		0.00	0.0	0	0	0.0	0	0												
					126,681	126,681		440,038	440,038												
						126,681			440,038	1279.18	100	8	0.0100	8.11	1270.40	1269.40	780,888	56%	3.5	3.57	0.54
35	34	Pool 2	1.00	14,400.0	14,400	14,400	1.0	14,400	14,400												
		Bldg 1	44.20	140.0	6,188	20,588	4.5	27,846	42,246												
		Bldg 2	35.20	140.0	4,928	25,516	4.5	22,176	64,422												
		Bldg 1	44.20	140.0	6,188	31,704	4.5	27,846	92,268												
						31,704			92,268	1284.35	178	8	0.0053	11.46	1272.22	1271.28	568,495	16%	2.5	1.86	0.27
34	33		0.00	0.0	0	0	0.0	0	0												
					31,704	31,704		92,268	92,268												
						31,704			92,268	1280.35	37	8	0.0053	8.50	1271.18	1270.98	568,495	16%	2.5	1.86	0.27

**ON-SITE SEWER ANALYSIS
SCOTTSDALE ENTRADA**

Upstream MH	Downstream MH	ID	# of Units (DU or sf)	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D	
33	32		0.00	0.0	0	0	0.0	0	0													
					31,704	31,704		92,268	92,268													
						31,704			92,268	1280.76	169	8	0.0053	9.21	1270.88	1269.98	570,636	16%	2.5	1.86	0.27	
32	21		0.00	0.0	0	0	0.0	0	0													
					31,704	31,704		92,268	92,268													
						31,704			92,268	1279.90	91	8	0.0053	9.35	1269.88	1269.40	568,495	16%	2.5	1.86	0.27	
21	19	Bldg 5	36.50	140.0	5,110	5,110	4.5	22,995	22,995													
		Bldg 2	35.20	140.0	4,928	10,038	4.5	22,176	45,171													
		22 to 21			126,681	136,719		440,038	485,209													
					31,704	168,423		92,268	577,477													
						168,423			577,477	1277.71	88	8	0.0150	7.74	1269.30	1267.98	956,388	60%	4.2	4.45	0.56	
20	19	Bldg 2	35.20	140.0	4,928	4,928	4.5	22,176	22,176													
		Pool 1	1.00	14,400.0	14,400	19,328	1.0	14,400	36,576													
						19,328			36,576	1276.28	181	8	0.0053	6.67	1268.95	1267.98	570,636	6%	2.5	1.42	0.17	
19	18		0.00	0.0	0	0	0.0	0	0													
		21 to 19			168,423	168,423		577,477	577,477													
					19,328	187,751		36,576	614,053													
						187,751			614,053	1276.93	141	10	0.0070	8.22	1267.88	1266.89	1,187,960	52%	3.4	3.41	0.51	
18	17		0.00	0.0	0	0	0.0	0	0													
					187,751	187,751		614,053	614,053													
						187,751			614,053	1275.39	28	10	0.0070	7.77	1266.79	1266.59	1,186,271	52%	3.4	3.40	0.51	
17	16	Bldg 5	36.50	140.0	5,110	5,110	4.5	22,995	22,995													
		Bldg 4	45.00	140.0	6,300	11,410	4.5	28,350	51,345													
					187,751	199,161		614,053	665,398													
						199,161			665,398	1275.36	357	10	0.0080	8.04	1266.49	1263.63	1,267,951	52%	3.6	3.65	0.51	
16	15		0.00	0.0	0	0	0.0	0	0													
					199,161	199,161		665,398	665,398													
						199,161			665,398	1272.34	37	10	0.0080	7.98	1263.53	1263.23	1,269,531	52%	3.6	3.65	0.51	
15	7		0.00	0.0	0	0	0.0	0	0													
					199,161	199,161		665,398	665,398													
						199,161			665,398	1271.81	162	10	0.0080	7.85	1263.13	1261.83	1,269,531	52%	3.6	3.65	0.51	
12	11	Bldg 2	35.20	140.0	4,928	4,928	4.5	22,176	22,176													
		Bldg 3	43.75	140.0	6,125	11,053	4.5	27,563	49,739													
						11,053			49,739	1274.51	181	8	0.0053	9.72	1265.46	1264.50	568,495	9%	2.5	1.55	0.20	
14	13	Bldg 3	43.75	140.0	6,125	6,125	4.5	27,563	27,563													
						6,125			27,563	1272.60	39	8	0.0053	7.62	1265.65	1265.44	568,495	5%	2.5	1.30	0.15	
13	11	0	0.00	0.0	0	0	0.0	0	0													
					6,125	6,125		27,563	27,563													
						6,125			27,563	1272.59	159	8	0.0053	7.92	1265.34	1264.50	568,495	5%	2.5	1.30	0.15	

ON-SITE SEWER ANALYSIS
SCOTTSDALE ENTRADA

Upstream MH	Downstream MH	ID	# of Units (DU or sf)	Unit Flow (gpd)	Average Day Flow (gpd)	Cumulative Avg Flow (gpd)	Peaking Factor	Peak Flow (gpd)	Cumulative Peak Flow (gpd)	Estimated Upstream Ground Elevation (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D	
11	10	Bldg 2	35.20	140.0	4,928	4,928	4.5	22,176	22,176													
		12 to 11			11,053	15,981		49,739	71,915													
					6,125	22,106		27,563	99,477													
						22,106			99,477	1274.10	134	8	0.0053	10.37	1264.40	1263.69	568,495	17%	2.5	1.90	0.28	
10	9		0.00	0.0	0	0	0.0	0	0													
					22,106	22,106		99,477	99,477													
						22,106			99,477	1274.71	162	8	0.0053	11.79	1263.59	1262.73	568,495	17%	2.5	1.90	0.28	
9	8	Bldg 3	43.75	140.0	6,125	6,125	4.5	27,563	27,563													
					22,106	28,231		99,477	127,040													
						28,231			127,040	1272.78	30	8	0.0053	10.82	1262.63	1262.47	568,495	22%	2.5	2.03	0.32	
8	7		0.00	0.0	0	0	0.0	0	0													
					28,231	28,231		127,040	127,040													
						28,231			127,040	1272.38	71	8	0.0053	10.68	1262.37	1261.99	568,495	22%	2.5	2.03	0.32	
7	3	Bldg 4	45.00	140.0	6,300	6,300	4.5	28,350	28,350													
		Bldg 3	43.75	140.0	6,125	12,425	4.5	27,563	55,913													
		15 to 7			199,161	211,586		665,398	721,310													
					28,231	239,817		127,040	848,350													
						239,817			848,350	1271.95	118	10	0.0100	9.39	1261.73	1260.55	1,415,844	60%	4.0	4.21	0.56	
On-Site Public Sewer																						
6	5	North Off-Site ¹	0.00	0.0	0	0	0.0	115,200	115,200													
						0			115,200	1266.57	88	10	0.0018	4.14	1261.60	1261.44	600,692	19%	1.7	1.32	0.30	
5	4		0.00	0.0	0	0	0.0	0	0													
					0	0		115,200	115,200													
						0			115,200	1270.71	214	10	0.0016	8.54	1261.34	1260.99	573,373	20%	1.6	1.27	0.30	
4	3		0.00	0.0	0	0	0.0	0	0													
					0	0		115,200	115,200													
						0			115,200	1271.17	267	10	0.0016	9.45	1260.89	1260.45	573,373	20%	1.6	1.27	0.30	
3	2		0.00	0.0	0	0	0.0	0	0													
		7 to 3			239,817	239,817		848,350	848,350													
					0	239,817		115,200	963,550													
						239,817			963,550	1271.34	288	15	0.0016	9.74	1260.35	1259.87	1,690,495	57%	2.1	2.21	0.54	
2	1		0.00	0.0	0	0	0.0	0	0													
					239,817	239,817		963,550	963,550													
						239,817			963,550	1270.39	70	15	0.0016	9.37	1259.77	1259.66	1,690,495	57%	2.1	2.21	0.54	
END ON-SITE																						

¹ For purpose of analysis, it is assumed the peak flow from the North Off-Site is the same as the 10" McDowell Road sewer peak monitored flow at Scottsdale Road (see Appendix D)

