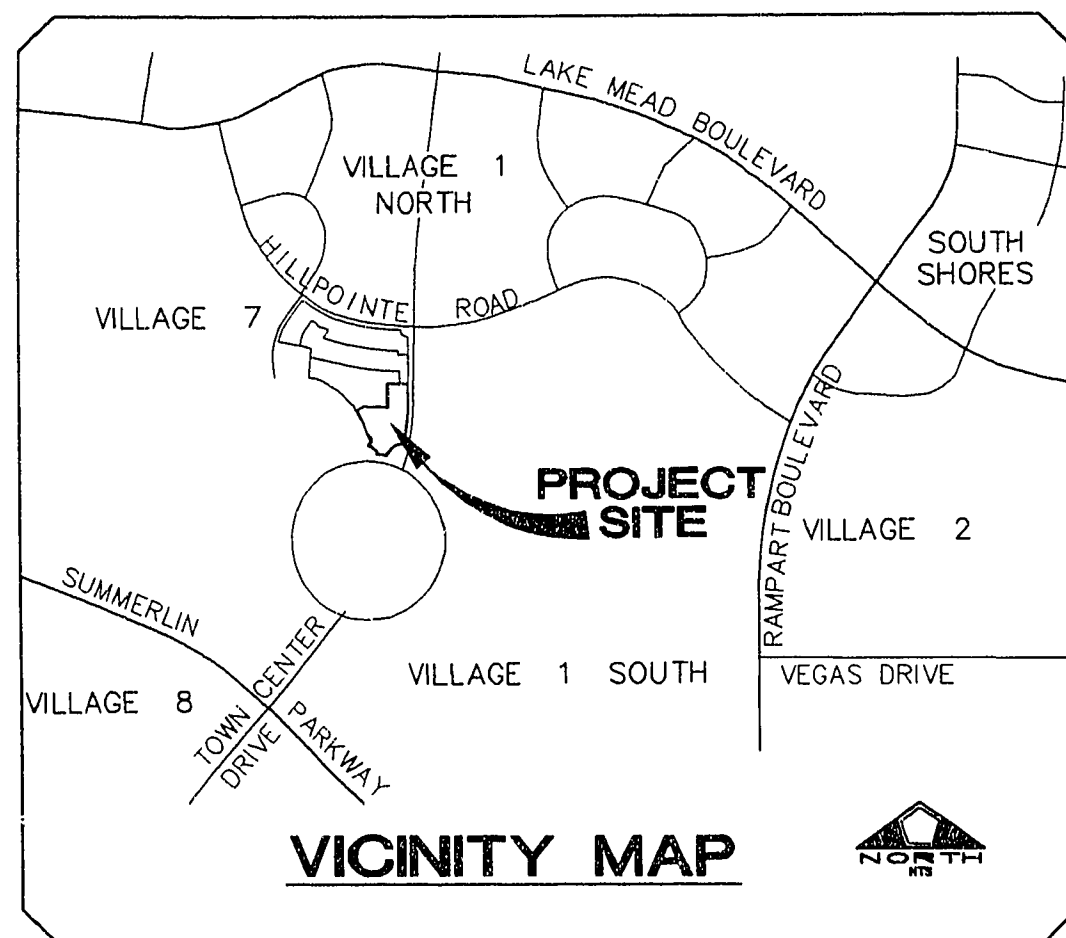
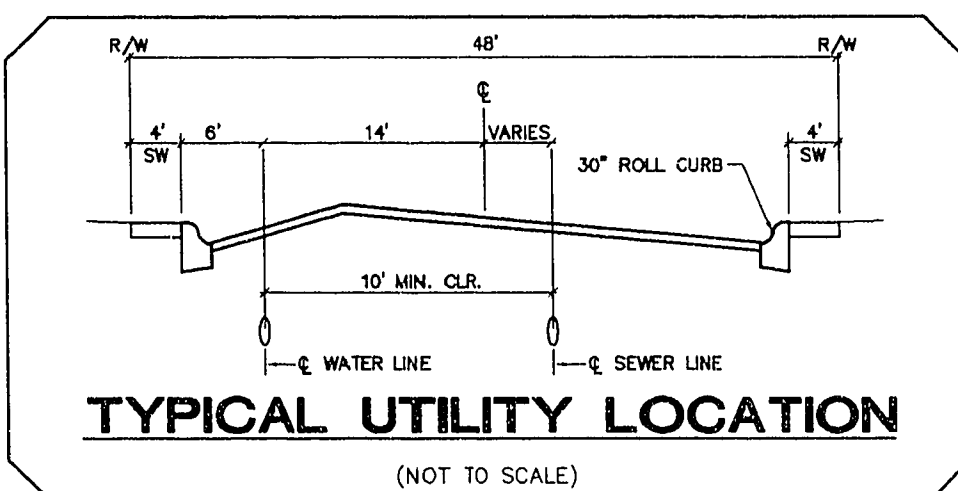




