

APPENDIX N

Utility Correspondence and Technical Data

N-1 Water System and Supply Report

WATER SYSTEM AND SUPPLY REPORT

for the

'6220 WEST YUCCA'

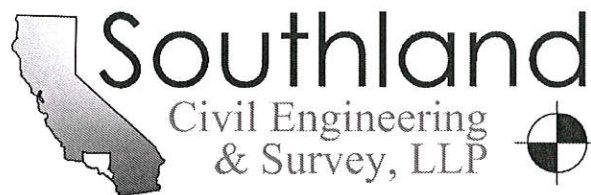
**6220 West Yucca Street
Los Angeles, California 90028**

Prepared for:

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Revised November 3, 2017

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Project No. 780-15020



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INTRODUCTION

Project Site

The project site address is 6220 West Yucca Street, and consists of APN parcels 5546-031-007, 5546-031-008, 5546-031-027 and 5546-031-031; in the Hollywood Community Plan Area within the City of Los Angeles, California. The site is currently occupied with three Multi-family residence buildings with carports, a concrete paved parking lot, a single-family residence and a multi-family residence. The 1.65-acre site is bounded by Yucca Street to the north, Vista Del Mar Avenue to the east, Argyle Avenue to the west, and next to existing commercial and residential lots to the south. The property is classified as “Regional Center Commercial & Medium Residential” per the City of Los Angeles General Plan Land Use and within the existing zonings of (Q) R3-1XL, R4-2D and C4-2D-SN. It is within the Hollywood Redevelopment Project Area.

The project site is within the service area of the Los Angeles Department of Water & Power (LADWP). With a proposed zoning change to R3-2 and C2-2, the redevelopment proposes to demolish all on-site existing buildings and construct a multi-story vertically integrated mixed-use project with residential units, amenities, hotel, commercial, retail areas and on-site parking; and a detached residential building with on-site parking. The project consists of two buildings: a 20-story building for mixed-used, and a 4-story building for residential use. There is a multi-level subterranean parking below each of these two buildings. See

Appendix II - Existing and Proposed Water System Map for the proposed mixed-use redevelopment location.

Water System and Supply Study

This Water System and Supply Study was prepared in support of the project's Environmental Impact Analysis – which is required by the California Environmental Quality Act (CEQA) (Ref. # 1). This study identifies the State and local regulations and ordinances regarding water supply and use, a discussion of existing conditions, an analysis of the project impacts, a summary of recommended mitigation measures of project features, a determination of impacts after mitigation, and an analysis of cumulative impacts.

REGULATORY FRAMEWORK

Federal Regulation

The Clean Water Act (CWA) (Ref. # 2) regulates quality standards for surface waters and regulates the discharges of pollutants into the waters of the United States. These standards, established by the U.S. Environmental Protection Agency (USEPA), set drinking water standards for the CWA. Minimum Standards for surface water quality, pollution control for wastewater, raw treated water quality, and potable water supplies are set by the USEPA under the CWA. The project site will follow the regulatory requirements of the CWA. The Safe Drinking Water Act (SDWA) (Ref. # 3), implemented by the USEPA, is the primary law ensuring quality drinking water for the nation. The act sets

standards for various contaminants as well as the taste and mineral content in potable water.

State Regulation

Part of California Law, the California Water Code contains the Urban Water Management Planning Act. This act, being Sections 10610 through 10656 of the Water Code, requires California water suppliers to prepare an Urban Water Management Plan (UWMP) every five years describing past and future water resource efforts (Ref. #4). Forecasted data from the UWMP guides the design criteria of this project such as: water supply, service area demand, population trends and efforts to promote efficient use and management of water resources.

The California Department of Public Health follows the SDWA drinking standard, by enacting California Code of Regulations (CCR) Title 17 – “Public Health” and Title 22 – “Social Security” administratively, with more stringent standards for water quality and monitoring. The project will also follow water conservation requirements per Title 20 – “Public Utilities & Energy” and Title 24 – “Building Standards Code” of the California Administrative Code. Title 20, Section 1604, establishes efficiency standards (i.e., maximum flow rates) for all new showerheads, lavatory faucets, and sink faucets and prohibits the sale of fixtures that do not comply with the regulations. Title 24 Sections 2-5307(b) and 2-5352(i) prohibit the installation of fixtures unless the manufacturer has certified compliance with the flow rate standards and addresses pipe insulation requirements that can reduce water used before hot water reaches fixtures.

Senate Bill 610 (SB610) modified the water code to improve the information between water supply availability and certain land use decisions made by Cities and Counties. Under SB610, it is the responsibility of the water service provider to prepare a water supply assessment requested by a City or County for any “project” defined by Section 10912 of the California Water Code that is subject to CEQA. If the development is not defined as a “project,” SB610 is not applicable and an assessment is not required.

Following the SB610 Flowchart prepared by the California Department of Water Resources; This project is not subject to Senate Bill 610 (See Appendix I)

1. The development is subject to CEQA
2. It is not defined a “*project*” per Water Code §10912 which lists the following criteria as a definition of a “*project*”:

See Table 1 –Water Code §10912 below. Specifically, the project does not exceed the criteria of more than a project equivalency of 500 units (Proposed 197 + 13 + 136 units). This is Item (a)7, which is equivalent to (a)1.