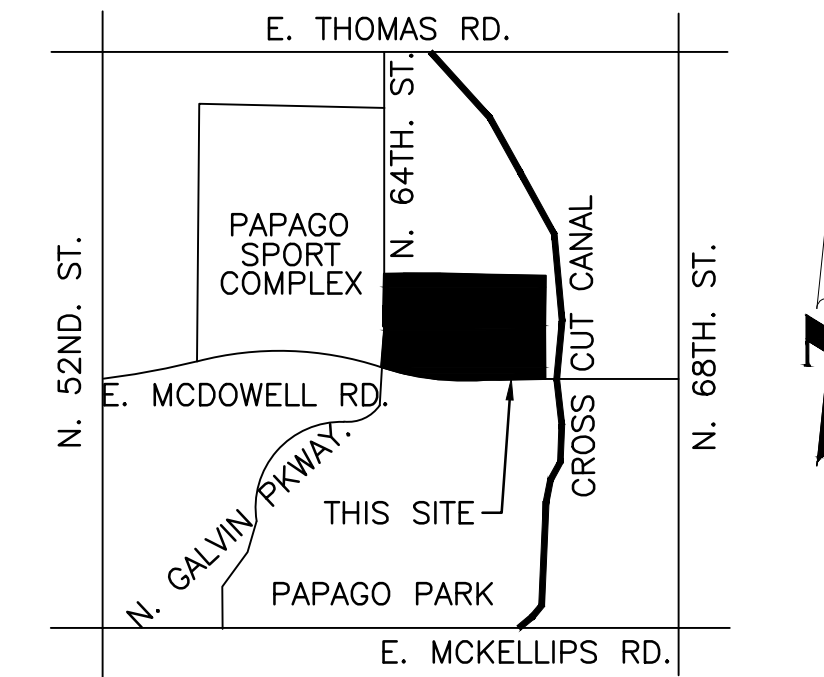
² Highlighted depths of cover denote 5 foot diameter manhole. All others are 4 foot diameter manholes.

acceptable low slope since no reasonable alternative exists

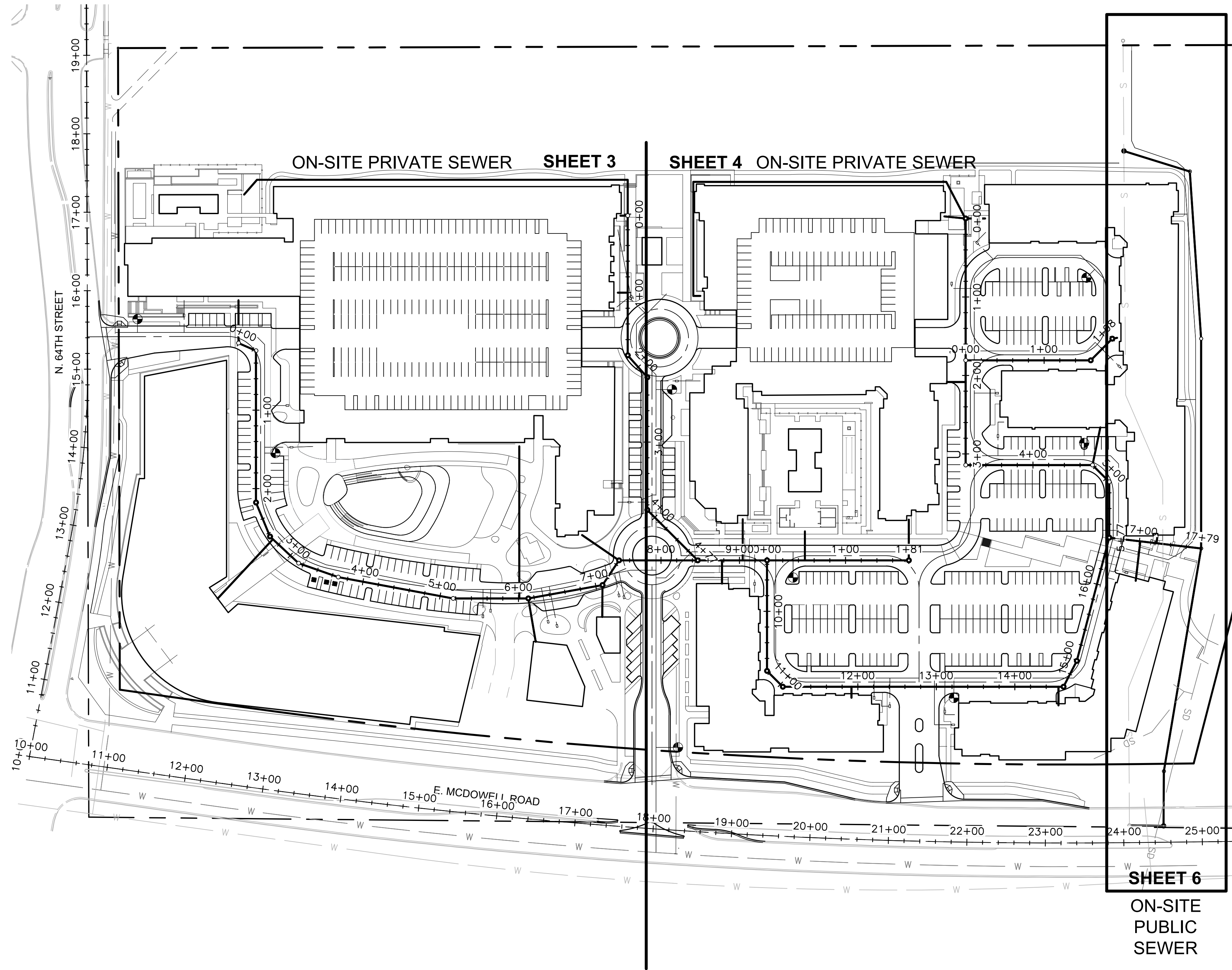
APPENDIX G
ON-SITE SEWER PLANS

MASTER WASTEWATER SYSTEM PLANS FOR SCOTTSDALE ENTRADA

A PORTION OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 2 NORTH, RANGE 4 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



VICINITY MAP
(NOT-TO-SCALE)



OWNERS

McDOWELL 64 LLC
8601 N. SCOTTSDALE RD.
SCOTTSDALE, AZ 85253

CAR COLLECTION LLC
5665 N. SCOTTSDALE RD.,
SUITE 135
SCOTTSDALE, AZ 85253

McDOWELL 6620 LLC
5665 N. SCOTTSDALE RD.,
SUITE 135
SCOTTSDALE, AZ 85250

McDOWELL 6500 LLC
5665 N. SCOTTSDALE RD.,
SUITE 135
SCOTTSDALE, AZ 85250

ENGINEER

COE & VAN LOO CONSULTANTS, INC.
4550 NORTH 12TH STREET
PHOENIX, ARIZONA 85014
PHONE: (602) 264-6831
FAX: (602) 264-0928
CONTACT: HEIDI TILSON
EMAIL: HTILSON@CVLCCI.COM

DEVELOOPER

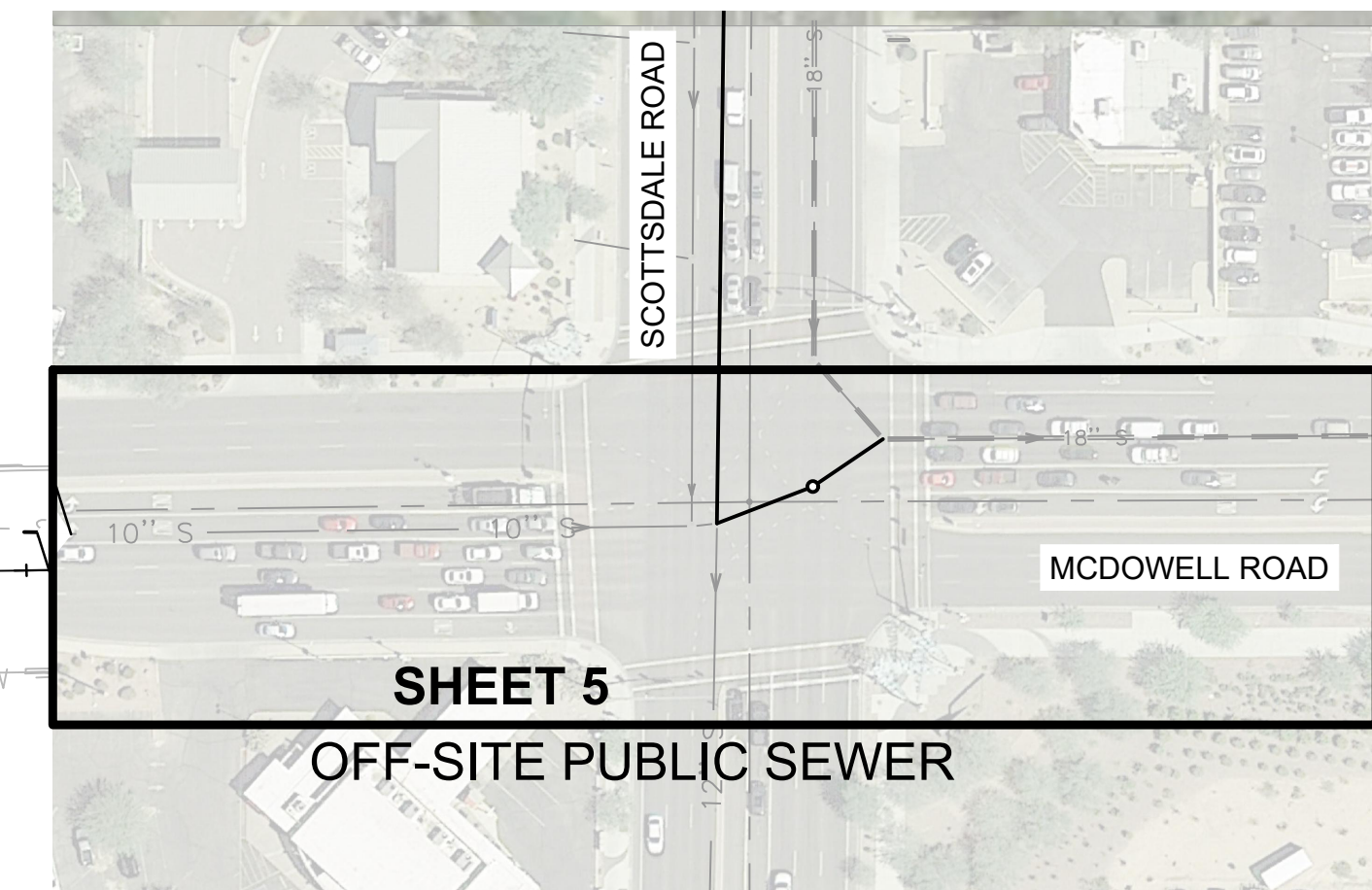
BRIDGE BANYAN
QUALIFIED OPPORTUNITY
ZONE BUSINESS I, LLC
2411 3RD STREET, UNIT E
SANTA MONICA, CA 90405