SEWER FLOW CALCULATIONS

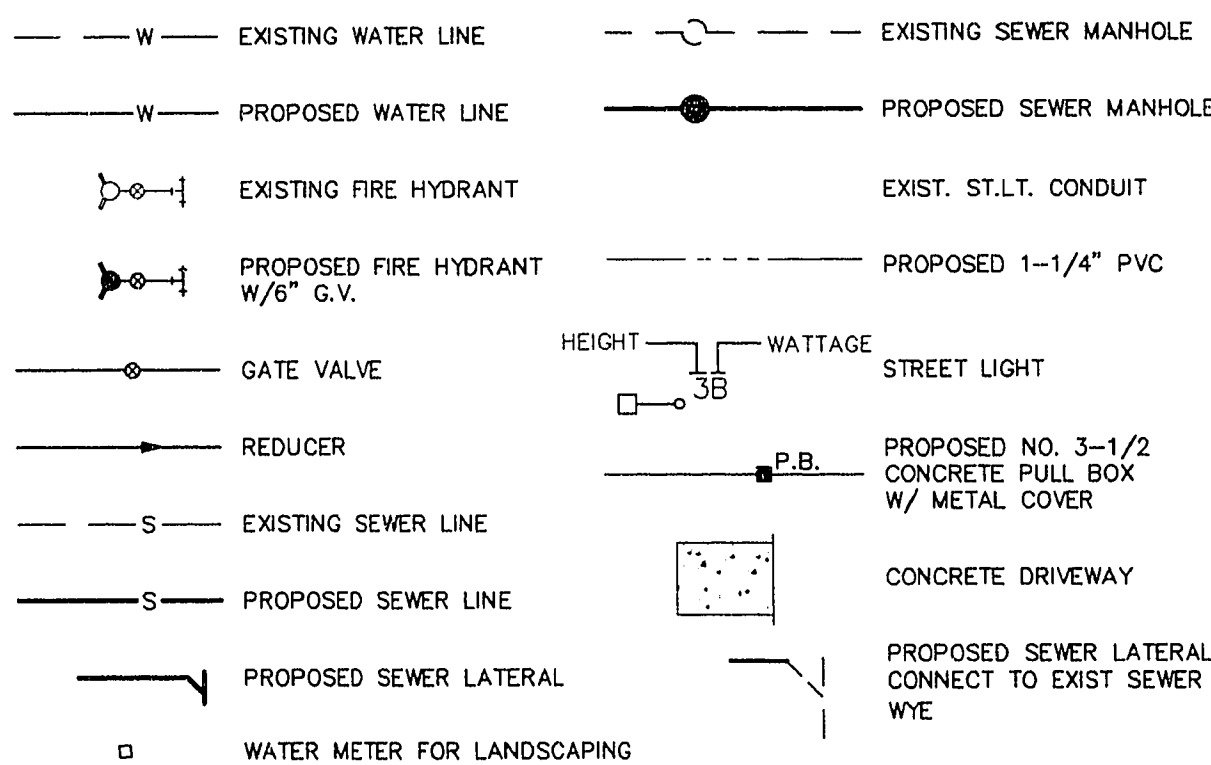
AVERAGE FLOW: 1 ERU = 180 GPD
PEAK FACTOR = 2.9
WILLOW BEND NO. 4 AVERAGE FLOW = 43 LOTS = 43 ERU = 7,740 GPD = 0.008 MGD
WILLOW BEND (TOTAL) AVERAGE FLOW = 205 LOTS = 205 ERU = 36,900 GPD = 0.037
WILLOW BEND NO. 4 PEAK FLOW = 0.029 MGD
WILLOW BEND (TOTAL) PEAK FLOW = 0.107 MGD
THE WILLOW BEND PROJECT IS TO BE SEWERED TO THE EXISTING 15" SEWER LINE LOCATED IN HILLS CENTER DRIVE. EXISTING SEWER ALIGNMENT SHOWN ON THIS SHEET.



