

FIRE FLOW CALCULATIONS

FIRE FLOW REQUIREMENT IS 1500 GALLONS PER MINUTE AT 20 PSI RESIDUAL PRESSURE

BASED ON:

SQUARE FOOTAGE	2033	SQ.FT
LARGEST AREA BETWEEN 4 HOUR SEPARATION WALLS	26.51	SQ.FT
BUILDING HEIGHT	2	FT
NUMBER OF STOREYS	V-N	
TYPE OF CONSTRUCTION	RESIDENTIAL	
OCCUPANCY	RESIDENTIAL	
FULL AUTOMATIC FIRE SPRINKLER SYSTEM	NO	
ROOF CONSTRUCTION	TILE	

REVIEWED BY: [Signature]

DATE: [Date]



TYPICAL SERVICE LATERALS SPACING N.T.S.

ALL LOTS:

THIS PROPERTY MAY HAVE STATIC WATER PRESSURE IN EXCESS OF 80 PSI. THE UNIFORM PLUMBING CODE REQUIRES THAT INDIVIDUAL ON-SITE (PRIVATE) PRESSURE REDUCING VALVES BE INSTALLED WHENEVER THE PRESSURE EXCEEDS 80 PSI. PKWS ARE THE DEVELOPER'S RESPONSIBILITY AND WILL NOT BE INSPECTED OR INCLUDED IN THE ACCEPTANCE OF LVWD FACILITIES.

ABANDONED VALVE CUT AND CAP

ALL VALVES TO BE ABANDONED SHALL BE ABANDONED IN THE CLOSED POSITION, UNLESS SHOWN OTHERWISE, BY REMOVING A MINIMUM OF THE TOP TWENTY-FOUR (24) INCHES OF THE VALVE BOX AND THEN FILLING THE BOTTOM OF THE BOX WITH A MINIMUM OF EIGHT (8) INCHES OF SAND OR TYPE II AGGREGATE BASE. THE REMAINING PORTION OF THE VALVE BOX SHALL BE FILLED WITH CONCRETE HAVING A COMPRESSIVE STRENGTH OF AT LEAST TWO THOUSAND (2'000) PSI. THE LATERAL MUST BE CUT WITHIN THREE (3) FEET OF THE ABANDONED VALVE OR AS SHOWN ON THE PLANS AND CAPPED. THE CONTRACTOR SHALL CUT THE EXISTING PIPE WHERE SHOWN ON THE DRAWING AND INSTALL A CAP COMPLETE WITH THRUST BLOCK WHERE A JOINT OR COUPLING IN THE EXISTING PIPE IS UNCOVERED AT THE CUT AND CAP LOCATION. THE INSTALLATION OF A PLUG MAY BE PERMITTED WITH DISTRICT APPROVAL. A CONCRETE THRUST BLOCK SHALL BE INSTALLED AT ALL CAP OR PLUG LOCATIONS IN ACCORDANCE WITH THE PROVISIONS OF UDACS PLATE 5.

INSTALL WATERLINE IN STEEL CASING PER UDACS PLATE NO. 15 AND 16. MINIMUM 18-INCH CLEARANCE IS REQUIRED ABOVE THE TOP OF THE CASING FROM THE UPPER BENDS THROUGHOUT THE LOWERED SECTION OF PIPE. DUCTILE IRON PIPE WITH RESTRAINED JOINTS IS REQUIRED. IN ADDITION, THRUST BLOCKS ARE TO BE INSTALLED AT THE UPPER BENDS.