BASIS OF BEARING

THE BASIS OF BEARINGS IS GRID NORTH, ACCORDING TO DIRECT OBSERVATION ON THE ARIZONA STATE PLANE COORDINATE SYSTEM, PROJECTION OF THE CENTRAL ZONE, NAD-83.

BENCHMARK

THE SOUTH WEST 1/4 CORNER SECTION 34,
TOWNSHIP 2 NORTH, RANGE 4 EAST
ELEVATION 1284.45



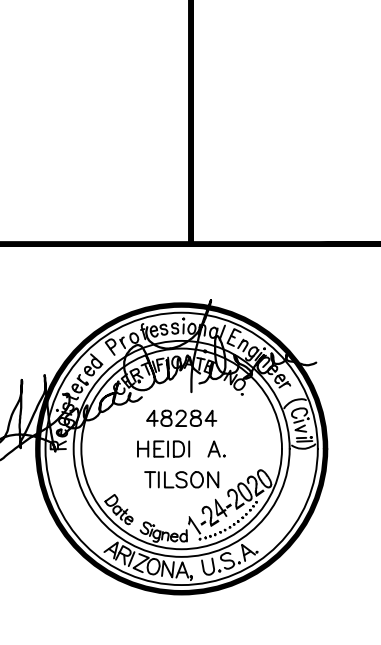
SHEET INDEX

- 1.....COVER SHEET
- 2.....GENERAL NOTES
- 3-4...WASTEWATER SYSTEMS PLANS
- 5.....SCOTTSDALE ROAD SEWER LINE EXTENSION
- 6.....SEWER RELOCATION PLAN & PROFILE

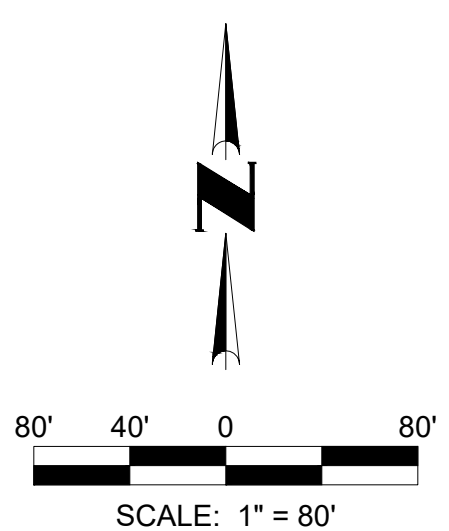


NO.	REVISION	DATE

SEWER PLANS
SCOTTSDALE ENTRADA
SCOTTSDALE, ARIZONA



01 SHEET OF 06
CVL Contact: HEIDI TILSON
CVL Project #: 1140254309



ENGINEER'S GENERAL NOTES (3/9/2018)

- 1. THESE PLANS ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS THE APPROVAL BLOCK HAS BEEN SIGNED BY THE APPROPRIATE AGENCIES. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE CURRENT MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) SPECIFICATIONS AND STANDARD DETAILS TOGETHER WITH ANY SUPPLEMENTS OF THE REVIEWING AGENCY AND WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES.
2. PRIOR TO CONSTRUCTION, THE ENGINEER AND APPLICABLE AGENCY MUST APPROVE ANY ALTERATION OR VARIANCE FROM THESE PLANS. ANY VARIATIONS FROM THESE PLANS SHALL BE PROPOSED ON CONSTRUCTION FIELD PRINTS AND TRANSMITTED TO THE ENGINEER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS AT HIS OWN EXPENSE.
4. ANY INSPECTION BY THE CITY, COUNTY, ENGINEER, OR OTHER JURISDICTIONAL AGENCY SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN STRICT COMPLIANCE WITH APPLICABLE CODES AND AGENCY REQUIREMENTS.
5. THE CONTRACTOR SHALL MAKE NO CLAIM AGAINST THE OWNER OR THE SURVEYOR REGARDING ALLEGED INACCURACY OF CONSTRUCTION STAKES SET BY THE SURVEYOR UNLESS ALL SURVEY STAKES SET BY THE SURVEYOR ARE MAINTAINED INTACT AND CAN BE VERIFIED AS TO THEIR ORIGIN. IF, IN THE OPINION OF THE SURVEYOR, THE STAKES ARE NOT MAINTAINED INTACT AND CANNOT BE VERIFIED AS TO THEIR ORIGIN, ANY REMEDIAL WORK REQUIRED SHALL BE PERFORMED AT THE SOLE EXPENSE OF THE RESPONSIBLE CONTRACTOR OR SUBCONTRACTOR.
6. THE CONTRACTOR SHALL NOTIFY THE DEVELOPER AT LEAST 48 HOURS IN ADVANCE FOR ANY STAKING OR RESTAKING REQUIRED.
7. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 48 HOURS IN ADVANCE FOR ANY INSPECTIONS AND/OR TESTING FOR ENGINEER OF RECORD SERVICES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING ALL STAKES AND CONTROL SET BY THE DEVELOPERS SURVEYOR, AND SHALL TAKE STEPS NECESSARY TO INSURE THAT THE STAKES AND CONTROL ARE NOT DISTURBED OR TAMPERED WITH. IF STAKES SET BY THE DEVELOPERS SURVEYOR ARE DISTURBED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST INCURRED TO RESTAKE.
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.
10. CONTRACTOR MUST CONTACT THE DESIGN ENGINEER FOR ANY NOTED DISCREPANCIES IN THE DESIGN PRIOR TO THE ITEM BEING CONSTRUCTED. FAILURE OF CONTRACTOR TO NOTIFY THE ENGINEER AND APPROVING AGENCY IN ADVANCE FOR ALTERNATIVE DESIGN SHALL RESULT IN CONTRACTOR ACCEPTANCE OF ALL COSTS RELATED TO POTENTIAL REMOVAL AND REWORK OF SAID ITEMS.
11. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR COORDINATING THE RELOCATION OF UTILITIES, POWER POLES, ETC.
12. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK. THE ENGINEER IS NOT RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS NOR ANY COSTS INCURRED, WHETHER INITIAL OR ADDITIONAL TO CORRECT, MODIFY, OR ALTER ANY CONSTRUCTION COMPLETED CONTRARY TO THE CONTRACT DOCUMENTS.
13. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL OVERHEAD AND UNDERGROUND UTILITY LINES IN THE WORK AREA ACCORDING TO INFORMATION PROVIDED BY THE AGENCY OPERATING EACH FACILITY. LOCATIONS SHOWN ARE APPROXIMATE ONLY, AND ARE NOT RELIABLE FOR CONSTRUCTION PURPOSES. CALL AZ811 AT 811 OR 602-263-1100 TO HAVE LOCATIONS MARKED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING UTILITIES ON THE SITE. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE REPAIRED/REPLACED AT THE CONTRACTOR'S EXPENSE. EXISTING SURFACE FEATURES AND FENCING NOT SCHEDULED FOR DEMOLITION OR REMOVAL SHALL BE REPLACED IN KIND.
14. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY THE PRESENCE AND LOCATION OF ANY AND ALL EXISTING OVERHEAD AND/OR UNDERGROUND UTILITIES THAT MAY INTERFERE WITH THIS CONSTRUCTION, WHETHER OR NOT SAID UTILITIES ARE SHOWN ON THE CONSTRUCTION PLANS FOR THIS PROJECT. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS (POTHOLING) AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION TO PERMIT THE OWNER TO DIRECT THE ENGINEER TO MAKE REVISIONS OF THESE PLANS, IF NECESSARY, DUE TO CONFLICT BETWEEN PROPOSED FACILITIES AND EXISTING FACILITIES.
15. OWNER/CONTRACTOR IS RESPONSIBLE FOR SURVEY VERIFICATION OF EXISTING HORIZONTAL AND VERTICAL CONDITIONS PRIOR TO START OF CONSTRUCTION. A DEVIATION IN EXISTING CONDITIONS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE CONSTRUCTION STARTS. THE ENGINEER WILL NOT BE RESPONSIBLE FOR REMOVAL, REPLACEMENT, OR OTHER MODIFICATIONS THAT MAY BE REQUIRED AS A RESULT OF EXISTING CONDITIONS NOT PROPERLY VERIFIED AND CONFIRMED. SHOULD AN ERROR BE FOUND IN THE HORIZONTAL AND VERTICAL CONDITIONS, THE ENGINEER SHALL BE NOTIFIED AND CONSTRUCTION WILL NOT PROCEED UNTIL REVISIONS/MODIFICATIONS HAVE BEEN PREPARED AND SUBMITTED BY THE ENGINEER.
16. THE CONTRACTOR SHALL VERIFY THE LOCATION, ELEVATION, CONDITION, AND PAVEMENT CROSS-SLOPE OF ALL EXISTING SURFACES AT POINTS OF TIE-IN AND MATCHING, PRIOR TO COMMENCEMENT OF GRADING, PAVING, CURB AND GUTTER, OR OTHER SURFACE CONSTRUCTION. SHOULD EXISTING LOCATIONS, ELEVATIONS, CONDITIONS, OR PAVEMENT CROSS-SLOPES DIFFER FROM THAT WHICH IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER ACCORDINGLY. THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL COSTS ASSOCIATED WITH CORRECTIVE ACTION IF THESE PROCEDURES ARE NOT FOLLOWED.
17. APPROVAL OF THESE PLANS SHALL NOT PREVENT THE REVIEWING AGENCY FROM REQUIRING THE CORRECTION OF ERRORS IN THE PLANS WHERE SUCH ERRORS ARE SUBSEQUENTLY FOUND TO BE IN VIOLATION OF ANY LAW, ORDINANCE, OR OTHER HEALTH/SAFETY ISSUE.
18. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL STORM DRAIN PIPES, STORM WATER RETENTION PIPES AND DRAINAGE FACILITIES DURING ALL STAGES OF CONSTRUCTION. THE DEPTH OF COVER ON THE STORM DRAIN PIPE IS DESIGNED FOR FINAL GRADE. THEREFORE, EXTRA CARE SUCH AS BERMING OVER PIPES, FLAGGING, OR SIGNAGE SHOULD BE USED DURING CONSTRUCTION IN ORDER TO MAINTAIN COVER OR PROTECT THE PIPES.