Table 1 - Water Code § 10912

| | |
|--|---|
| <p><i>For the purposes of this part, the following terms have the following meanings:</i></p> <p><i>(a) "Project" means any of the following:</i></p> <p><i>(1) A proposed residential development of more than 500 dwelling units.</i></p> <p><i>(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.</i></p> <p><i>(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.</i></p> <p><i>(4) A proposed hotel or motel, or both, having more than 500 rooms.</i></p> <p><i>(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.</i></p> <p><i>(6) A mixed-use project that includes one or more of the projects specified in this subdivision.</i></p> <p><i>(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.</i></p> | <p>'Yucca' Redevelopment:</p> <p>(1) No, 210 DU.</p> <p>(2) No, 3,450 sf retail.</p> <p>(3) No, office building is not proposed.</p> <p>(4) No, 136 rooms.</p> <p>(5) No, non-industrial use.</p> <p>(6) No, not within the meanings of specified project.</p> <p>(7) No, DU and hotel rooms plus retail usage will be less than the 500 DU limit.</p> |
|--|---|

Local Regulation: City of Los Angeles

Since the Los Angeles Department of Water and Power (LADWP) manages and supplies the municipal water system for the City of Los Angeles, they are required to prepare the UWMP for the City. LADWP describes past and future water resource efforts for the City, and also addresses several water issues due to multi-year dry weather and regulatory restrictions affecting water supplies originating in the Sacramento-San Joaquin Delta (Bay Delta) and Colorado River

Basin. Management actions were taken to enhance water conservation and implement treatment for groundwater supplies while maintaining current operational integrity and reliability. Since the 2005 UWMP, California's new mandate of reducing per capita water use by 20 percent by the year 2020 has been added to the current 2015 UWMP. The plan not only meets but exceeds all Federal and State standards for drinking water quality.

LADWP has also prepared the "Water System: Ten-Year Capital Improvement Program, for the Fiscal Years 2010-2019" (Ref. # 5). It addresses the Water System Capital Improvement Program in the four major categories: infrastructure reliability, water supply, regulatory compliance, and other strategic activities. Attending to the needs of those categories enables LADWP to meet the City's water needs and to meet all Federal and State standards for drinking water quality.

For Fire protection, Division 9 of the Los Angeles Fire Code (Ref. # 8) regulates Fire Department access, fire hydrants, and fire-flow. This code establishes the minimum requirements for fire protection based on fire department response capabilities, personnel, apparatus availability, and fire flow. Requirements for fire hydrants and fire flow are based on land use. These requirements establish the peak demand on the system concurrent with domestic use.

The 2009 Citywide Community Needs Assessment (Ref. # 9) for the City of Los Angeles, Department of Recreation and Parks is a Capital Improvement Plan (CIP) developing a citywide park master plan. The information from this assessment is used to determine the population growth trends for the project site neighborhood and hence, the estimated increase of water demand in the neighborhood area.

This project shall comply with landscape water use conservation requirements included in the local Municipal Code per California Government Code Section 65591 (Ref. # 6), the Water Conservation in Landscaping Act. Capture and retention of stormwater will be analyzed for utilization to the maximum extent feasible as an on-site Best Management Practice to improve water use efficiency and water quality by using automatic low flow irrigation system to offset the existing impact sprinkler system. Operational water quality design criteria are outlined in the City's Development Best Management Practices Handbook – Part B Planning Activities (LID Manual) (Ref. # 7).

EXISTING CONDITIONS

City of Los Angeles

Currently, the water supply sources for LADWP are from the Los Angeles Aqueduct (36%), The Metropolitan Water District (MWD) (52%), groundwater supplies (11% [30% in drought years]), and recycled water (1%).

On February 11, 2014, the MWD declared a water supply alert to all its service areas due to the drought condition. This was in response to State Department of Water Resource's policy of zero allocation to all customers of the State Water Project.

Before this declaration, the City had adopted several water conservation plans and ordinances such as: Water Days Plan, Emergency Water Conservation Plan Ordinance, High Efficiency Fixture Ordinance and Retrofit on Resale Ordinance.

The entire City water usage for the 2010-2011 year totaled about 168 billion gallons for Los Angeles customers as provided by LADWP. Water consumption by the City has been consistently level within the last decade due to the measures for water conservation, recycled water use (projected 59,000 acre-feet per year, AFY, by 2035) and the re-charge of groundwater from stormwater.

The water quality of reservoirs is currently planned to be ensured by the following means: replacement with underground tanks, by-pass, and/or sealed microfiltration plants. Currently there are numerous projects in the planning and

design stages for groundwater monitoring and remediation of existing wells with actual construction from 2018 through 2022 in order to maintain the wells' reliability.

Existing Neighborhood Water Distribution System

The project site is located where LADWP provides water from the Hollywood Reservoir. Water supply to the Hollywood reservoir is from the Los Angeles Aqueduct which ranges to the Eastern Sierra Nevada Mountains. The local distribution network in the streets directly adjacent to the project site varies from 4" to 12" pipe diameters. To the north, Yucca Street has a 12" pipe. To the east, Vista Del Mar has a 4" pipe. To the west, Argyle has an 8" pipe. The project is bounded by developed land to the south.

Existing Neighborhood Water System and Domestic Demand

The existing multi-family buildings are connected to the City's water system by the 12" water main on Yucca Street and the 8" water main on Argyle Avenue. The existing single family residences are connected to the city system by the 4" water main on Vista Del Mar Avenue. See Existing and Proposed Water System Map. (Appendix II). The existing domestic water demand is tabulated on the next page per the type of facilities on site.

Table 2 - Existing Domestic Water Demand

Generated Sewage based on the Bureau of Engineering Sewer Generation Factor (Ref. # 9)

Peak Hour Multiplier per LADWP, Guidelines for Gravity & Pump Systems. (Ref. # 11)

Existing Domestic Water Demand

| Facility | Sewage Generation Factor | gpd/Facility | No. of units or sf | Generated Sewage (gpd) | 20% increase for outdoor water for Daily Demand (gpd) | Average Daily Demand ADD (gpm) | Peak Hour Demand PHD (gpm)= 3.0 X ADD |
|-----------------------|--------------------------|--------------|--------------------|------------------------|---|--------------------------------|---------------------------------------|
| Bachelor Apt. | 75 | gpd/DU | 1 | 75 | 90 | 0.06 | 0.19 |
| 1-bedroom Apt. | 110 | gpd/DU | 26 | 2,860 | 3,432 | 2.38 | 7.15 |
| 2-bedroom Apt. | 150 | gpd/DU | 14 | 2,100 | 2,520 | 1.75 | 5.25 |
| Multi-family Bldg. | 150 | gpd/DU | 2 | 300 | 360 | 0.25 | 0.75 |
| SFR | 185 | gpd/DU | 1 | 185 | 222 | 0.15 | 0.46 |
| Parking lot | 20 | gpd/1,000sf | 28,000 | 560 | 672 | 0.47 | 1.40 |
| Total existing demand | | | | 6,080 | 7,296 | 5 | 15 |