FITTINGS LEGEND

- 1 8" GATE VALVE
- 2 2" BLOW-OFF ASSEMBLY W/CAP
- 3 8" TEE
- 4 8"x6" TEE
- 5 8" 90° BEND
- 6 8" 11 1/4" BEND
- 7 STD. FIRE HYDRANT ASSEMBLY
- 8 8"x6" REDUCER

UTILITY LEGEND



LAS VEGAS FIRE DEPARTMENT

FIRE FLOW REQUIREMENT IS 1500 GALLONS PER MINUTE AT 20 POUNDS PER SQUARE INCH RESIDUAL.
BASED ON:
SQUARE FOOTAGE 2985
LARGEST AREA BETWEEN AREA SEPARATION WALLS N/A
HEIGHT TWO-STORY
TYPE OF CONSTRUCTION TYPE 5
EXPOSURES 10'
SPRINKLER SYSTEM NONE
OCCUPANCY SINGLE FAMILY
ROOF CONSTRUCTION TILE

TRAFFIC SIGN LEGEND & QUANTITIES

- 1 6" D-3 STREET NAME SIGN 2 EA
1 R1-1, 30" STOP SIGN 1 EA

WATER DISTRICT STANDARD NOTES

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, 48 HOUR NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATIONS SUPPORT CENTER (258-7171) PRIOR TO THE START OF CONSTRUCTION. NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO A LVVWD INSPECTION.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, LATEST EDITION.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2, SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB CUTTERS.
8. THE FOLLOWING REQUIREMENTS MUST BE MET IN THE EVENT A WATER LINE AND SANITARY OR STORM SEWER LINE CROSS:
A. POTABLE WATER SUPPLY QUALITY MATERIAL.
B. ENCASUREMENT, WITH FOUR (4) INCH CONCRETE (MINIMUM) C. SLEEVING WITH POTABLE WATER SUPPLY QUALITY PIPE.
EACH PROVISION MUST EXTEND ALONG THE SANITARY OR STORM SEWER, ON EITHER SIDE OF THE MAIN, A MINIMUM 10 FOOT DISTANCE PERPENDICULAR TO THE WATER MAIN EXTERIOR.
9. WARNING TAPE SHALL BE REQUIRED OVER ALL MAINS, ALL SIX (6) INCH DIAMETER AND LARGER SERVICE LATERALS, AND ANY SERVICE LATERAL NOT INSTALLED PERPENDICULAR TO THE MAIN IN ACCORDANCE WITH STANDARD PLATE NO. 27.
10. ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION THE LVVWD'S DISTRIBUTION SYSTEM.
11. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 FORTY-EIGHT (48) HOURS PRIOR TO PICKUP.
12. CONSTRUCTION MAY INTERRUPT SERVICE, WITH LVVWD APPROVAL AND PROPER NOTIFICATION, BETWEEN THE HOURS OF 10 PM AND 6 AM, SUNDAY THROUGH THURSDAY. CIRCUMSTANCES MAY REQUIRE TEMPORARY SERVICE FEES BE INSTALLED, WITHOUT LVVWD REIMBURSEMENT. ANY TEMPORARY SERVICE FEED MUST HAVE PRIOR LVVWD APPROVAL.
13. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD'S PRE-APPROVED MATERIALS AND MANUFACTURERS LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.

