

**CITY OF LAS VEGAS FIRE DEPARTMENT NOTES**

- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CITY OF LAS VEGAS FIRE DEPARTMENT'S ORDINANCE #5115, "HYDRANT SPECIFICATIONS", AND "HYDRANT INSTALLATION SPECIFICATION".
- AUTHORIZED HYDRANTS FOR THIS PROJECT ARE:
  - KENNEDY - GUARDIAN MODELS K81A AND K81D
  - MUELLER SUPER CENTURION 250 MODEL A-423
  - CLOW - MEDALLION MODEL F-256RUD
  - TROY VALVE-PATRIOT MODEL PT8100N NEVADA HYDRANT
- ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW.
- TO IDENTIFY THE FIRE HYDRANT LOCATIONS, CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF STREET ADJACENT TO THE FIRE HYDRANTS AS REQUIRED BY ORDINANCE #5115.
- ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CALL THE CITY OF LAS VEGAS INSPECTION HOT-LINE AT 229-2071 TO REQUEST AN INSPECTION BY THE CITY OF LAS VEGAS FIRE DEPARTMENT.
- PAINTING OF THE CURBS AND FIRE HYDRANTS AND ALL OTHER WORK NECESSARY AS REQUIRED BY ORDINANCE #5115, FOR THE PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, SHALL BE COMPLETED BEFORE THE APPROVAL BY THE CITY OF LAS VEGAS FIRE DEPARTMENT.
- A PERMIT IS REQUIRED FROM THE FIRE DEPARTMENT FOR THE ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.
- PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED.
- PRIOR TO THE FINAL OCCUPANCY, A FLOW TEST MUST BE WITNESSED BY THE CITY OF LAS VEGAS FIRE DEPARTMENT TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW.
- ALL ON-SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A. APPROVED, AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE.
- FIRE HYDRANTS SPACING SHALL BE:
  - RESIDENTIAL - 500 FEET UNSPRINKLERED; 1,000 FEET SPRINKLERED
  - COMMERCIAL - 300 FEET UNSPRINKLERED; 600 FEET SPRINKLERED
- WHERE NEW WATER MAINS ARE EXTENDED ALONG STREETS WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT MAXIMUM 1,000 FOOT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS.
- NO FIRE HYDRANT SHALL BE LOCATED WITHIN THE REQUIRED RADIUS OF A CUL-DE-SAC OR WITHIN 20 FEET OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.
- NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FEET OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREET LIGHT, OR ANY OTHER OBSTRUCTION.
- THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FEET.
- THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FEET, AS MEASURED BY AN APPROVED ROUTE.
- TWO SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE ARE 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM.
- SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN.
- ALL FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20 FEET (FLOW LINE TO FLOW LINE), PROVIDED NO PARKING IS ALLOWED ON EITHER SIDE; 28 FEET (FLOW LINE TO FLOW LINE), IF PARALLEL PARKING IS ALLOWED ON ONE SIDE ONLY; AND 36 FEET (FLOW LINE TO FLOW LINE), IF PARALLEL PARKING IS ALLOWED ON BOTH SIDES. VERTICAL CLEARANCE SHALL BE NOT LESS THAN 13 FEET 6 INCHES.
- ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS.
- THE GRADIENT FOR A FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FEET PRIOR TO OR AFTER THE GRADE CHANGE.
- THE TURNING RADIUS OF FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FEET OUTSIDE AND 28 FEET INSIDE TURNING RADIUS.
- A FIRE APPARATUS ACCESS 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 97, SECTION 902.2).
- ALL DEAD-END FIRE APPARATUS ROADS AND OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AREA HAVING A MINIMUM DIAMETER OF 81 FEET (BACK OF THE CURB TO THE BACK OF THE CURB).
- ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS 100 FEET ALONG ALL DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FEET OR LESS THAN 6 FEET FROM ROADWAY LEVEL. THE CURBS ALONG OR ON THE PAVEMENT OR CEMENT IF CURB IS NOT PROVIDED SHALL BE PAINTED WITH A READ WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS.
- ELECTRICALLY CONTROLLED ACCESS GATED 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.

**BASIS OF BEARING**

THE BASIS OF BEARING OF THIS SURVEY IS THE CENTERLINE OF TOWN CENTER DRIVE AS SHOWN BY MAP THEREOF ON FILE IN FILE 74, PAGE 14 OF PARCEL MAPS IN THE CLARK COUNTY RECORDER'S OFFICE, BEING NORTH 42 00' 00" EAST.