Existing Fire Flow System

For the fire flow system, the existing apartments most likely do not have fire sprinkler system installed due to the age of the buildings. They are protected by the public fire hydrants on the streets. Within 300' from the site, there is one public fire hydrant located on Carlos Avenue off Vista Del Mar Avenue, one on Yucca Street and one on Argyle Avenue, respectively. See Appendix II – Existing and Proposed Water System Map for fire hydrant locations showing six (6) existing hydrants nearest to the site. LAFD has indicated that the building is served by existing public fire hydrants, and the available water will be acceptable and sufficient for the project site and no additional fire hydrants are required.

Existing Irrigation System

Currently there are existing irrigation systems in use for the apartments that are using residential style pop-up and rotating style sprinklers. This existing irrigation systems will be demolished and replaced for the new irrigation system for the project.

Project Impacts

In this section, impacts associated with water supply and systems, thresholds of significance set forth in the City of Los Angeles' "L.A. CEQA Thresholds Guide" will be evaluated. These thresholds of significance incorporate a total estimated demand for the project, growth after project completion, project impacts, and proposed mitigation measures.

Short Term Impact (Construction Phase)

There is a short-term impact during the construction phase from activities such as demolition, grading and excavation. Activities such as dust control and clean up are temporary in nature and intermittent. As for the water demand during grading and excavation, they are assumed to be similar to irrigation demand which is estimated to be approximately at 3,000 gpd/acre or about 3,570 gpd for the project site. This short-term usage is less than the current water usage from the on-site existing buildings.

Domestic Water Demand for Proposed Redevelopment

The proposed redevelopment includes the disconnection of water services to the existing buildings on Yucca Street and Vista Del Mar Avenue; and the installation of a 6-inch metered service connection from the existing 8-inch water main along Argyle Avenue for the residential portions of the proposed 20-story building, a 4-inch metered service for the commercial portions of the 20-story building, and a 2-inch service for the 4-story residential building at Vista Del Mar Avenue. The Mixed-Use redevelopment of the site includes 210 proposed apartment units, 136 hotel rooms (see Table 3 for assumption of Hotel Suites), restaurants with 500 total seats, 3,450 sf of retail, 3,850 sf of spa, 190,605 sf of parking, and approximately 6,620 sf of landscaping. See Appendix II for Existing and Proposed Water System Map. Table 3 shows the Redevelopment Domestic Water Demand from the different proposed facilities for the project site.

Table 3 - Proposed Redevelopment Domestic Water Demand

Generated Sewage based on the Bureau of Engineering Sewer Generation Factor (Ref. # 9)
Peak Hour Multiplier per LADWP, Guidelines for Gravity & Pump Systems. (Ref. # 11)

| Facility | Sewage Generation Factor | gpd/Facility | No. of units or sf | Generated Sewage (gpd) | 20% increase for outdoor water for Daily Demand (gpd) | Average Daily Demand ADD (gpm) | Peak Hour Demand PHD (gpm)= 3.0*ADD |
|---------------------------------------|--------------------------|--------------|--------------------|------------------------|---|--------------------------------|-------------------------------------|
| Parking Structure | 20 | gpd/1,000sf | 190,605 | 3,812 | 4,575 | 3.18 | 9.53 |
| 1-bedroom Apt. | 110 | gpd/DU | 104 | 11,440 | 13,728 | 9.53 | 28.60 |
| 2-bedroom Apt. | 150 | gpd/DU | 96 | 14,400 | 17,280 | 12.00 | 36.00 |
| 3-bedroom Apt. | 190 | gpd/DU | 10 | 1,900 | 2,280 | 1.58 | 4.75 |
| Hotel rooms* | 120 | gpd/room | 156 | 18,720 | 22,464 | 15.60 | 46.80 |
| Restaurant seat | 30 | gpd/seat | 500 | 15,000 | 18,000 | 12.50 | 37.50 |
| Retail area | 25 | gpd/1,000sf | 3,450 | 86 | 104 | 0.07 | 0.22 |
| Bar | 720 | gpd/1,000sf | 920 | 662 | 795 | 0.55 | 1.66 |
| Spa | 650 | gpd/1,000sf | 3,850 | 2,503 | 3,003 | 2.09 | 6.26 |
| Meeting Space | 120 | gpd/1,000sf | 4,600 | 552 | 662 | 0.46 | 1.38 |
| Total proposed demand | | | | 69,075 | 82,890 | 57.56 | 172.69 |
| Less 20% conservation/exclude parking | | | | | -15,663 | -10.88 | -32.63 |
| Total proposed demand w/ conservation | | | | | 67,227 | 46.69 | 140.06 |
| Net Increase (Proposed - Existing) | | | | | 59,931 | 42 | 125 |

*Hotel count includes 116 conventional rooms and 20 suites counted as 2 rooms each (116 + 2 x 20 = 156)

The LADWP Fire Service Pressure Flow Report (SAR – see Appendix III) has 700 gpm provided for the proposed 6”, 4”, and 2” metered water service connections. While the Peak Hour Demand for the redevelopment from Table 3 is 140 gpm, the instantaneous demand of the combined 6”, 4” and 2” meters is 862 gpm based on a water supply fixture unit count for the project (also provided in Appendix III). The city’s conversion table of fixture units to gallons per minute is provided in Appendix IV. The SAR includes 1,400 gpm fire flow with simultaneous 700 gpm domestic flow (a total of 2,100 gpm) at 47 psi. The system has sufficient capacity for the project’s domestic needs versus the 2,100 gpm available at 47 psi.