ENGINEER'S GENERAL NOTES (CONT.)

- 19. ALL CONDUITS (BOX CULVERT, REINFORCED CONCRETE PIPE, CAST-IN-PLACE PIPE, AND/OR CORRUGATED METAL PIPE) SHOWN ON THESE PLANS ARE DESIGNED FOR STANDARD HIGHWAY LOADINGS. THE STANDARD SATISFACTORY MINIMUM COVER REQUIREMENTS AS ESTABLISHED BY THE CONDUIT MANUFACTURER MAY NOT ALWAYS BE ADEQUATE DURING CONSTRUCTION. WHEN CONSTRUCTION EQUIPMENT, FREQUENTLY HEAVIER THAN TRAFFIC LOADS FOR WHICH THE CONDUIT HAS BEEN DESIGNED, IS TO BE DRIVEN OVER OR CLOSE TO THE BURIED CONDUIT, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE CONDUIT. THE ADEQUACY OF THE COVER REQUIREMENTS FOR CONDUITS SHALL BE ANALYZED AND CHECKED BY THE CONTRACTOR TO ADDRESS LOADING CONDITIONS IMPOSED BY THE CONSTRUCTION ACTIVITY. ANY CONDUIT DAMAGED BY CONSTRUCTION ACTIVITY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
20. THE ESTIMATED QUANTITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETENESS AND ACCURACY OF A DETAILED ESTIMATE BASE ON THESE PLANS, CURRENT CODES, AND SITE VISITATION.
21. ALL EARTHWORK CONSTRUCTION SHALL CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) STANDARD DETAILS AND SPECIFICATIONS, INCLUDING ANY SUPPLEMENTS THERETO AND THE SOILS REPORT PREPARED BY:
COMPANY: WESTERN TECHNOLOGIES INC.
PROJECT NO.: 2125J062
DATED: 05-21-2015
DATA FOR EARTHWORK CALCULATIONS IS PROVIDED IN THE SOILS REPORT AND (IF APPLICABLE) ANY SUPPLEMENTS THERETO.
22. THIS PLAN IS APPROVED SUBJECT TO COMPLETION OF THOSE LINES LABELED "EXISTING" WHICH HAVE BEEN PROPOSED AS A PART OF ANOTHER DEVELOPMENT. THE DEVELOPER OF THIS PROJECT MAY BE REQUIRED TO CONSTRUCT THOSE LINES PER THE REVIEWING AGENCY'S REQUIREMENTS PRIOR TO RECEIVING SERVICE FOR THIS PROJECT.

ENGINEER'S UTILITY NOTES (3/9/2018)

- 1. THE CONTRACTOR SHALL IN ALL CASES BEGIN SEWER LINE CONSTRUCTION FROM THE DOWNSTREAM MANHOLE OR SEWER STUB, WHETHER EXISTING OR PROPOSED. PRIOR TO INSTALLATION OF ANY SEWER LINE, THE CONTRACTOR SHALL EXCAVATE AND EXPOSE THE POINT OF CONNECTION OF THE NEW SEWER LINE TO THE EXISTING STUB OR MANHOLE AND VERIFY THE ELEVATION AND LOCATION. SHOULD THE EXISTING CONDITIONS VARY FROM THE DESIGN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
2. THE SURVEYOR SHALL MAKE FIELD RECORD DRAWING MEASUREMENTS OF THE WORK UPON NOTIFICATION BY THE WATER/SEWER CONTRACTOR THAT THE PIPE WORK IS COMPLETE AND READY FOR RECORD DRAWING SURVEY. IF THE CONTRACTOR DOES NOT LEAVE THE TRENCHES OPEN SO THE ACTUAL PIPELINE AND SERVICES CAN BE OBSERVED, THE RECORD DRAWING MEASUREMENTS WILL REFLECT THE TRENCH LOCATION ONLY. IF THE MEASUREMENTS CANNOT BE PERFORMED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ACCURATE RECORD DRAWING MEASUREMENTS AND SECURING THE ACCEPTANCE OF THE RECORD DRAWING BY THE APPROVING AGENCY.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE THE FITTINGS ARE COVERED SO RECORD DRAWING MEASUREMENTS MAY BE TAKEN. FITTINGS SHALL NOT BE COVERED UNTIL SURVEY HAS BEEN COMPLETED.
4. A WATER PRESSURE TEST IS REQUIRED OF ALL WATER LINES AND A HYDROSTATIC OR AIR TEST IS REQUIRED OF ALL SEWER LINES AND MANHOLES. TESTING SHALL BE IN ACCORDANCE WITH M.A.G. SECTIONS 610, 611, AND 615. CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 48 HOURS IN ADVANCE TO ARRANGE CONSTRUCTION OBSERVATION SERVICES OF TESTING.

CITY OF SCOTTSDALE GENERAL NOTES FOR PUBLIC WORKS CONSTRUCTION

- 1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF ASSOCIATED PERMIT HAS NOT BEEN ISSUED WITHIN THIS TIME FRAME, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.
4. A CITY INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE. NOTIFY INSPECTION SERVICES 72 HOURS BEFORE BEGINNING WORK.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 811, TWO WORKING DAYS BEFORE EXCAVATION BEGINS.
6. PERMISSION TO WORK IN THE RIGHT-OF-WAY (PWR) PERMITS ARE REQUIRED FOR ALL WORKS WITHIN THE RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.