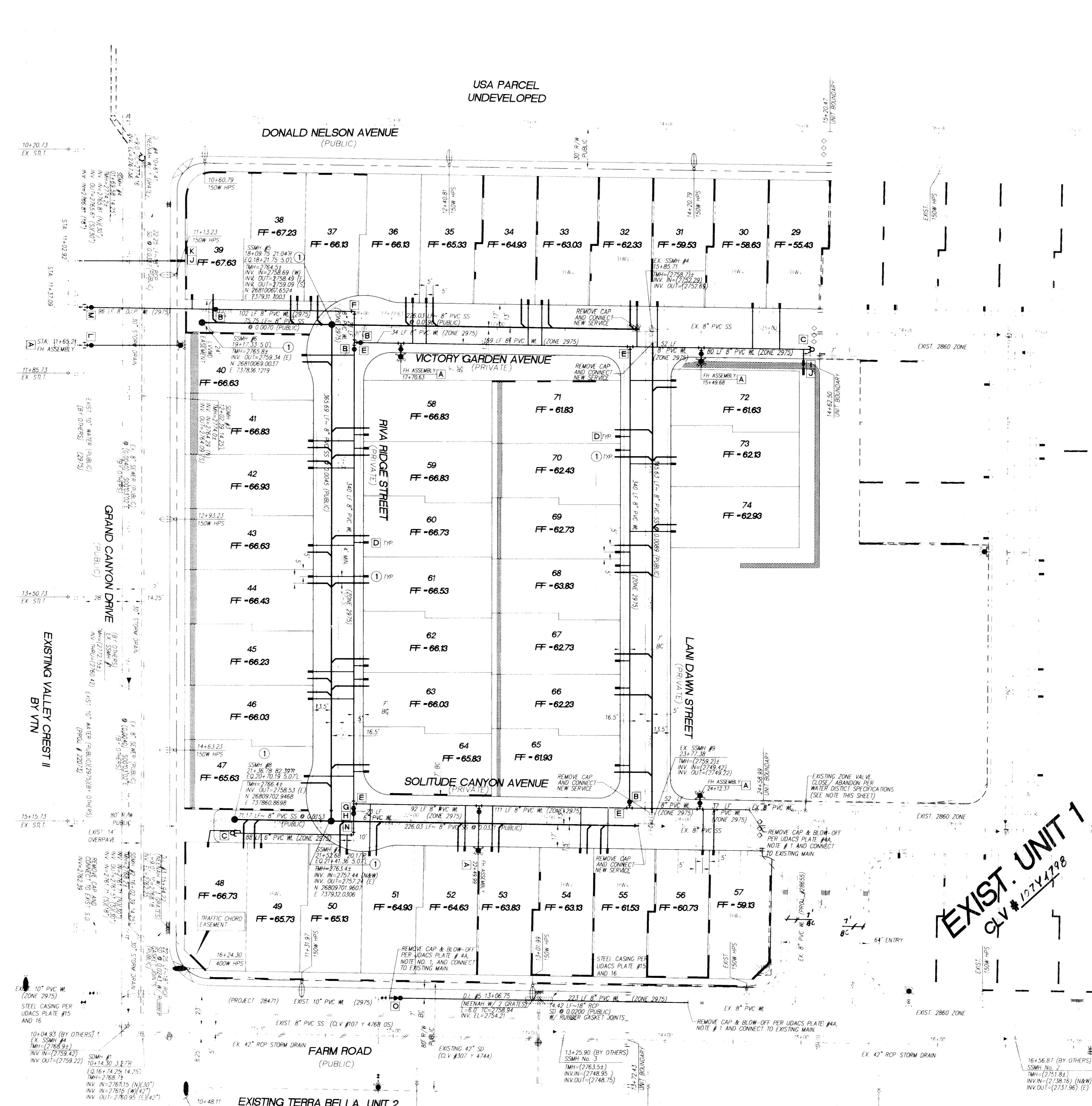
BENCHMARK
CITY OF LAS VEGAS BENCHMARK -2C90-20W4
REBAR #124 FT. NORTHEAST OF DEER SPRINGS AND FORT APACHE
ELEVATION = 806.867 METERS (NAVDB8) ELEVATION = 2647.20 FEET (NAVDB8)

Call before you Dig
1-800-227-2600
Underground Service (USA)