Population Growth Trend

The population growth associated with an area would typically be assumed be in residential zones. In the case of Los Angeles, an urban area, with mostly fully developed residential zones, the significant growth elements will occur in infill redevelopment resulting from increased density. Table 4 below shows the Past and Projected Population Growth Trend for the Hollywood Community.

(Reference # 10: Adopted (1988) Hollywood Community Plan)

Table 4 – Population Growth Trend

Reference: Adopted (1988) Hollywood Community Plan

| Year | Population | Remarks |
|-----------------------|-------------------|-------------------------------------|
| 1980 | 181,000 | Per Community Plan |
| 2010 | 219,000 | Per Community Plan |
| Annual growth rate | 1.0064 | Average rate |
| 2016 | 227,511 | Projected growth |
| Adopted Plan Capacity | 231,395 | 2016 growth is within plan capacity |

The projected population growth in the area is within the capacity of the community plan.

Fire Flow Demand for Redevelopment Project

As mentioned in the Existing Fire Flow System section above, there are enough public fire hydrants around the project site that are connected to the City-wide water system, and no proposed private fire hydrant is required for the project. Per discussion with Inspector Robert Duff of LAFD (Fire Department), there is no additional fire flow requirement for the site when protected with water from existing public hydrants and no water from on-site private hydrants. Additionally, through email correspondence with Inspector Duff, six (6) flowing fire hydrants adjacent to the site yield an available 9,000 gpm at 20 psi (see Correspondence in Appendix V). Other required flows, such as sprinklers and the project's own domestic demand, shall be considered separately – as noted per discussions with Victor Vargas and the Water Distribution Services Center, both of LADWP.

With the SAR (see Appendix III) including 1,400 gpm fire flow with a simultaneous 700 gpm domestic flow (a total of 2,100 gpm), and the project design requiring 1,000 gpm fire flow with at most a simultaneous 862 gpm domestic flow (for a total of 1,862 gpm), the system has sufficient capacity for the project's fire sprinkler needs.

MITIGATION MEASURES

In order to minimize the impacts to a level that is less than significant the following mitigation measures are incorporated as part of the project development:

1. Use of 1.75 gpm shower heads.
2. Use of waterless urinals.

3. Use of drought tolerant landscaping.
4. Use of low flow irrigation system with weather base/soil moisture base controller system.
5. Installation of drought tolerant or native planting where feasible.

IMPACTS AFTER MITIGATION

The utilization of mitigation measures within the building and landscaping areas will provide a more efficient water use system for the project and lessen the water demand needed to be supplied from the City.

The difference of permeable areas between the existing condition and the redevelopment condition is minor and hence the impact to the groundwater infiltration and ground water level is less than significant.

CONCLUSION

In compliance with LACMC 2014 CBC Amendment Title 24 measures, overall water use per person has reduced through the years and the total water consumption used by the City has been stabilized. With the Urban Water Management Plan in place, the City is well prepared to meet the projected growth in years to come.

As for the water use from the project site, with all the mitigation measures implemented, the impact to the neighborhood and the City overall system is considered to be insignificant.

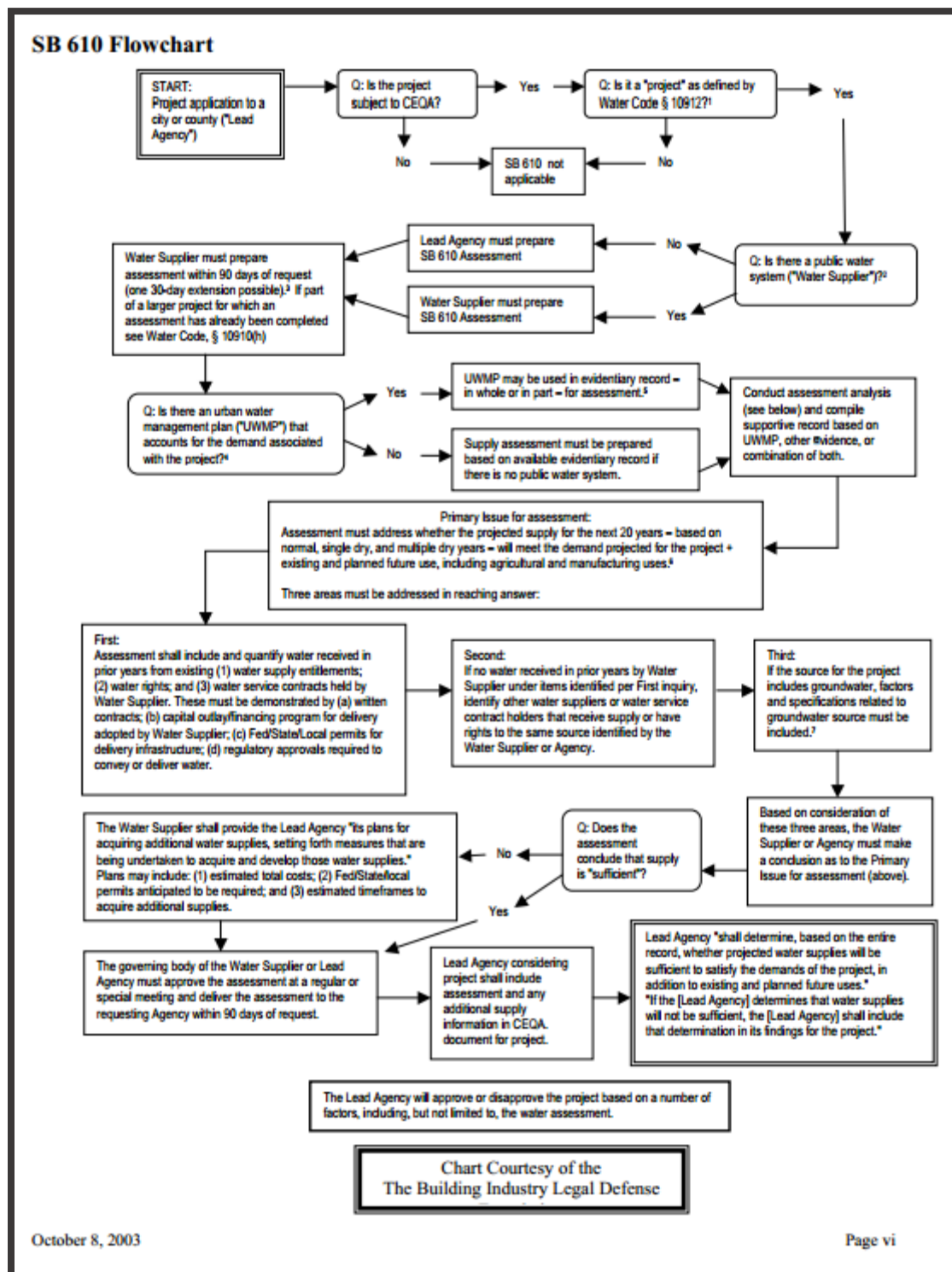
The project has the ability to provide sufficient water based on email correspondence with Inspector Duff of LAFD stating six (6) adjacent fire hydrants yield 9,000 gpm at 20 psi. The existing City system can adequately provide service to the building for domestic and sprinkler needs.