CITY OF SCOTTSDALE GENERAL NOTES

- 1. MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTALS THEREOF PER THE LOCAL TOWN OR CITY) ARE INCORPORATED INTO THIS PLAN IN THEIR ENTIRETY.
2. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THIS PLAN SHALL BE IN ACCORDANCE WITH THE M.A.G. STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE LOCAL CITY OR TOWN UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY CONCERNS ASSOCIATED WITH THIS PROJECT DURING CONSTRUCTION, UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THIS PLAN OR ELSEWHERE IN THE CONTRACT.
4. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THIS PLAN.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THIS PLAN.
6. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
7. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL 48 HOURS IN ADVANCE FOR BLUE STAKE (1-800-STAKE-IT) PRIOR TO ANY EXCAVATION.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.
9. ALL PAVING, GRADING, EXCAVATION, TRENCHING, PIPE BEDDING, CUT FILL AND BACKFILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS (GEOTECHNICAL) REPORT FOR THIS PROJECT IN ADDITION TO THE REFERENCED REQUIRED SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL BE AWARE THAT CERTAIN UTILITIES REQUIRE PROPER ATTENTION AND CAREFUL PLANNING DURING SITE CONSTRUCTION. PLEASE NOTE THAT UTILITIES ON THESE PLANS MAY NOT EXHIBIT THE FULL PROTECTIVE COVER REQUIRED DURING THE SUBGRADE PREPARATION PHASE OF THE CONSTRUCTION. IN SUCH INSTANCES, THE CONTRACTOR SHALL PROVIDE ADDITIONAL PROTECTION (SUCH AS RAMPING) OR INCREASED PIPE STRENGTH TO PROVIDE THE NECESSARY PROTECTION REQUIRED TO PREVENT DAMAGE DURING THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL HOLD THE ENGINEER HARMLESS IN ALL CASES FOR DAMAGES TO UTILITIES WHERE INADEQUATE PROTECTIVE MEASURES OCCUR.
10. THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AGENT.
11. CONTRACTOR TO VERIFY AND COORDINATE ALL DIMENSIONS AND SITE LAYOUT WITH ARCHITECT'S FINAL SITE PLAN AND FINAL BUILDING DIMENSIONS BEFORE STARTING WORK. REPORT DISCREPANCIES TO OWNER'S AGENT.
12. COORDINATION BETWEEN ALL PARTIES IS ESSENTIAL PART OF CONTRACT.
13. CONTRACTOR IS RESPONSIBLE FOR PROJECT AND SITE CONDITIONS, AND TO WORK WITH WEATHER CONDITIONS AS THE PROJECT SITE MAY BE LOCATED IN A FLOOD PRONE AREA AND SUBJECT TO FLOODING AND ITS HAZARDS.
14. PAVEMENT CROSS-SLOPE OF ALL EXISTING SURFACES AT POINTS OF TIE-IN AND MATCHING, PRIOR TO COMMENCEMENT OF GRADING, PAVING, CURB AND GUTTER, OR OTHER SURFACE CONSTRUCTION. SHOULD EXISTING LOCATIONS, ELEVATIONS, CONDITION, OR PAVEMENT CROSS-SLOPE DIFFER FROM THAT SHOWN ON THESE PLANS, RESULTING IN THE DESIGN INTENT REFLECTED ON THESE PLANS NOT ABLE TO BE CONSTRUCTED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S AGENT IMMEDIATELY FOR DIRECTION ON HOW TO PROCEED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL COSTS ASSOCIATED WITH CORRECTIVE ACTION IF THESE PROCEDURES ARE NOT FOLLOWED.
15. CONTRACTOR IS RESPONSIBLE TO COORDINATE UTILITY CROSSINGS AT CULVERT CROSSINGS BEFORE STARTING WORK ON CULVERT. COORDINATE WITH OWNER REPRESENTATIVE. VERIFY UTILITY LINES AND/OR CONDUITS ARE IN PLACE BEFORE STARTING CULVERT WORK.
16. CONSTRUCT RETENTION BASIN AS SHOWN. CONTRACTOR TO SCARIFY BOTTOM OF BASIN TWO FEET DEEP AND NOT ALLOW COMPACTION OVER 80%.
17. THIS PROJECT REQUIRES A REGULAR ONGOING MAINTENANCE PROGRAM FOR THE DESIGNED DRAINAGE SYSTEM(S) TO PRESERVE THE DESIGN INTEGRITY AND THE ABILITY TO PERFORM ITS OPERATIONAL INTENT. FAILURE TO PROVIDE MAINTENANCE WILL JEOPARDIZE THE DRAINAGE SYSTEM(S)' PERFORMANCE AND MAY LEAD TO IT'S INABILITY TO PERFORM PROPERLY AND/OR CAUSE DAMAGE ELSEWHERE IN THE PROJECT.
18. SEWER LINES DESIGNED IN PROFILE AND PUBLIC WATER LINES ARE REQUIRED TO BE ASBUILT AND THE INSTALLATION AND TESTING WITNESSED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODES R18-9-E301 "4.01 GENERAL PERMIT: SEWAGE COLLECTIONS SYSTEMS" AND R18-5-507 AND 508 "APPROVAL OF CONSTRUCTION" AND "RECORD DRAWINGS", RESPECTIVELY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY OWNER 72 HOURS IN ADVANCE WHEN THOSE SYSTEMS ARE READY TO BE WITNESSED.
19. THE WORK PRODUCT PRESENTED IS BELIEVED TO BE COMPLIANT WITH THE INTENT OF THE CURRENT AMERICANS DISABILITIES ACT (ADA) REQUIREMENTS AS INTERPRETED BY THE REVIEWING AGENCY(S). IF CONSTRUCTION OF THE PROJECT IS DELAYED, THIS WORK PRODUCT SHOULD BE UPDATED TO ACCOUNT FOR ANY RELEVANT ADA UPDATES BEFORE CONSTRUCTION BEGINS.

CITY OF SCOTTSDALE GENERAL NOTES (CONT.)

20. LOWEST FLOOR (LF) REFERS TO EITHER FLOOR/SLAB ELEVATION OR TOP OF BASEMENT SLAB. LF ELEVATIONS ON THE GRADING AND DRAINAGE PLANS FOR RESIDENTIAL UNITS REFLECT SLAB ON GRADE CONDITIONS AND CANNOT BE LOWERED WITHOUT AGENCY APPROVAL IN LOCATIONS WHERE 'SPECIAL FLOOD HAZARD AREAS' EXIST. IN NON-FLOOD HAZARD LOCATIONS, TO ENSURE THAT ADEQUATE RESIDENTIAL LOT DRAINAGE CAN BE ACHIEVED, A PROFESSIONAL ENGINEER SHOULD BE CONSULTED IF THE LF FOR THE SLAB IS PROPOSED TO BE LOWERED, OR IF A BASEMENT IS TO BE CONSTRUCTED.



Table with columns: NO., REVISION, DATE. The table is currently empty.

SEWER PLANS
SCOTTSDALE ENTRADA
SCOTTSDALE, ARIZONA
Coe and Van Loo I L.L.C.

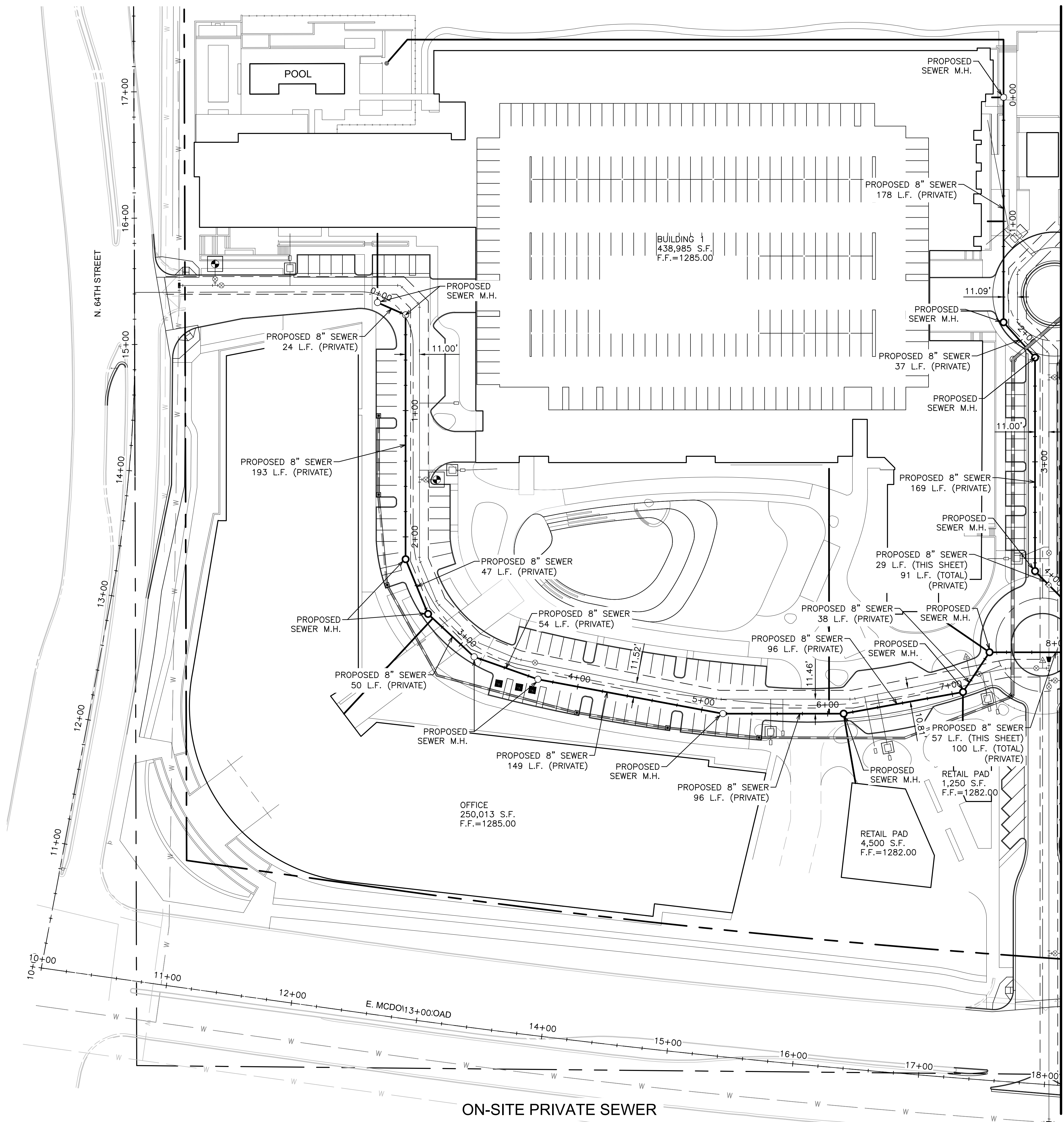


02 SHEET OF 06
CVL Contact: HEIDI A. TILSON
CVL Project #: 1140254309
© 2019 Coe & Van Loo I L.L.C.
All rights reserved to reproduction in any format