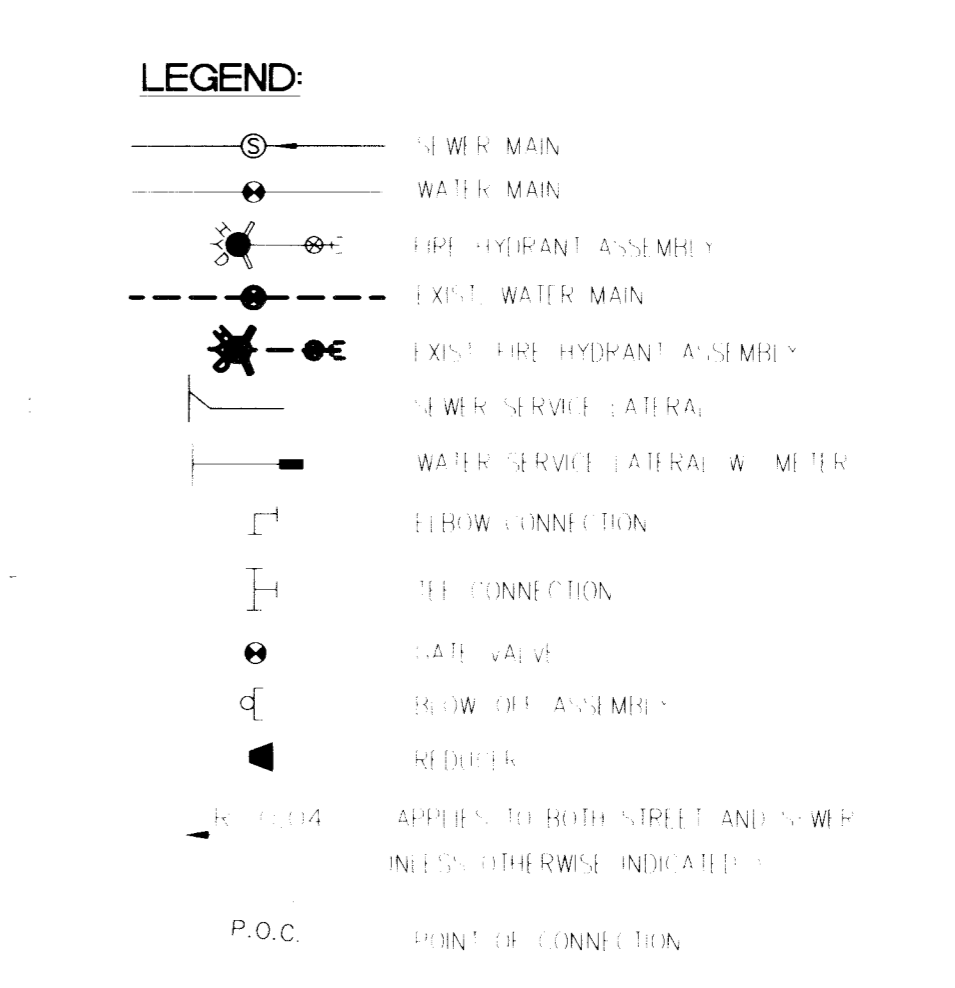
Call before you Overhead
1-702-593-6111
Nevada Power Corporation
Nevada Electric Service

Call before you Under
1-702-793-6111
Nevada Power Corporation
Nevada Electric Service

401 N. Bureau Dr. Suite 100, Las Vegas, Nevada 89145 (702) 242-4200



- ### UTILITY NOTE
- NOTIFY TETRA TECH, INC IMMEDIATELY OF ANY DISCREPANCIES IN THE PLAN OR CONDITIONS IN THE FIELD.
 - PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL LOCATE AND VERIFY SIZE, MATERIAL, DEPTH, CONDITION, PRESSURE AND LOCATION OF ALL EXISTING UTILITY LINES WITHIN THE CONSTRUCTION AREA. TETRA TECH, INC. SHALL BE CONTACTED ONCE THE UTILITY IS LOCATED.
 - PLANS MAY NOT INDICATE ALL EXISTING UTILITY LINES. CONTRACTOR IS TO EXERCISE EXTREME CAUTION DURING EXCAVATION IN ORDER TO AVOID DAMAGING ANY EXISTING UTILITY LINES. IF THE UTILITY LINES ARE DAMAGED BY THE CONTRACTOR, SUCH DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR TO SAWCUT AND REMOVE EXISTING ASPHALT AND CONCRETE AS NECESSARY FOR UTILITY TRENCHES. BACKFILL AND PATCH ALL TRENCHES ACCORDING TO CITY OF LAS VEGAS STANDARDS.
 - ALL WATER SERVICE LINES AND METERS SHALL BE INSTALLED PER LAS VEGAS VALLEY WATER DISTRICT STANDARDS AND SPECIFICATIONS.
 - CONTRACTOR TO FIELD VERIFY LOCATION AND INVERT OF MANHOLE PRIOR TO CONSTRUCTION. TETRA TECH, INC. SHALL BE CONTACTED ONCE THIS INFORMATION HAS BEEN OBTAINED.