CITY OF LAS VEGAS FIRE DEPARTMENT NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CITY OF LAS VEGAS FIRE DEPARTMENT "HYDRANT SPECIFICATIONS" AND ORDINANCE #3677.
2. AUTHORIZED HYDRANTS FOR THIS PROJECT ARE:
A. KENNEDY GUARDIAN
B. MUELLER A-423 CENTURIAN
C. CLOW MODEL 2546 MEDALLION
3. ON ANY NEW HOME OR BUILDING INSTALLATION, ACCESSIBLE FIRE HYDRANTS SHALL BE INSTALLED BEFORE COMBUSTIBLE CONSTRUCTION COMMENCES AND SAID FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER WITH AN ADEQUATE WATER SUPPLY.
4. CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT CENTERLINE OF STREET ADJACENT TO FIRE HYDRANT AS REQUIRED IN ORDINANCE #3677 TO IDENTIFY FIRE HYDRANT LOCATIONS.
5. CALL THE LAS VEGAS BUILDING DEPARTMENT AT 299-2071 FOR UNDERGROUND INSPECTION, PRESSURE AND FLUSH VERIFICATION OF ALL FIRE HYDRANTS AND FIRE LINES BEFORE COVERING.
6. PAINTING OF THE CURBS AND HYDRANT AND ANY WORK NECESSARY FOR PROTECTION OF HYDRANTS FROM PHYSICAL DAMAGE PER ORDINANCE #3677 SHALL BE COMPLETED BEFORE APPROVAL BY THE CITY OF LAS VEGAS FIRE DEPARTMENT.
7. A PERMIT IS REQUIRED FROM THE FIRE DEPARTMENT FOR ON-SITE WATER LINE AND FIRE HYDRANT. THE PERMIT AND CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER PRIOR TO ANY WORK BEGINNING.
8. A FLOW TEST MUST BE WITNESSED BY THE FIRE DEPARTMENT PRIOR TO OCCUPANCY FOR VERIFICATION OF REQUIRED ON-SITE WATER SUPPLY.
9. ALL ON-SITE FIRE MAIN MATERIALS MUST BE U.L. LISTED AND A.W.W.A. APPROVED.
10. FIRE HYDRANT SPACING:
RESIDENTIAL - 500 FEET UNSPRINKLERED, 600 FEET SPRINKLERED
COMMERCIAL, INCLUDING MULTI-FAMILY - 300 FEET UNSPRINKLERED, 400 FEET SPRINKLERED.
11. NO FIRE HYDRANT SHALL BE LOCATED WITHIN THE REQUIRED RADIUS OF A CUL-DE-SAC OR WITHIN 20' OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
12. NO FIRE HYDRANT SHALL BE LOCATED WITHIN 6' OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT, OR ANY OTHER OBSTRUCTION.
13. NOT MORE THAN 2 HYDRANTS CAN BE OUT OF SERVICE DUE TO A SINGLE MAIN BREAK.
14. THE TURNING RADIUS FOR ANY FIRE APPARATUS ACCESS ROAD AND/OR FIRE LANE, PUBLIC OR PRIVATE, SHALL BE NOT LESS THAN 45 FEET OUTSIDE RADIUS AND 22 FEET INSIDE RADIUS.
15. A FIRE APPARATUS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FEET FROM A FIRE DEPARTMENT VEHICLE ACCESS. (SEE EXCEPTIONS IN UFC 88, SECTION 10.207).
16. ALL DEAD END FIRE APPARATUS ACCESS ROADS AND/OR FIRE LANES PUBLIC OR PRIVATE, IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURNAROUND AREA. SEE ORDINANCE #3677.
17. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF LAS VEGAS GUIDELINES FOR AUTOMATIC EMERGENCY VEHICLE ACCESS GATES.

ESTIMATE OF WATER QUANTITIES

6" WATER LINE	321 L.F.
8" WATER LINE	866 L.F.
3/4" WATER SERVICE	43 EA.
3/4" WATER METER (BY LVVWD)	43 EA.
3/4" WATER METER FOR LANDSCAPING W/ 3/4" RPPA	1 EA.
METER BOX	44 EA.
8" GATE VALVE	2 EA.
8" x 6" TEE	2 EA.
8" TEE	1 EA.
STD. FIRE HYDRANT ASSEMBLY	3 EA.
6" 11 1/4" BEND	1 EA.
6" 90° BEND	1 EA.
2" BLOW-OFF ASSEMBLY W/CAP	2 EA.
8"x6" REDUCER	2 EA.

NOTE: QUANTITIES ARE APPROXIMATE ONLY- CONTRACTOR TO VERIFY.

APPROVALS

James B. [Signature] 11/17/94
LAS VEGAS VALLEY WATER DISTRICT DATE
[Signature] 11-17-94
CITY OF LAS VEGAS FIRE MARSHALL DATE
Carl Lambert 11-16-94
NEVADA POWER COMPANY DATE
NOTE:
THIS APPROVAL IS FOR THE PLACEMENT AND CLEARANCE OF STREET LIGHT AND SIGNAL LIGHT INSTALLATIONS ONLY.