Printed By: MontyueB Print Date: January 28, 2020 Filename: N:\14_Coe and Van Loo\1140254309\CADD\05_MSE\WEB_01-d4.dwg

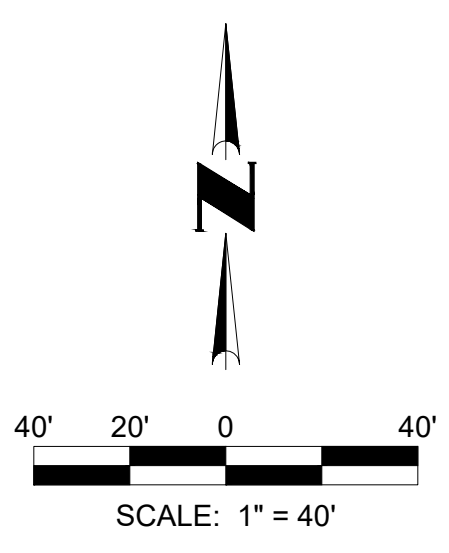
PROJECT NO. XXXXXX



SEWER NOTES:

1. PROVIDE MIN. 6' SEPARATION BETWEEN WATERLINES AND SEWERS.
2. ALL SERVICE LINES SHALL BE 6" DIAMETER MINIMUM.
3. ALL NEW MANHOLES ON THE ON-SITE PUBLIC SEWER MAIN SHALL BE 5 FEET IN DIAMETER AND EITHER CONCRETE POLYMER MAN HOLES OR EPOXY COATED PER CITY STANDARDS.
4. ALL PUBLIC MANHOLES ON SEWER MAINS 15" OR GREATER; OR WITH COVER GREATER THAN 10', SHALL BE 5'-0" DIAMETER.

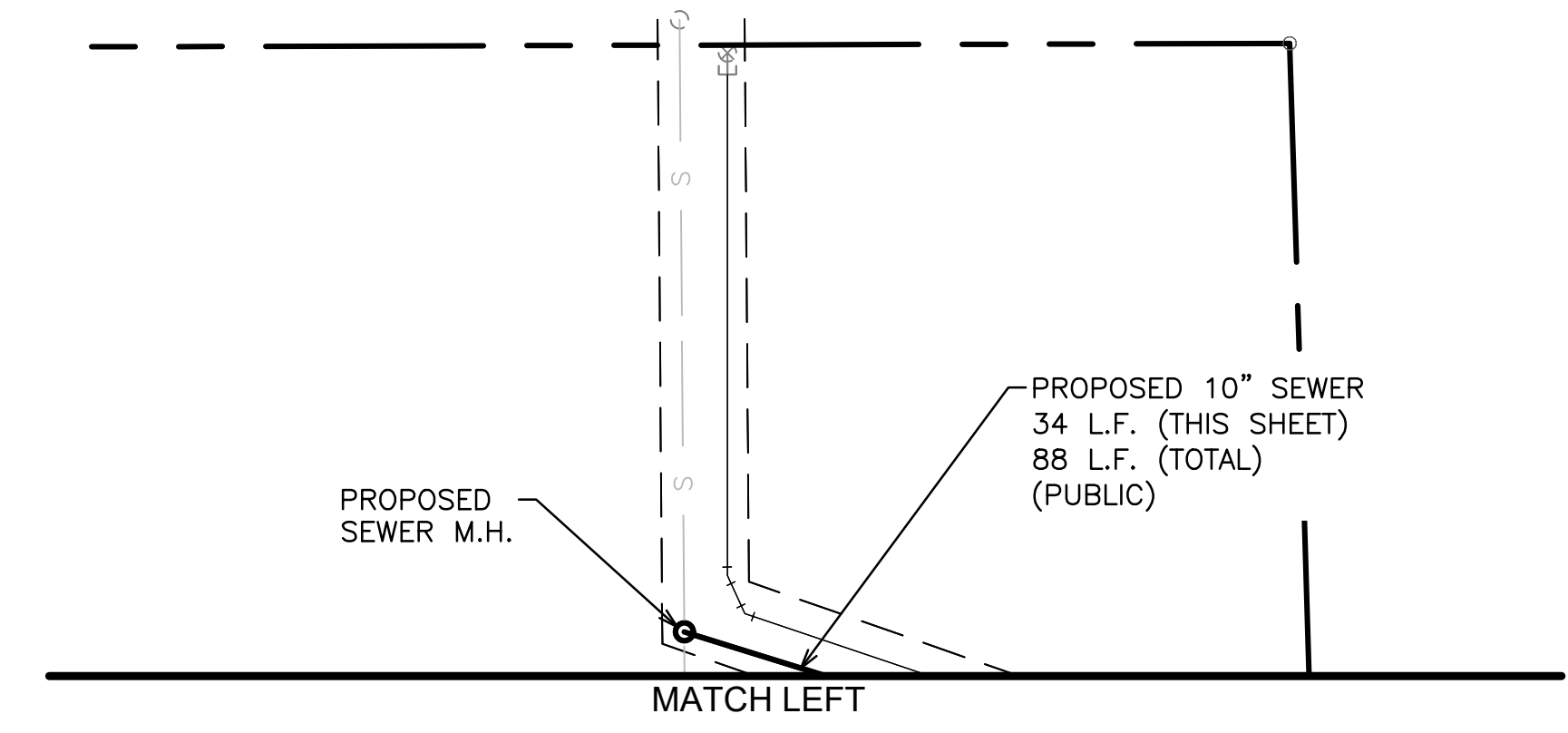
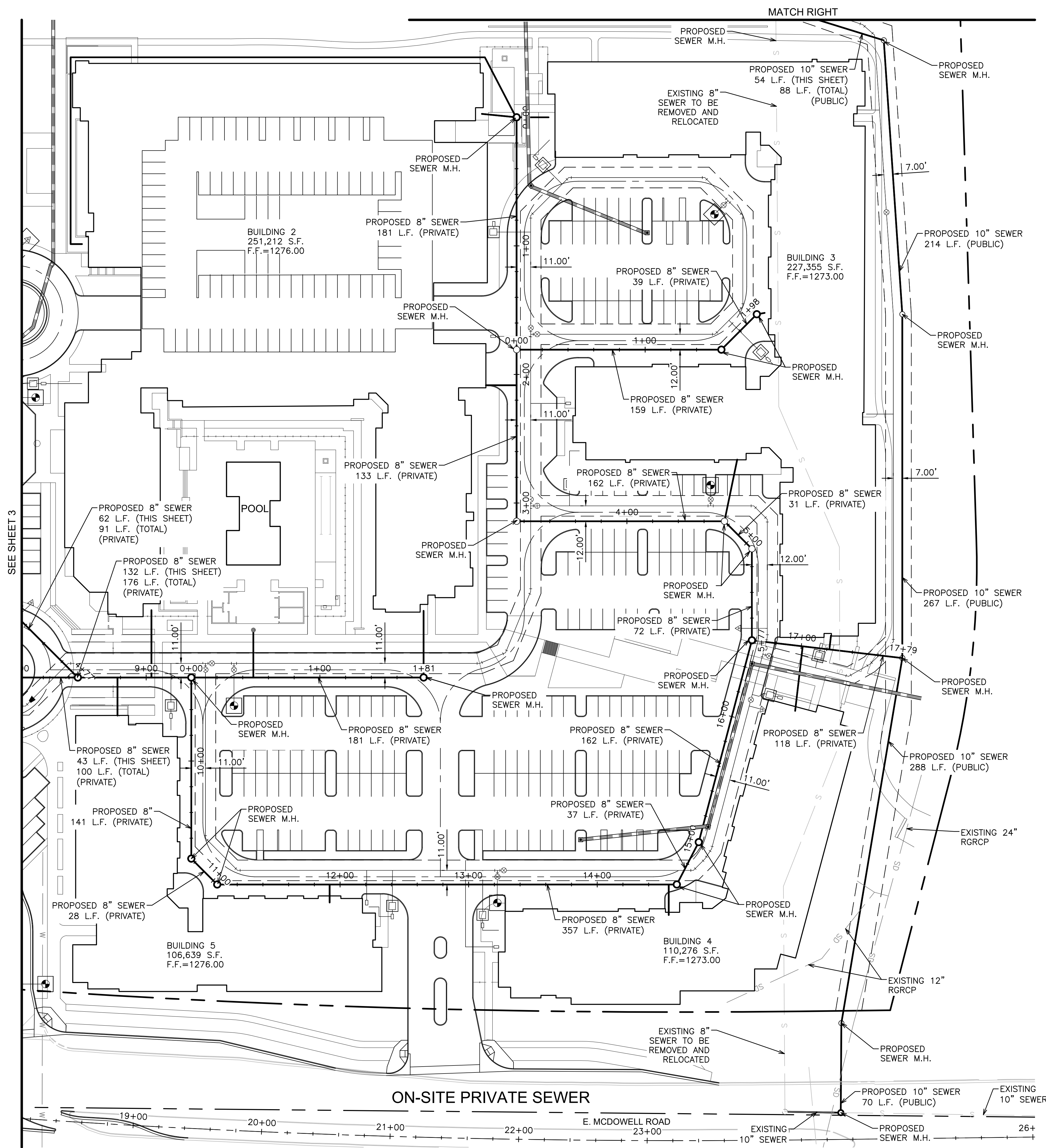
SEE SHEET 4