REFERENCES

1. City of Los Angeles, "*L.A. CEQA Thresholds Guide: Your Resource for Preparing CEQA Analyses in Los Angeles (Thresholds Guide)*," 2006
2. "Clean Water Act," <http://www2.epa.gov/laws-regulations/summary-clean-water-act>
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4. Los Angeles Department of Water & Power, "Urban Water Management Plan" (UWMP), 2010
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6. "GOVERNMENT CODE SECTION 65591-65599," <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=65001-66000&file=65591-65599>
7. City of Los Angeles Department of Public Works, Bureau of Sanitation, Watershed Protection Division, "Low Impact Development Manual," June 2011
8. Los Angeles Fire Code, Division 9, http://lafd.org/prevention/hydrants/division_9_fc.html
9. Bureau of Engineering, "Table F229-Average Daily Flow Projections", Effective Date: April 06, 2012.
10. Los Angeles Department of City Planning, New Community Plan Program, Adopted (1988) Hollywood Community Plan; <http://planning.lacity.org/cpu/Hollywood.html>
11. Los Angeles Department of Water and Power, Water Supply Division Guidelines for Gravity & Pump System.

APPENDICIES

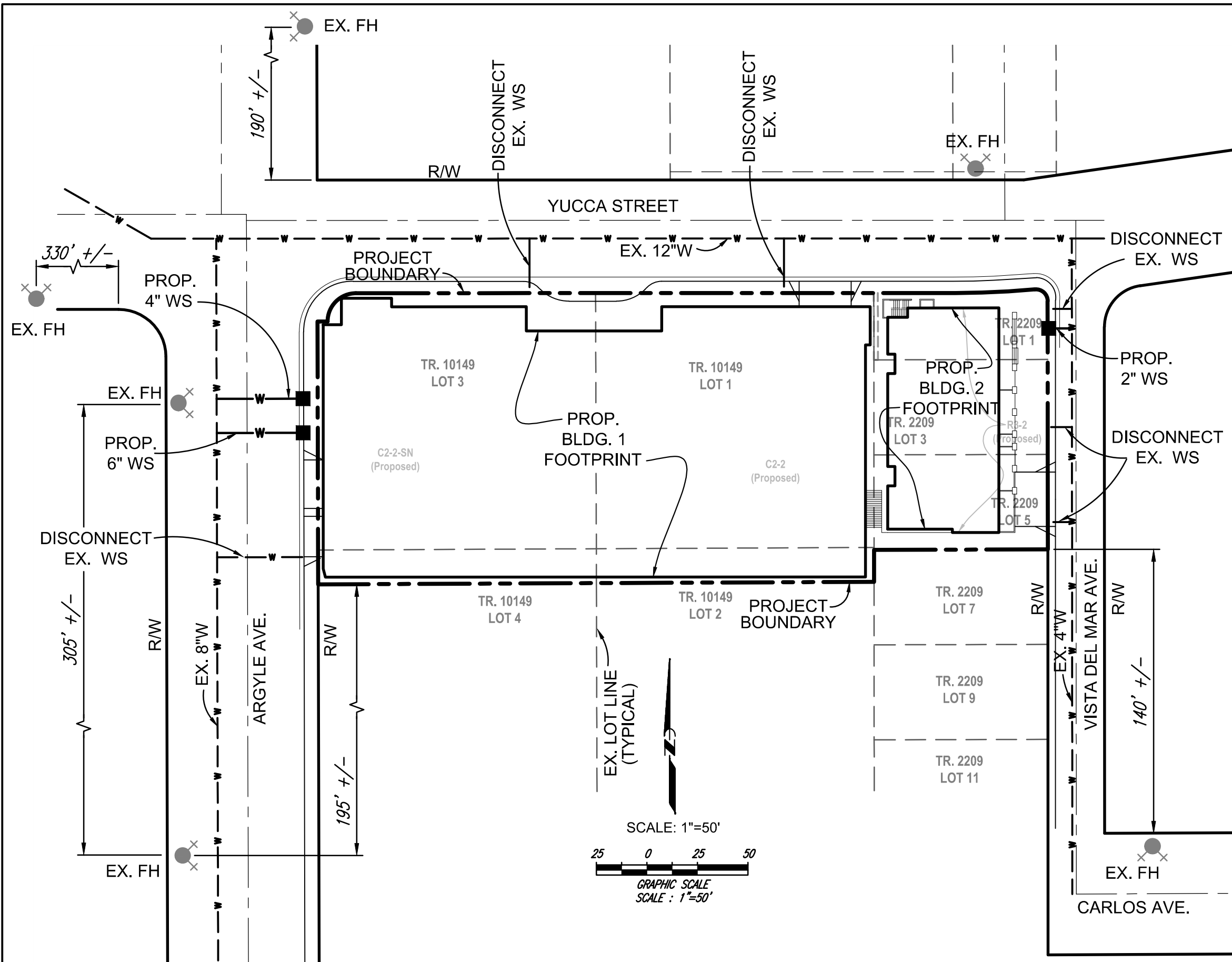
Appendix I - Excerpt from SB 610 defining a "project"



Appendix II – Existing and Proposed Water System Map

See following page.