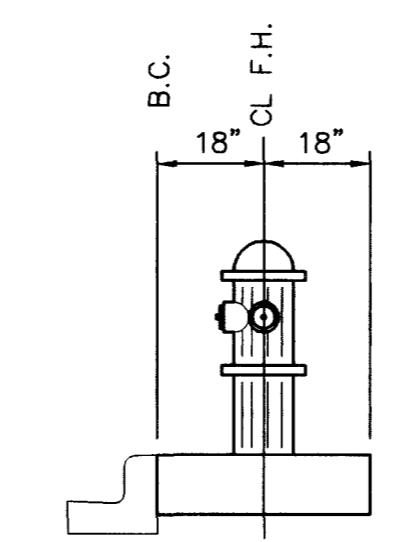
**BENCHMARK**

BENCHMARK NO.9: RIVET & PLATE IN TOP OF CURB; WSW RETURN OF HILLS CENTER DRIVE & HILLPOINTE ROAD. STATION 0LVOO, 19NE6

ELEVATION: 2666.206

**LEGEND**

- WATER LINE
- SEWER LINE
- LOT BOUNDARY
- STREET CENTER LINE
- EXISTING IMPROVEMENTS

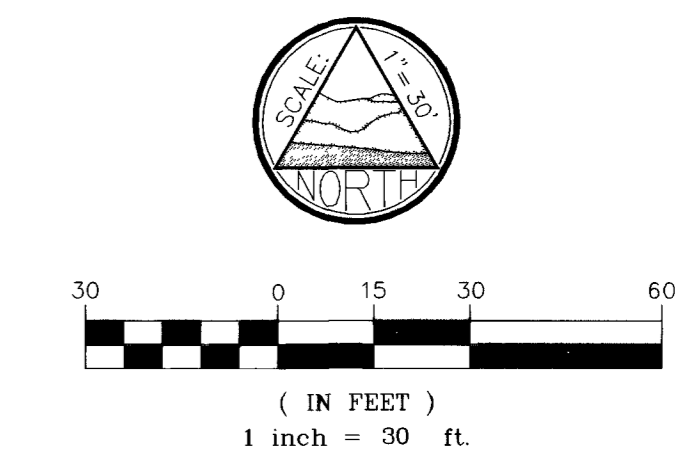


TYPICAL FIRE HYDRANT LOCATION

**DISCLAIMER NOTE**



UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND 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 LOCATION.



**LAS VEGAS VALLEY WATER DISTRICT STANDARD NOTES**  
LWVD PROJECT # 27415

- NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY THE LWVD. FOLLOWING WATER PLAN APPROVAL, 48 HOUR NOTICE SHALL BE GIVEN TO THE LWVD COMMUNICATION 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 LWVD INSPECTION, WHEN REQUESTING INSPECTION, PLEASE REFER TO THE PROJECT IDENTIFIED ABOVE.
- ALL WORK SHALL CONFORM TO THE LWVD'S STANDARD PLATES, DRAWINGS AND SPECIFICATIONS AND THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (UDACS) LATEST EDITION.
- 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.
- A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LWVD.
- ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE COPPER TUBING WITH LWVD APPROVED SERVICE SADDLES.
- ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
- ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
- THE FOLLOWING REQUIREMENTS MUST BE MET IN THE EVENT A WATER LINE AND SANITARY OR STORM SEWER LINE CROSS:
  - A MINIMUM EIGHTEEN (18) INCH VERTICAL SEPARATION (OUTSIDE TO OUTSIDE) MUST BE MAINTAINED WHEN THE WATER LINE IS INSTALLED OVER THE SANITARY OR STORM SEWER LINE. IF THE VERTICAL SEPARATION CANNOT BE MAINTAINED OR THE WATER LINE MUST BE PLACED UNDER THE SANITARY OR STORM SEWER LINE, THE SANITARY OR STORM SEWER LINE MUST BE CONSTRUCTED WITH ON THE FOLLOWING OR, AS SHOWN ON THESE PLANS:
    - POTABLE WATER SUPPLY QUALITY MATERIAL.
    - ENCASEMENT, WITH FOUR (4) INCH CONCRETE (MINIMUM) C. SLEEVING WITH POTABLE WATER SUPPLY QUALITY PIPE.
- WARNING TAPE SHALL BE REQUIRED OVER ALL MAINS, ALL (6) INCH DIAMETERS AND LARGER SERVICE LATERALS, AND ALL SERVICE LATERAL NOT INSTALLED PERPENDICULAR TO THE MAIN IN ACCORDANCE WITH STANDARD PLATE NO. 27.
- ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LWVD'S DISTRIBUTION SYSTEMS.
- THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LWVD CENTRAL STORES. TELEPHONE 258-3152 FORTY-EIGHT (48) HOURS PRIOR TO PICKUP.
- CONSTRUCTION MAY INTERRUPT SERVICE, WITH LWVD APPROVAL AND PRIOR NOTIFICATION, BETWEEN THE HOURS OF 10 PM AND 6 AM, SUNDAY THROUGH THURSDAY. CIRCUMSTANCES MAY REQUIRE TEMPORARY SERVICE FEES BE INSTALLED, WITHOUT LWVD REIMBURSEMENT. ANY TEMPORARY SERVICE FEES MUST HAVE PRIOR LWVD APPROVAL.
- ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LWVD'S PRE-APPROVED MATERIALS AND MANUFACTURERS LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.

**FIRE FLOW CALCULATIONS**

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

BASED ON:

SQUARE FOOTAGE:	5600	SQUARE FEET
LARGEST AREA BETWEEN 4-HOUR:		
AREA SEPARATION WALLS:	0	SQUARE FEET
BUILDING HEIGHT:	22'	FEET
NUMBER OF STORIES:	1	FLOORS
TYPE OF CONSTRUCTION:	V-ONE HOUR	
OCCUPANCY:	GROUP-A	
FULL AUTOMATIC FIRE SPRINKLER SYSTEM:	YES	

**SANITARY SEWER CONTRIBUTION CALCULATIONS**

COMMERCIAL DEVELOPMENT 5600 SQ FT OR 0.129 ACRES X 1750 GAL PER ACRE PER DAY = 227.5 GPD OR 2.275 X 10<sup>6</sup>-4 MGD

BY: DATE: APPR:

NO. REVISIONS:

(702) 228-8184  
FAX (702) 228-8184

1081 SOUTH CIMARRON RD. STE. A-4  
LAS VEGAS, NEVADA 89146

**PRIMAS AND ASSOCIATES CONSULTING ENGINEERS**

SCALE (H): 1"=30'  
SCALE (V): N/A  
DRAWN: US  
DESIGN: JK  
CHECKED: DH  
DATE:

**S.R. CONSTRUCTION**  
**GRACE IN THE DESERT CHURCH**  
**UTILITY PLAN**

RECOMMENDED BY:  
DAVID P.H. HUCKLE  
CIVIL  
No. 5256  
R.P.E. No. 5256  
EXP. 12/31/02

SHEET 4 OF 5  
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