NO.	REVISION	DATE

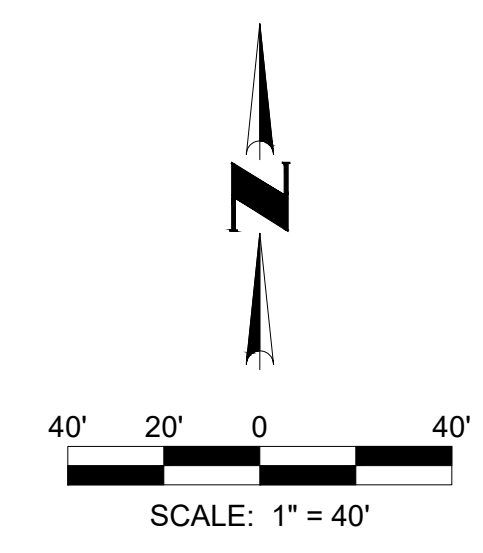
SEWER PLANS
SCOTTSDALE ENTRADA
 SCOTTSDALE, ARIZONA

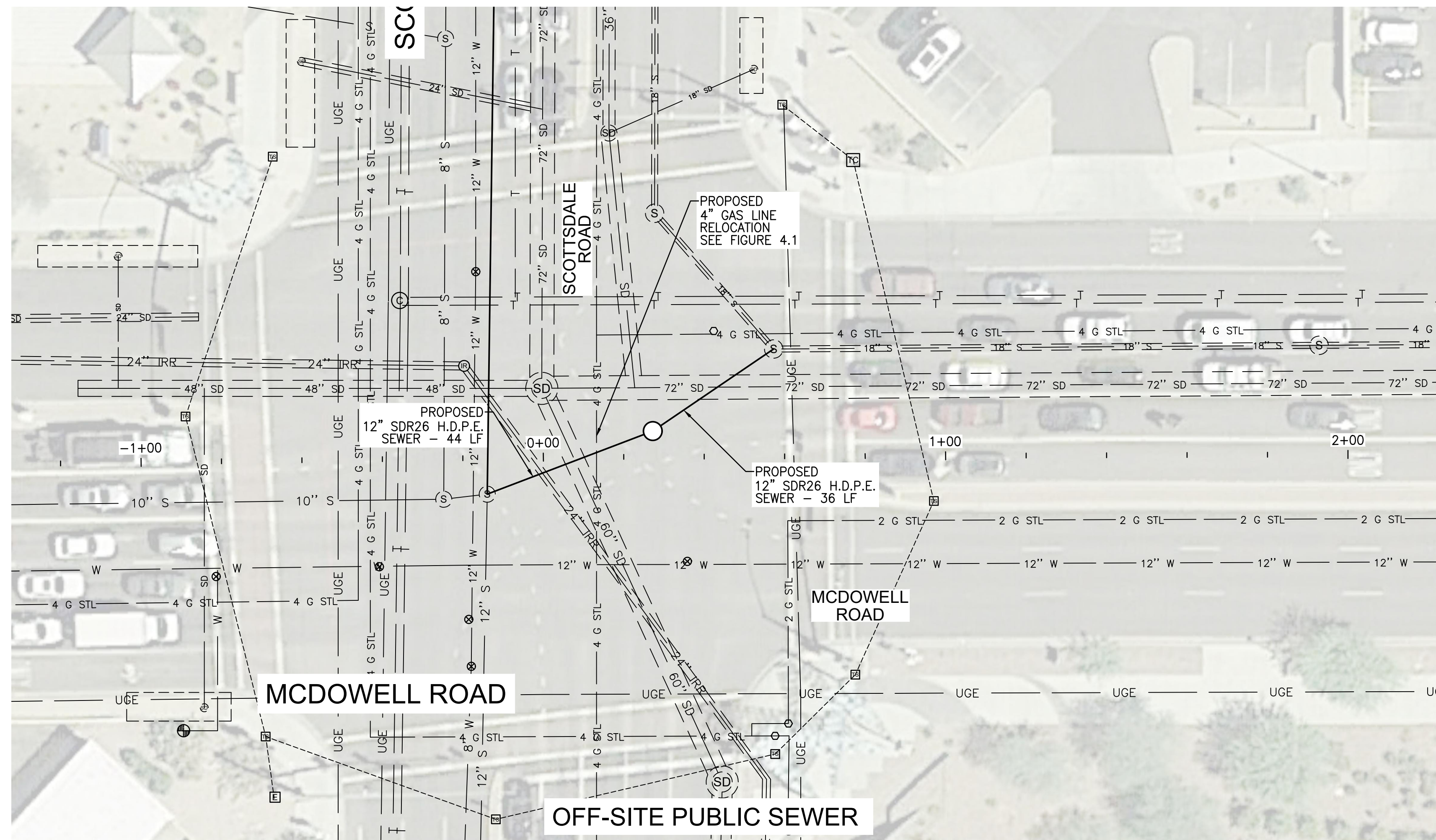
Professional Engineer Seal for Heidi A. Tilson, State of Arizona, License No. 48284, dated 02-24-2020.



SEWER NOTES:

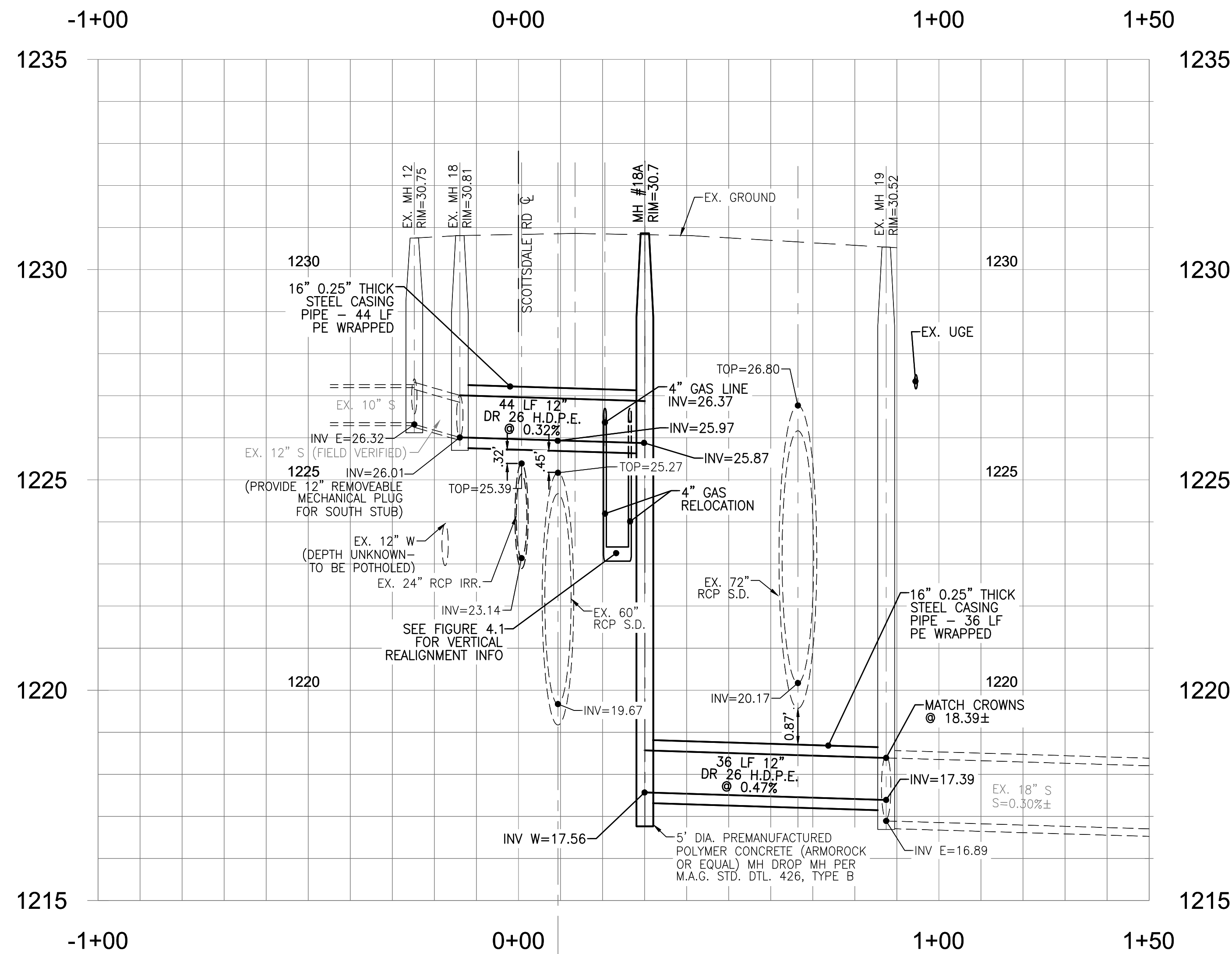
1. PROVIDE MIN. 6' SEPARATION BETWEEN WATERLINES AND SEWERS.
2. ALL SERVICE LINES SHALL BE 6" DIAMETER MINIMUM.
3. ALL NEW MANHOLES ON THE ON-SITE PUBLIC SEWER MAIN SHALL BE 5 FEET IN DIAMETER AND EITHER CONCRETE POLYMER MAN HOLES OR EPOXY COATED PER CITY STANDARDS.
4. ALL PUBLIC MANHOLES ON SEWER MAINS 15" OR GREATER; OR WITH COVER GREATER THAN 10', SHALL BE 5'-0" DIAMETER.





