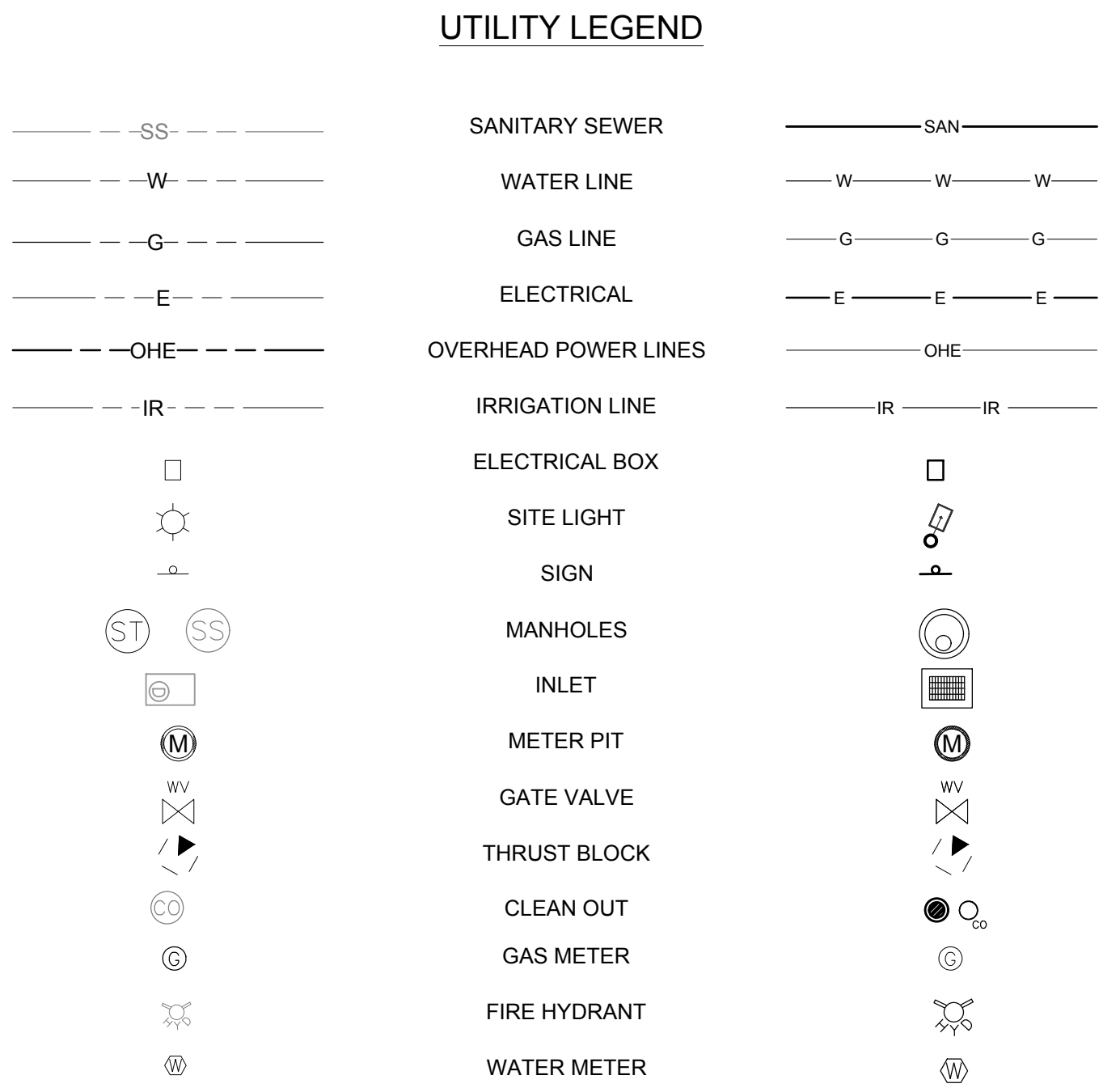
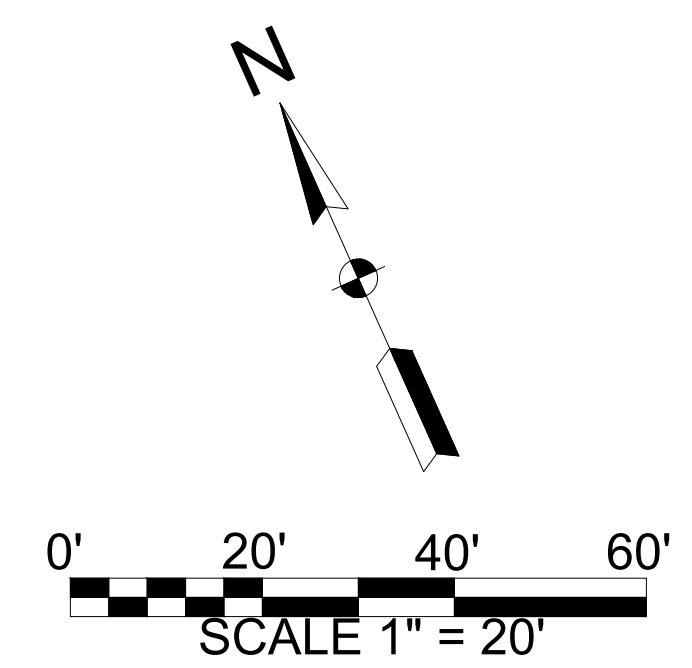