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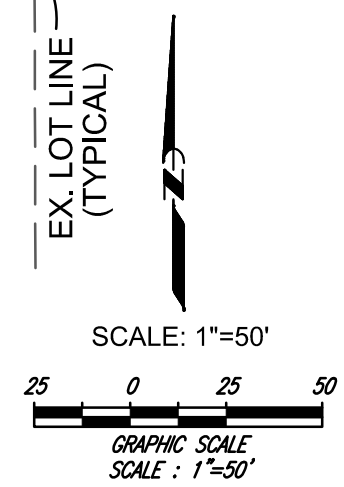
LEGEND

EXISTING FIRE HYDRANT

EXISTING WATER

PROPOSED WATER

PROPOSED METER



'6220 WEST YUCCA'

EXISTING AND PROPOSED
WATER SYSTEM MAP

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Date

Sheet 1 of 1

APPENDIX II

Appendix III – SAR Report and Fixture Unit Count

See following pages.

Project Name: 6220 West Yucca

Project address: 6220 West Yucca Street, Los Angeles, California 90028

Site A&B

| Fixture Unit Types | | F.U. Value | Quantity | Total | SITE AMOUNT | SITE TOTAL (FU) | GRAND TOTAL (FU) | |
|--------------------|--|------------|----------|-------|-------------|-----------------|------------------|---------------------|
| 1 Bed | Bathtub or Combination Bath/Shower | 4 | 1 | 4 | 99 | 396 | 5276 | = 700 gpm; 6" meter |
| | Water Closets | 2.5 | 1 | 2.5 | 99 | 247.5 | | |
| | Lavatories | 1 | 1 | 1 | 99 | 99 | | |
| | Kitchen Sinks | 1.5 | 1 | 1.5 | 99 | 148.5 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 99 | 148.5 | | |
| | Clothes Washers | 4 | 1 | 4 | 99 | 396 | | |
| 2 Bed | Bathtub or Combination Bath/Shower | 4 | 2 | 8 | 88 | 704 | 3774.5 | = 550gpm; 6" meter |
| | Water Closets | 2.5 | 2 | 5 | 88 | 440 | | |
| | Lavatories | 1 | 3 | 3 | 88 | 264 | | |
| | Kitchen Sinks | 1.5 | 1 | 1.5 | 88 | 132 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 88 | 132 | | |
| | Clothes Washers | 4 | 1 | 4 | 88 | 352 | | |
| 3 Bed (Suite) | Bathtub or Combination Bath/Shower | 4 | 3 | 12 | 10 | 120 | | |
| | Showers | 2 | 0 | 0 | 10 | 0 | | |
| | Water Closets | 2.5 | 3 | 7.5 | 10 | 75 | | |
| | Lavatories | 1 | 5 | 5 | 10 | 50 | | |
| | Kitchen Sinks | 1.5 | 1 | 1.5 | 10 | 15 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 10 | 15 | | |
| | Clothes Washers | 4 | 1 | 4 | 10 | 40 | | |
| Hotel (rooms) | Bathtub or Combination Bath/Shower | 4 | 1 | 4 | 116 | 464 | | |
| | Water Closets | 2.5 | 1 | 2.5 | 116 | 290 | | |
| | Lavatories | 1 | 2 | 2 | 116 | 232 | | |
| Hotel (suites) | Showers | 2 | 1 | 2 | 20 | 40 | | |
| | Water Closets | 2.5 | 1 | 2.5 | 20 | 50 | | |
| | Lavatories | 1 | 2 | 2 | 20 | 40 | | |
| | Kitchen Sinks | 1.5 | 0 | 0 | 20 | 0 | | |
| Bar | Lavatories | 1 | 1 | 1 | 1 | 1 | | |
| | Water Closets | 2.5 | 1 | 2.5 | 1 | 2.5 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 1 | 1.5 | | |
| | Bar Sinks | 2 | 1 | 2 | 1 | 2 | | |
| Pool | Showers | 2 | 2 | 4 | 1 | 4 | | |
| | Lavatories | 1 | 1 | 1 | 1 | 1 | | |
| | Water Closets | 2.5 | 1 | 2.5 | 1 | 2.5 | | |
| Restaurant (P1) | Kitchen Sinks | 1.5 | 3 | 4.5 | 1 | 4.5 | | |
| | Dishwashers | 1.5 | 2 | 3 | 1 | 3 | | |
| | Bar Sinks | 2 | 0 | 0 | 1 | 0 | | |
| | Mop or Service Sinks | 3 | 1 | 3 | 1 | 3 | | |
| | Water Closets | 2.5 | 1 | 2.5 | 1 | 2.5 | | |
| | Lavatories | 1 | 1 | 1 | 1 | 1 | | |
| | Urinals with 1.0 GPF Flushometer Valve | 4 | 0 | 0 | 1 | 0 | | |
| Restaurant (1st) | Kitchen Sinks | 1.5 | 3 | 4.5 | 1 | 4.5 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 1 | 1.5 | | |
| | Bar Sinks | 2 | 0 | 0 | 1 | 0 | | |
| | Mop or Service Sinks | 3 | 1 | 3 | 1 | 3 | | |
| | Water Closets | 2.5 | 2 | 5 | 1 | 5 | | |
| | Lavatories | 1 | 2 | 2 | 1 | 2 | | |
| | Urinals with 1.0 GPF Flushometer Valve | 4 | 0 | 0 | 1 | 0 | | |
| Restaurant (4th) | Kitchen Sinks | 1.5 | 4 | 6 | 1 | 6 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 1 | 1.5 | | |
| | Bar Sinks | 2 | 1 | 2 | 1 | 2 | | |
| | Mop or Service Sinks | 3 | 1 | 3 | 1 | 3 | | |
| | Water Closets | 2.5 | 2 | 5 | 1 | 5 | | |
| | Lavatories | 1 | 2 | 2 | 1 | 2 | | |
| | Urinals with 1.0 GPF Flushometer Valve | 4 | 0 | 0 | 1 | 0 | | |
| Meeting Room | Lavatories | 1 | 4 | 4 | 1 | 4 | | |
| | Water Closets | 2.5 | 4 | 10 | 1 | 10 | | |
| | Urinals with 1.0 GPF Flushometer Valve | 4 | 1 | 4 | 1 | 4 | | |
| Gym | Showers | 2 | 4 | 8 | 1 | 8 | | |
| | Lavatories | 1 | 4 | 4 | 1 | 4 | | |
| | Water Closets | 2.5 | 3 | 7.5 | 1 | 7.5 | | |
| | Urinals with 1.0 GPF Flushometer Valve | 4 | 1 | 4 | 1 | 4 | | |
| Spa | Showers | 2 | 4 | 8 | 1 | 8 | | |
| | Lavatories | 1 | 4 | 4 | 1 | 4 | | |
| | Water Closets | 2.5 | 3 | 7.5 | 1 | 7.5 | | |
| | Urinals with 1.0 GPF Flushometer Valve | 4 | 1 | 4 | 1 | 4 | | |
| | | | | | | | 1245 | = 240 gpm; 4" meter |