UTILITY NOTE

EXISTING STUBS NOT UTILIZED BY THIS DEVELOPER MUST BE ABANDONED BY THIS DEVELOPER IN ACCORDANCE WITH THE APPROPRIATE AGENCY'S REGULATIONS.

ABANDONED VALVE CUT AND CAP WITHIN RIGHT-OF-WAY

ALL VALVES TO BE ABANDONED IN THE CLOSED POSITION, UNLESS SHOWN OTHERWISE, BY REMOVING A MINIMUM OF THE TOP 12 INCHES OF THE VALVE BOX AND THEN FILLING THE REMAINING PORTION OF THE VALVE BOX WITH CONCRETE HAVING A COMPRESSIVE STRENGTH OF AT LEAST 2,000 PSI.

THE CONTRACTOR SHALL CUT THE EXISTING PIPE 3' BEYOND THE ABANDONED VALVE AND INSTALL A CAP 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. THE CONTRACTOR SHALL INSTALL A CONCRETE THRUST BLOCK IN ACCORDANCE WITH THE PROVISIONS OF THE DISTRICT'S STANDARD PLATE NO.5 AT ALL CAP OR PLUG LOCATIONS.

NOTE "A"

ABANDONMENT OF EXISTING SERVICES - 2" AND SMALLER

The Contractor shall notify the Inspection Division at the LVVWD (702-258-3227) 48 hours prior to the requested removal time to allow the District to take the final meter reading of the meter. After the final reading, the Contractor may then begin removal procedures for the affected services as follows:

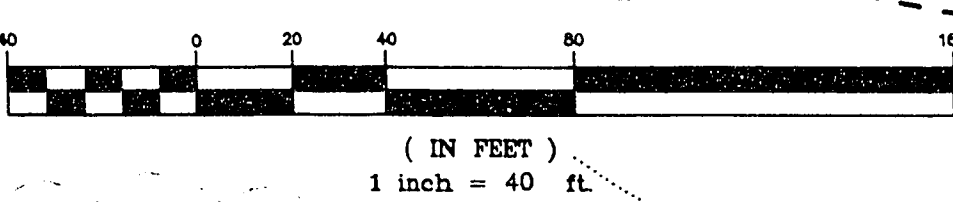
Existing service laterals that are to be abandoned from the existing water main, shall have the corporation stop turned off at the main, the laterals cut 6" downstream from the corporation stop and cut again 6" downstream from the first cut such that a 6" piece of the existing

service lateral is removed. If the corporation stop is damaged beyond repair or pulled from the existing water main, the main shall be repaired at the Contractor's expense, in a manner approved by the LVVWD. If the corporation stop is not water tight, the Contractor shall notify LVVWD Communication Support Center (702-258-7171) for further direction.

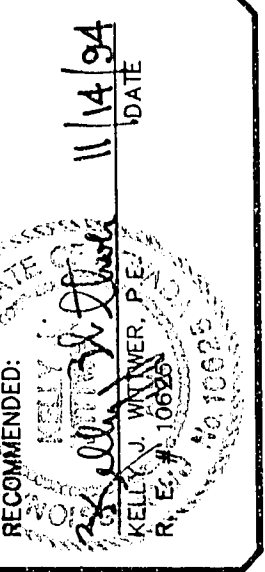
The Contractor shall remove the existing service meter box and appurtenances. Fill and grade any and all resulting voids and replace or restore to original conditions or better, all landscaping, irrigation systems, concrete, sidewalks, asphalt, or any other items damaged or removed during the removal of the existing service meter box.

Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

GRAPHIC SCALE



NO.	DESCRIPTION	DATE	APPD.
1	ABANDON EX. WATER SERVICE	11/17/94	MB4
2	STREET LIGHT LOCATION CHANGED	11/17/94	MB4



DATE: 11/14/94
DRAWN BY: KAS
DESIGNED BY: CAC
CHECKED BY: CAC
JOB NO.: 0032185
SCALE: 1" = 40'

PENTACORE
Engineering, Inc.
6763 West Charleston Boulevard
Las Vegas, Nevada 89102

LEWIS HOMES OF NEVADA
WILLOW BEND NO. 4
UTILITY PLAN

SHEET
3
OF 7

11-15-10 8

307Y-4332-4