FIXTURE	FIXTURE VALUE 60 PSI	NO. OF FIXTURES	FIXTURE VALUES
Bathtub	8	0	0
Bedpan Washers	10	0	0
Bidet	2	0	0
Dental Unit	2	0	0
Drinking Fountain - Public	2	0	0
Kitchen Sink	2.2	2	4.4
Lavatory	1.5	2	3
Showerhead (Shower Only)	2.5	0	0
Service Sink	4	1	4
Toilet - Flush Valve	35	0	0
Toilet - Tank Type	4	2	8
Urinal - Pedestal Flush Valve	35	0	0
Urinal - Wall Flush Valve	16	0	0
Wash Sink (Each Set of Faucets)	4	3	12
Dishwasher	2	0	0
Washing Machine	6	0	0
Hose (50 ft Wash Down)			0
- 1/2 in.	5	0	0
- 5/8 in.	9	1	0
- 3/4 in.	12	0	0
(per figure 4-5 of AWWA M22 Manual)			
COMBINED FIXTURE TOTAL VALUE			31.4



Step 1 - Head loss in pipe						
Material	Nominal Diameter (in)	L (Length, FT)	C (Hazen-Williams C-factor)	Inside Dia. (D, inches)	Flow Rate (Q, gpm)	Head Loss (hp, ft)
Type K Copper	1 1/2	68	130	1.481	31.4	7.54
Type K Copper	1 1/2	0	130	1.481	31.4	0.00
Total Piping Head Loss, hp						7.54
Step 2 - Minor loss in meter						
Meter Type	Meter Size (in)	k (minor loss)	Head Loss (hm, ft)			
Displacement	1	4.6	2.46			
(k per table 5-3 of AWWA M22 Manual)						
Step 3 - Minor loss in bends / fittings						
Appurtenance Type:	# of fittings	Diameter (in)	k (minor loss)	Single Head Loss (h, ft)	Total Head Loss (h, ft)	
Gate Valve - Fully Open	1	0.995	0.15	0.39	0.39	
Total Minor Loss in Bends/Fittings						0.39
Step 4 - Total head loss						
htot (Total head loss) =		Pipe loss + Meter loss + Minor losses			= 10.40 ft	
Step 5 - Allowable head loss						
zm (Elevation @ Main)	7996.75	ft				
zc (Elevation @ Customer)	8002.75	ft				
pm (Pressure @ Main)	48	psi				
pc (Pressure @ Customer)	35	psi				
ha (Allowable head loss) =		ha = (zm - zc) + 2.31(pm - pc)			= 24.03 ft	
Step 6 - Sizing Check						
Service line check =		ha ≥ htot, Service line OK if not RESIZE			= OK	