Site C

| | | | | | | | | |
|-------|------------------------------------|-----|---|-----|---|------|-------|--------------------|
| 1 Bed | Bathtub or Combination Bath/Shower | 4 | 1 | 4 | 5 | 20 | | |
| | Water Closets | 2.5 | 1 | 2.5 | 5 | 12.5 | | |
| | Lavatories | 1 | 1 | 1 | 5 | 5 | | |
| | Kitchen Sinks | 1.5 | 1 | 1.5 | 5 | 7.5 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 5 | 7.5 | | |
| | Clothes Washers | 4 | 1 | 4 | 5 | 20 | | |
| 2 Bed | Bathtub or Combination Bath/Shower | 4 | 2 | 8 | 8 | 64 | 256.5 | = 78 gpm; 2" meter |
| | Water Closets | 2.5 | 2 | 5 | 8 | 40 | | |
| | Lavatories | 1 | 3 | 3 | 8 | 24 | | |
| | Kitchen Sinks | 1.5 | 1 | 1.5 | 8 | 12 | | |
| | Dishwashers | 1.5 | 1 | 1.5 | 8 | 12 | | |
| | Clothes Washers | 4 | 1 | 4 | 8 | 32 | | |

Appendix IV– Fixture Units Vs GPM Conversion Table

See following pages.

A. Demand Load

| Fixture Units versus g.p.m. Conversion Table | | | | | | | | |
|--|---------------|-------------|--------|---------------|-------------|--------|---------------|-------------|
| Flow | Fixture Units | | Flow | Fixture Units | | Flow | Fixture Units | |
| g.p.m. | Flush Tank | Flush Valve | g.p.m. | Flush Tank | Flush Valve | g.p.m. | Flush Tank | Flush Valve |
| 1 | 0 | - | 22 | 34 | 5 | 43 | 99 | 33 |
| 2 | 1 | - | 23 | 36 | 6 | 44 | 103 | 35 |
| 3 | 3 | - | 24 | 39 | 7 | 45 | 107 | 37 |
| 4 | 4 | - | 25 | 42 | 8 | 46 | 111 | 39 |
| 5 | 6 | - | 26 | 44 | 9 | 47 | 115 | 42 |
| 6 | 7 | - | 27 | 46 | 10 | 48 | 119 | 44 |
| 7 | 8 | - | 28 | 49 | 11 | 49 | 123 | 46 |
| 8 | 10 | - | 29 | 51 | 12 | 50 | 127 | 48 |
| 9 | 12 | - | 30 | 54 | 13 | 51 | 130 | 50 |
| 10 | 13 | - | 31 | 56 | 14 | 52 | 135 | 52 |
| 11 | 15 | - | 32 | 58 | 15 | 53 | 141 | 54 |
| 12 | 16 | - | 33 | 60 | 16 | 54 | 146 | 57 |
| 13 | 18 | - | 34 | 63 | 18 | 55 | 151 | 60 |
| 14 | 20 | - | 35 | 66 | 20 | 56 | 155 | 63 |
| 15 | 21 | - | 36 | 69 | 21 | 57 | 160 | 66 |
| 16 | 23 | - | 37 | 74 | 23 | 58 | 165 | 69 |
| 17 | 24 | - | 38 | 78 | 25 | 59 | 170 | 73 |
| 18 | 26 | - | 39 | 83 | 26 | 60 | 175 | 76 |
| 19 | 28 | - | 40 | 86 | 28 | 62 | 185 | 82 |
| 20 | 30 | - | 41 | 90 | 30 | 64 | 195 | 88 |
| 21 | 32 | - | 42 | 95 | 31 | 66 | 205 | 95 |