WATER QUANTITIES AND KEY NOTES

Item	Description	Quantity
A	INSTALL FIRE HYDRANT ASSEMBLY PER UDACS STD. PLATE NO. 7	5 EA
B	8" GATE VALVE (PER U.D.A.C.S. PLATE No. 8)	5 EA
C	CAP AND 2" BLOW OFF PER UDACS STD. PLATE 4	2 EA
D	3/4" METER AND 1" LATERAL (PER U.S.D.A.C.S. PLATE # 18) TYP.	46 EA
E	8" TEE	4 EA
F	8" 90° BEND	1 EA
G	8" x 6" REDUCER	1 EA
H	6" GATE VALVE (PER U.D.A.C.S. PLATE No. 8)	1 EA
I	1" METER & 1" LATERAL FOR LANDSCAPE PER UDACS PLATE #10	1 EA
J	1" RPPA FOR LANDSCAPE PER UDACS PLATE #11A	2 EA
K	3/4" METER & 1" LATERAL FOR LANDSCAPE PER UDACS PLATE #10	1 EA
L	10" x 6" M.J. TAPPING TEE W/ 8" TAPPING VALVE	1 EA
M	10" x 8" M.J. TAPPING TEE W/ 8" TAPPING VALVE	1 EA
N	6" 90° BEND	1 EA
O	10" x 8" REDUCER	1 EA
	6" WATER MAIN	111± LF
	8" WATER MAIN	1745± LF

SEWER KEY NOTES AND QUANTITIES:

1	TYPE I MANHOLE PER U.S.D.C.A.S. DWG. NO. 403	4 EA
2	4" PVC SEWER LATERALS	41 EA
	8" PVC SEWER MAIN	1,330± LF
	6" BACK WATER VALVE (PRIVATE)	8 EA

SOILS REPORT

GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.
2560 WEST SAHARA AVENUE, SUITE 101
LAS VEGAS, NEVADA 89117
TEL: (702) 365-1001
PROJECT NUMBER:

APPROVALS

LAS VEGAS VALLEY WATER DISTRICT TECHNICAL APPROVAL
PROJECT NAME: TERRASANO UNIT 2
CHECKS: 5-7-11, 14
THIS PROJECT WATER PLAN COMPLIES WITH THE LAS VEGAS VALLEY WATER DISTRICT'S TECHNICAL REQUIREMENTS. HOWEVER, THIS WATER PLAN IS NOT APPROVED FOR CONSTRUCTION AT THIS TIME AND THIS SIGNATURE DOES NOT PROVIDE OR IMPLY A WATER COMMITMENT.
[Signature]
LAS VEGAS VALLEY WATER DISTRICT DATE: 1/29/14

DISCLAIMER NOTE:

UTILITY LOCATION SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATIONS. NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES ARE ENCOUNTERED.

REDUCED PRESSURE PRINCIPLE ASSEMBLY: (2)-1'

APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLY(S) (2) 1" SHALL BE INSTALLED PER THE UDACS PLATE NO. 11A. NO WATER SHALL BE TAKEN FROM A SERVICE REQUIRING BACKFLOW PREVENTION UNTIL THE REDUCED PRESSURE PRINCIPLE ASSEMBLY HAS BEEN SUCCESSFULLY TESTED BY THE LVWD. ANY BLOCK WALL OR OTHER FENCE MATERIAL SHALL BE DESIGNED AND CONSTRUCTED AROUND THE OUTSIDE OF THE EASEMENT(S) TO ALLOW THE DISTRICT DIRECT ACCESS FROM THE ADJACENT RIGHT-OF-WAY.

BASIS OF BEARING

BEARING SOUTH-007°34'0" EAST, BEING THE WEST LINE OF THE SOUTH-THEM'S 1/4 QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 20, TOWNSHIP 19 SOUTH, RANGE 60 EAST, CLARK COUNTY, NEVADA, AS SHOWN ON FILE 25, PAGE 44 SURVEYS.

SEWER CONTRIBUTION

AVERAGE DAILY FLOW ----- 0.0228 MGD
PEAK FLOW (PF=3.4) ----- 0.0774 MGD

KIMBALL HILL HOMES

UTILITY PLAN

TERRASANO UNIT 2

CITY OF LAS VEGAS

TETRA TECH, INC.

401 N. Bureau Dr. Suite 100, Las Vegas, Nevada 89145 (702) 242-4200

PROFESSIONAL ENGINEER

ANDREW B. ANDERSON

REGISTERED PROFESSIONAL ENGINEER

NO. 51144

STATE OF NEVADA

1-18-04

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