- KEY NOTES:**
- PROPOSED 1.5" DOMESTIC WATER METER
 - PROPOSED 68 L.F. 1.5" TYPE 'K' COPPER DOMESTIC SERVICE LINE
 - PROPOSED 2" RADIUS SWEEP
 - PROPOSED CONNECTION TO EXISTING SANITARY SYSTEM AT EXISTING MANHOLE
RIM ELEV. = 5308.29
EX. INV. OUT = 5299.48
PRO. INV. IN = 5299.88
 - PROPOSED 48.00' 4" PVC @ 4% SANITARY SERVICE LINE
 - PROPOSED SANITARY SEWER CLEAN OUT
INV. = 5301.80
 - PROPOSED 10.00' 4" PVC @ 4% SANITARY SERVICE LINE
 - PROPOSED SANITARY SEWER CLEAN OUT
INV. = 5302.20
 - PROPOSED GREASE INTERCEPTOR (SIZING PER PLUMBING PLANS)
INV. IN = 5302.86
INV. OUT = 5302.56
 - PROPOSED 16.75' 4" PVC @ 4% SANITARY SERVICE LINE
 - PROPOSED SANITARY SEWER CLEAN OUT
INV. = 5303.73
 - PROPOSED 25.50' 4" PVC @ 4% SANITARY SERVICE LINE
 - PROPOSED SANITARY SEWER 2-WAY CLEAN OUT (RE: PLUMBING FOR CONTINUATION TO BUILDING)
INV. = 5304.75
 - PROPOSED 29.76' 4" PVC @ 4% SANITARY SERVICE LINE
 - PROPOSED SANITARY SEWER CLEAN OUT
INV. = 5302.99
 - PROPOSED 13.50' 4" PVC @ 4% SANITARY SERVICE LINE
 - PROPOSED SANITARY SEWER 2-WAY CLEAN OUT (RE: PLUMBING FOR CONTINUATION TO BUILDING)
INV. = 5303.53
 - PROPOSED SITE LIGHT
 - EXISTING WATER MAIN
 - EXISTING SANITARY SEWER MAIN
 - EXISTING WATER SERVICE STUB
 - EXISTING 15' PUBLIC WATERLINE EASEMENT (09/24/2010, 2010C-112)
 - EXISTING 30' SANITARY SEWER AND PUBLIC WATERLINE EASEMENT (09/24/2010, 2010C-112)
 - EXISTING FIBER OPTIC LINE
 - EXISTING OVERHEAD ELECTRIC ELEMENTS
 - EXISTING TELECOM PEDESTAL
 - EXISTING SITE LIGHT
 - EXISTING GAS LINE
 - EXISTING UNDERGROUND ELECTRIC LINE
 - EXISTING TRANSFORMER
 - EXISTING PULL BOX
 - EXISTING 10' PUBLIC UTILITY EASEMENT (08/08/1990, 90C-182)
 - PROPOSED GAS SERVICE LINE
 - PROPOSED ELECTRIC SERVICE LINE
 - PROPOSED ELECTRIC TRANSFORMER
 - PROPOSED 4" PVC SANITARY DRAIN
 - PROPOSED FIBER OPTIC SERVICE LINE



HCI ENGINEERING
A DIVISION OF
HABERER CARPENTRY INC.
671 SOUTH WILLOW DR. SUITE 100
ALBUQUERQUE, NM 87102
PH: 505.263.9116
WWW.HCIENGINEERING.COM

MARK D. MCCLUGGAGE AIA, CCS
1525 E. Douglas Wichita, KS 67211
Tel: (316) 266-9666
www.gjfr.com

VERTEX
Main: 303.623.9116 | Direct: 720.545.0459
3734 Osage Street | Denver, CO 80211
CONTACT: LANCE VANDEMARK, P.E.

12134.230
△ DRB 1ST SUB 10.03.16

CONTRACT DATE:
BUILDING TYPE: EXPLORER MED54
PLAN VERSION: ARRIL 2015 (N)
SITE NUMBER:
STORE NUMBER:

TACO BELL
UNSER BLVD
ALBUQUERQUE, NM 87114

EXPLORER
MEDIUM54
UTILITY PLAN

CD4.0