Fixture Units versus g.p.m. Conversion Table

| Flow | Fixture Units | | Flow | Fixture Units | | Flow | Fixture Units | |
|--------|---------------|-------------|--------|---------------|-------------|--------|---------------|-------------|
| g.p.m. | Flush Tank | Flush Valve | g.p.m. | Flush Tank | Flush Valve | g.p.m. | Flush Tank | Flush Valve |
| 68 | 215 | 102 | 135 | 559 | 460 | 300 | 1755 | 1755 |
| 70 | 225 | 108 | 140 | 585 | 490 | 310 | 1845 | 1845 |
| 72 | 236 | 116 | 145 | 611 | 521 | 320 | 1926 | 1926 |
| 74 | 245 | 124 | 150 | 638 | 559 | 330 | 2018 | 2018 |
| 76 | 254 | 132 | 155 | 665 | 596 | 340 | 2110 | 2110 |
| 78 | 264 | 140 | 160 | 692 | 631 | 350 | 2204 | 2204 |
| 82 | 284 | 158 | 165 | 719 | 666 | 360 | 2298 | 2298 |
| 84 | 294 | 168 | 170 | 748 | 700 | 370 | 2388 | 2388 |
| 86 | 305 | 176 | 175 | 778 | 739 | 380 | 2480 | 2480 |
| 88 | 315 | 186 | 180 | 809 | 775 | 390 | 2575 | 2575 |
| 90 | 326 | 195 | 185 | 840 | 811 | 400 | 2670 | 2670 |
| 92 | 337 | 205 | 190 | 874 | 850 | 410 | 2765 | 2765 |
| 94 | 348 | 214 | 200 | 945 | 931 | 420 | 2862 | 2862 |
| 96 | 359 | 223 | 210 | 1018 | 1009 | 430 | 2960 | 2960 |
| 98 | 370 | 234 | 220 | 1091 | 1091 | 440 | 3060 | 3060 |
| 100 | 380 | 245 | 230 | 1173 | 1173 | 450 | 3150 | 3150 |
| 105 | 406 | 270 | 240 | 1254 | 1254 | 500 | 3620 | 3620 |
| 110 | 431 | 295 | 250 | 1335 | 1335 | 550 | 4070 | 4070 |
| 115 | 455 | 329 | 260 | 1418 | 1418 | 600 | 4480 | 4480 |
| 120 | 479 | 365 | 270 | 1500 | 1500 | 700 | 5380 | 5380 |
| 125 | 506 | 396 | 280 | 1583 | 1583 | 800 | 6280 | 6280 |
| 130 | 533 | 430 | 290 | 1668 | 1668 | 900 | 7280 | 7280 |

Fixture Units versus g.p.m. Conversion Table

| Flow | Fixture Units | | Flow | Fixture Units | | Flow | Fixture Units | |
|--------|---------------|-------------|--------|---------------|-------------|--------|---------------|-------------|
| g.p.m. | Flush Tank | Flush Valve | g.p.m. | Flush Tank | Flush Valve | g.p.m. | Flush Tank | Flush Valve |
| 1000 | 8300 | 8300 | 1600 | 14420 | 14420 | 2200 | 20540 | 20540 |
| 1100 | 9320 | 9320 | 1700 | 15440 | 15440 | 2300 | 21560 | 21560 |
| 1200 | 10340 | 10340 | 1800 | 16460 | 16460 | 2400 | 22580 | 22580 |
| 1300 | 11360 | 11360 | 1900 | 17480 | 17480 | 2500 | 23600 | 23600 |
| 1400 | 12380 | 12380 | 2000 | 18500 | 18500 | 2600 | 24620 | 24620 |
| 1500 | 13400 | 13400 | 2100 | 19520 | 19520 | 2700 | 25640 | 25640 |

A. Permissible Friction Loss

1. Section 94.608.1 of the Los Angeles Plumbing Code requires a residual pressure of at least 15 psi. Whenever fixtures and/or fixture fittings are installed which require residual pressure higher than 15 psi, that minimum pressure shall be provided.
2. Sections 94.610.12.1 and 94.610.12.2 limit the maximum velocities in copper and copper alloy tube and fitting systems to a maximum of 8 ft/s in cold water and 5 ft/s in hot water. The following table reports the fixture unit loading in type L copper (the most common) for various allowable friction losses and water velocities not to exceed the maximum allowed. For pressure losses of 25 psi per 100 feet of pipe and higher, the system is limited by the maximum velocity, and at this point a higher allowable loss will make no difference in the sizing of the water system.

Appendix V– Correspondence with LAFD

From: Robert Duff [<mailto:robert.duff@lacity.org>]
Sent: Friday, January 29, 2016 1:55 PM
To: Julian Ramon Jr.
Subject: Re: Fire Flow Report from LADWP

Talked to Mark Patterson today, flowing 6 fire hydrants near 6220 Yucca St can yield 9,000 gpm at 20 psi.

On Tue, Jan 26, 2016 at 4:11 PM, Julian Ramon Jr. <Julian.Ramon@aon.com> wrote:

Good Afternoon Inspector Duff,

I just wanted to follow up with you regarding the fire flow procedure with LADWP. Please call me or email if there have been any updates.

Thank you again for all your help and time regarding this matter.

Regards,

Julian Ramon Jr. | Consultant

Aon Fire Protection Engineering Corporation

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From: Julian Ramon Jr.
Sent: Thursday, January 21, 2016 10:49 AM
To: 'robert.duff@lacity.org'
Cc: Vidar Landa; Ann Chavez
Subject: Fire Flow Report from LADWP

Good morning Inspector Duff,

Thank you for providing me with your contact information the last time I was in the LAFD office.

I wanted to reach out to you because I have a projects that require a fire flow test report, 6220 Yucca. The flow requirements are based on the LA Fire Code Chapter 5 Section 507.3 and to be conservative I am requesting from LADWP the most flow they can deliver to each respective address or as close as we can get to 9,000 gpm from 4 hydrants flowing simultaneously.

LADWP wants to know if you would accept an LA County Fire Flow report. If so, we would also like to know which 4 hydrants you would like us to use for the model. Please feel free to call me at 213-630-1366 or 213-321-9981.

Regards,

Julian Ramon Jr. | Consultant

Aon Fire Protection Engineering Corporation

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