SEWER NOTES:

1. PROVIDE MIN. 6" SEPARATION BETWEEN WATERLINES AND SEWERS.
2. ALL SERVICE LINES SHALL BE 6" DIAMETER MINIMUM.
3. ALL NEW MANHOLES ON THE ON-SITE PUBLIC SEWER MAIN SHALL BE 5 FEET IN DIAMETER AND EITHER CONCRETE POLYMER MAN HOLES OR EPOXY COATED PER CITY STANDARDS.
4. ALL PUBLIC MANHOLES ON SEWER MAINS 15" OR GREATER; OR WITH COVER GREATER THAN 10', SHALL BE 5'-0" DIAMETER.



DATE

REVISION

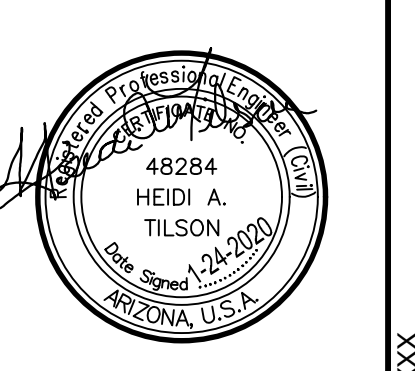
NO.

Coe and Van Loo II L.L.C.

SEWER PLANS

SCOTTSDALE ENTRADA

SCOTTSDALE, ARIZONA



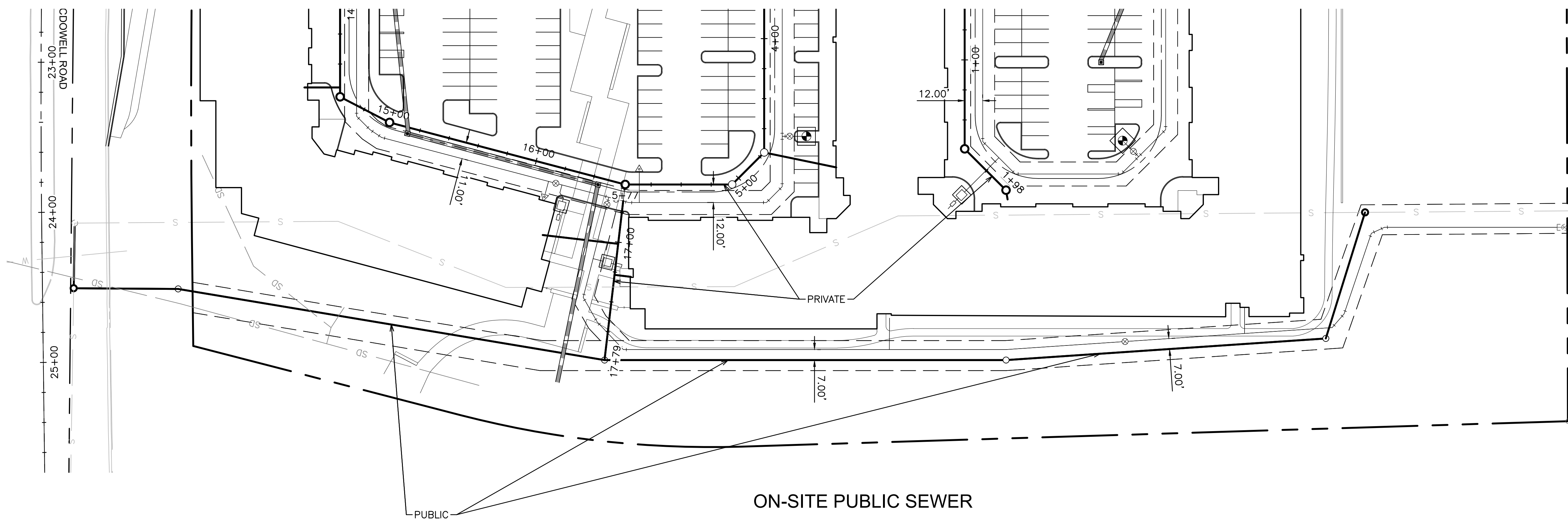
05 SHEET OF 06

CVL Contact: HEIDI TILSON
CVL Project #: 1140254309

© 2019 Coe & Van Loo II L.L.C.
All rights reserved to reproduction in any format

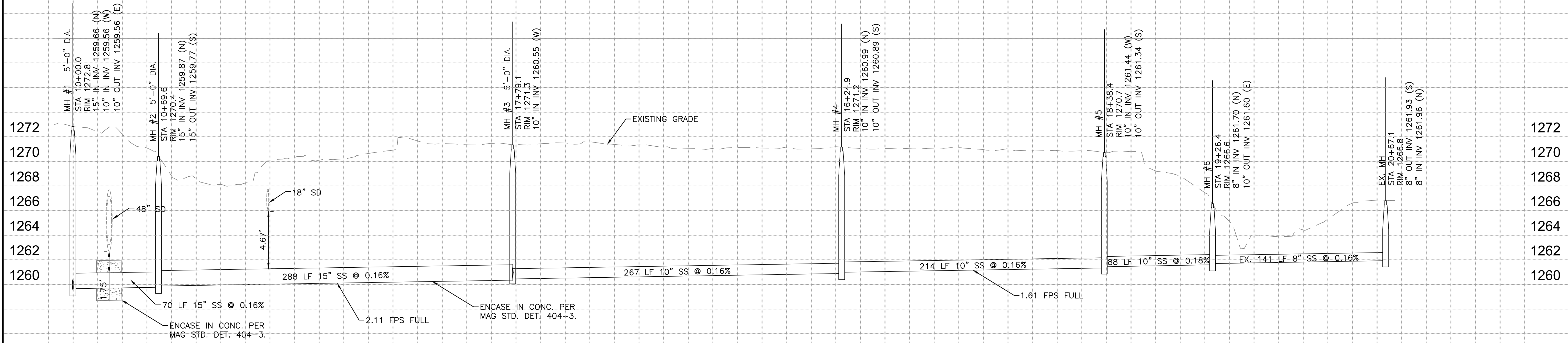
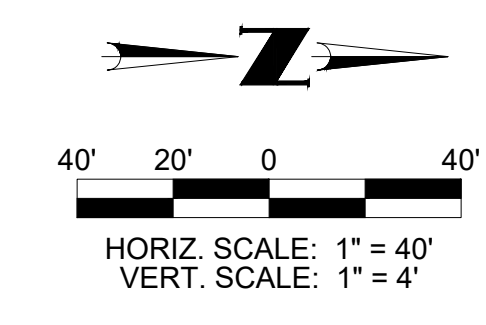


Printed By: MontagueB Print Date: January 28, 2020 Filename: N:\14_Coe and Van Loo\1140254309\CADD\SS\MSEWER-01-d4.dwg



- SEWER NOTES:**
1. PROVIDE MIN. 6" SEPARATION BETWEEN WATERLINES AND SEWERS.
 2. ALL SERVICE LINES SHALL BE 6" DIAMETER MINIMUM.
 3. ALL NEW MANHOLES ON THE ON-SITE PUBLIC SEWER MAIN SHALL BE 5 FEET IN DIAMETER AND EITHER CONCRETE POLYMER MAN HOLES OR EPOXY COATED PER CITY STANDARDS.
 4. ALL PUBLIC MANHOLES ON SEWER MAINS 15" OR GREATER; OR WITH COVER GREATER THAN 10', SHALL BE 5'-0" DIAMETER.

EX. MH
8" INV
N=1261.96
S=1261.93



NO.	REVISION	DATE

SEWER PLANS
SCOTTSDALE ENTRADA
SCOTTSDALE, ARIZONA



06 SHEET OF 06
CVL Contact: HEIDI TILSON
CVL Project #: 1140254309
© 2019 Coe & Van Loo II L.L.C.
All rights reserved to reproduction in any format



PROJECT NO. XXXXXXX